Teachers’ Competence in Using Information and Educational Internet Resources in the Education Process

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Abstract
This paper discusses teachers’ levels of competence in the use of information and education Internet resources in the education process, which are very relevant for contemporary teachers. We can distinguish two main categories of activity: 1. Purposeful and effective use of information and educational Internet resources by users (learners and teachers). 2. Ability to create one’s own didactic resources and develop an informational and educational environment: each main skill included in teacher competence comprises a number of sub-skills, presented in an ascending order: 1.1. Search activities on the basis of a thematic hierarchical directory; 1.2. Search activities using search programmes (software search engines); 1.3. Skills to evaluate sites for efficient use in the educational process; 1.4. Using the potential of information and educational Internet resources for the research activities of students in the learning process; 1.5. Skills in area of the objective and comprehensive assessment of a distance course. 2.1. Developing own educational environment in the form of thematic catalogue of the subject area or a personal web-site; 2.2. Training and assisting students in developing their own information and educational resources on the basis of Internet technologies; 2.3. Participation in the development of an educational portal (school, region, etc.). Use of educational portal resources; 2.4. Development and conducting of distance learning courses using a Content Learning Management System (CLMS MOODLE, Claroline, ATutor, Dokeos, etc.); 2.5. Use of all (or most) Web 2.0 services for development of one’s own information and education environment. The author also describes examples and methodological bases for the implementation of these skills into practice at school.

Keywords
Internet. Information and education environment. Internet resources. Levels of teacher competence. CMS. CLMS. Connectivism.

Introduction
Possible applications of information and educational Internet resources in the learning process are varied in both form and content and have great educational and developmental potential. Although in recent years, according to statistical data, almost 100% of schools have been provided with Internet connection the number of teachers who use the Internet in their classrooms has changed disproportionately, rising only slightly. Additionally, if we analyze the actual use of the
Internet and in particular, Internet resources, we can see that not all possibilities of its use are being fully realized and the stated objectives are not being met. It is important to consider the activities that are appropriate to implement research, using the pedagogical potential of information and educational Internet resources.

Summing up the study into various approaches in using ICT tools in learning activities, it is appropriate to distinguish ten directions corresponding to the levels of teacher competence in using information and educational Internet resources (by ascending order of skill level).

But on the other hand, in order for the teacher to grow professionally, and with her/him, IT competence in the use of information and communication technologies, particularly Internet technology in the learning process, the teacher must be aware of all the variety of opportunities to use Internet resources (Dashnist, 2003), (Smyrna-Trybulska, 2007), as well as options for use of these technologies, depending on the technical, technological, educational, organizational possibilities and conditions of schools, students' skills, educational purposes, etc. We can distinguish two main categories of activity:

1. Purposeful and effective use of information and educational Internet resources by users (learners and teachers);
2. Ability to create one’s own didactic resources and develop the informational and educational environment.

Below are presented the options of using information and educational Internet resources in the educational and cognitive activity and corresponding levels of teacher IT skills.

The use of information and educational internet resources by users (learners and teachers)

Search activities on the basis of thematic hierarchical directory

This kind of activity is recommended for novice users, who are required to only be familiar with addresses and only to be able to use browsers to reach a given website, as well as the folder "Favourites" for ready reference and to create their own database of Internet resources. The advantage of this kind of activity lies in the fact that websites with a generalized hierarchical structure contain a large number of links to various resources which in turn comprise other, supplementary information. The disadvantages of this type of data retrieval include abundance of material, non-essential in terms of specific learning tasks and distractions from the purpose of the users. On the other hand, the extent of information and educational environment and its vast resources require the ability to distinguish primary from secondary data and motivate direction and critical thinking.

Teachers’ skills: Possession of techniques and methods for working with data and materials and the use of ICT and other technologies and resources (e.g., search for information in encyclopaedias (including online encyclopaedias), books, magazines, maintenance and suitable use).

Search activities using search programmes (software search engine)

Quite often, users do not have the addresses of Internet resources and therefore must have the necessary skills on their own to find the information they need on the Internet. In this connection, the next level of search (as well as the level of use) is to organize search by keyword, expression, and also with the use of advanced search. Here, the necessity of making the ability to properly make a search request, selecting the right keywords, the number and quality of which depends on the nature and location of the request. Use of advanced search, described in each search programme ("advanced search"), to reduce data redundancy, resulting from the search is a very important aspect in finding the required information. Students should be taught to regularly and systematically use it in order to avoid the viewing of hundreds and thousands of unnecessary pages.

The more keywords are entered into the search box as criteria, the more likely it is that the search will be reasonable and relevant web resource will be found among the first hits. These skills need to be strengthened not only on science subjects lessons, but also during all other lessons. For example, to find information about the Nobel Prize for Marie Curie-Skłodowska in 1911 need to type a few keywords or by a sign “+” or “or”: Noblists+Marie Curie-Skłodowska+1911. Or to use Find articles options and text fields: „with all of the words”, with the exact phrase, with at least one of the words, without the words, where my words occur; Author: Return articles written by, Publication: Return articles published In; Date: Return articles published between, Collections options, and others (http://scholar.google.com/advanced_scholar_search).

Teachers should regularly use the Internet to achieve a variety of professional goals and to strengthen their skills constantly in search of necessary information in practice.

Skills to evaluate sites for efficient use in the educational process

Assessing the quality of information services appearing on the Internet is very difficult because the evaluation criteria are constantly changing and rating elements are selected on an individual basis. That which has value for one user may be unnecessary for another. Therefore, if we want to assess the information found on the Internet, we should remember that some general rules have been adopted and they are worth knowing and using. Why should we assess the quality of the information as it appears on the web? Because (Bednarek-Michalska, 2002):

- The quality of supplied or abstracted information has an effect on the status and level of education and public awareness.
As the amount of messages and data on the Internet grows, its evaluation and selection is essential.

The future will be linked to information and new technologies and the skill to evaluate the quality of information will be necessary in any profession.

Quality is a category that is more and more often being referred to in all areas of life, not only in connection with information.

As far as information evaluation is concerned, it is similar to the evaluation of information transmitted in the traditional form. Especially if we take into account the evaluation of content. The differences lie in the form of expression of the content and form is mainly a result of Web hypertext system for sharing information. It also has a significant effect on the quality of information. The use of modern information technology has completely changed the availability of information, the way it is updated, aesthetic features and processing capabilities.

If we analyze and evaluate an educational website, we obviously pay attention also to the reliability, current status, interactivity, provision of links and other feedback. Until recently, when we talked about the Internet and the possibilities it provides for the transmission and the availability of news, often we were excited by the flow rate of the documents, the amount of data, variety of formats, graphics capabilities, tools, search tools, but we did not reflect so much on the quality of data the Internet has to offer. Now, after several years, seeing the problem of data redundancy, we begin to more frequently analyze quality. There is growing literature on this subject, which discusses in detail the criteria for evaluating electronic information. The proprietary proposal to evaluate a website for use in the educational process has been developed by the author of the article and is available in distance courses on the faculty e-learning platform http://el2.us.edu.pl/weinoe.

Using the potential of information and educational Internet resources for the research activities of students in the learning process

On the basis of exploring the potential of distributed information resources teachers can use this potential directly in research tasks in their subject area. By getting students to implement research projects with the use of information and educational resources of the Internet as online and off-line classroom and homework assignments, they can be specifically addressed to the specific resources to explore the necessary information on organization and conduct of research, the study methodology of the experiment, the viewing experience, etc.

For example, it can be applied in on-line Virtual Labs - an innovative method of education, applied at various educational levels. On the http://www.laboratoria.wsl.com.pl/, http://www.wolf.if.pw.edu.pl/index.php?go=laboratorium-mag there are available all the necessary materials to conduct workshops and laboratory work in the field of Logistics, Freight Forwarding, Warehousing in secondary schools. Virtual Physics Laboratory - WLF is a set of simulated experiments in physics, partly developed within the European project VccSSe and Warsaw University of Technology and Development Program (PRPW), which can be regarded as materials that support the teaching of physics in secondary schools and at universities, as well as supplementary materials to the physics laboratory and the Department of Physics, PW (http://wlf.if.pw.edu.pl/).

The aim of the Virtual Laboratory for Artificial Intelligence is to provide the basics and applications of artificial intelligence using web technologies (web pages). Available materials illustrate the principles of neural networks and can; be used as aids to the objects in this area, including the time course of computer science in secondary school (http://galaxy.agh.edu.pl/~vlsi/ai/)
Further examples. Using a resource http://nyelabs.org, you can get a list of detailed descriptions of experiments and demonstrations that can be done at home. In addition to the usual content of a textbook on astronomy through the resources of the web page of the Center for Space Research NASA (www.nasa.gov), you can view regularly updated photos and video clips, filmed during the flights and expeditions of spacecraft and satellites to the surfaces of planets, distant galaxies etc. This is a very important and useful tool because information on space quickly lose their current status. The information and educational resources called „Ask the scientists” (http://www.jpl.nasa.gov) allows you to provide feedback in the studies of different space phenomena and find a competent scientific opinion on the subject of interest in astronomy and astrophysics, etc. (Dashnits, 2003)

Such projects can be simply and efficiently implemented on the basis of the potential use of multimedia teaching opportunities through which this information is delivered. The data collected in the teaching and search process and research work should be used to supplement the information and educational resources on specific subjects on school websites (links, articles, photos, videos, commentaries, etc.).

The complexity of this activity lies in the fact that the use of some of the described resources requires a teacher to have special scientific background and the skills to adapt resources to students’ needs and to produce explanatory material.

An advance type of the aforementioned competences can include joint research with other partners (classes, schools, etc.) based on Internet technologies and information and education resources of the subject areas.

When organizing and conducting joint research with other partners, in addition to work with information and educational Internet resources the subject-area the teacher needs to have: communication and organizational skills to find a partner on the project, plan and organize students to work together to hold a general discussion forum (to be a moderator), managing the results obtained jointly, to choose the best form for submission and publication (presentation, web page, video, etc.).

The source of the organization of this kind of activity can be the following resource: Global SchoolNet (http://www.globalschoolnet.org/index.html), which allows to make suitable choices of the existing areas of research and submit one’s ideas and find partners who want to take part in the implementation. Global SchoolNet’s mission is to support 21st century learning and improve academic performance through content-driven collaboration. It engages educators and students in meaningful e-learning projects worldwide to develop science, math, literacy and communication skills, foster teamwork, civic responsibility and collaboration, encourage workforce preparedness and create multi-cultural understanding. It also prepares youth for full participation as productive and compassionate citizens in an increasing global economy. Founded in 1984, GSN is a 501(c)3 non-profit education organization (http://www.globalschoolnet.org/index.html).

Similarly, you can use other similar resources (www.mcrel.org, www.epals.com, etc.)

The advantages of this type of activity include the synergies of educational nature, including the formation of a sense of tolerance, acceptance and understanding of other cultures through working with people of different cultures, creed, languages, traditions, etc. Students can see the similarities and differences of the learning process and learning process of their partners, which enhances mutual understanding and ensures the effectiveness of joint activities, and fosters a sense of belonging to the global information society.

The disadvantage of this type of activity is the result of reduced control over the learning organization as compared to a similar project within the same class. In addition, joint work is complicated by the characteristics of participants in the learning environment, time zones
differences for the organization of interactions in real time, language differences, traditions, mentality, etc. The teacher should possess skills and experience in effective and successful coordination of similar students’ activities.

**Skills in area the objective and comprehensive assessment of a distance course**

The use of e-learning platform and distance courses distributed by other educational institutions becomes one of the important components of the methods used by the teacher who uses, for example, a specific course to support the teaching of his subject, a course for talented students, or as a course advisory etc.

That is why it is so advisable for every teacher to have competences in comprehensive, objective evaluation of eLearning courses, prior to their wide deployment in the educational process, in order to assess how valuable it is and whether it meets the expectations of effective use in the teaching-learning process.

In order to comprehensively evaluate the usefulness of a distance course offered over the Internet, one needs to use a set of specific standards by which the course can be judged. For this purpose, a number of reliable objective criteria can be used. For example, the criteria described in (Smyrnova-Trybulska, 2009) are recommended to be considered when developing and evaluating distance courses.

**Developing own informational and educational environment**

**Developing own educational environment in the form of thematic catalogue of the subject area or a personal web-site**

The level of complexity of this activity is not different to the previous one, but it requires of teachers additional knowledge and skills in the creation of Web pages. Technically, the easiest way is to create text pages via an ordinary Word editor and save them as HTML-documents. Thematic catalogues should be structured by topics of the relevant subject area, there should be a short commentary on the content, supplemented with presentations and examples of use. Because school websites, as defined and formulated according to requirements and principles of its creation, are an open resource, building of such these pages is not particularly difficult.

An additional advantage is the ability to reduce search time students need to study the resources and, therefore, effective use of resources during the lesson. In addition, it allows the teacher to simultaneously improve her/his skills and provide students with important information for the study of the topic. In order to publish such a resource on the Internet, one needs to use, for example, a publicly accessible server, for example www.republika.pl, www.narod.ru or other. The subjects and nature of projects may be various: thematic, personal page, group project, etc. An important modern tool for the creation of thematic catalogues or databases of knowledge is the Wiki. As an example of creating such a resource we can recommend using http://wiki.io5.bielisko.pl/index.php/Strona_g%5Bw%2C3%5D, B3wna, http://staff.edu.pl/virtual_lab/000001-strona-g----wna.html, other. It should be emphasized that thus created the resources of must be checked periodically for accuracy of links and updated as new resources from a given subject area.

Virtual Chemical Laboratory Project was initiated in February 2010 as part of the fifth edition of the Warsaw educational initiatives. The author of this project is Ms Beata Ostrowska, a chemistry teacher at the Group of Secondary Schoolsat Wiśniowa Street 56 in Warsaw. The project was open to
all willing students of the school. The aim was to create a database of school teaching materials for teaching chemistry, which will benefit students and teachers of the School on Wiśniowa. Students of forms 2TC, 1lc, 1TB, 1ld, 3TA, 3TB and 2lc were particularly involved in the project activities. The project website presents the results of their work in the form of own-made movies, multimedia presentations and computational programs. http://staff.edu.pl/wirtual_lab/000001-strona-g----wna.html.

Another example of a database of chemistry teaching materials in the form of a virtual laboratory: http://www.chemia.pk.edu.pl/wydzial/info/c1/mcho/wlab/#. On each virtual table there are additional materials for the lectures. We recommend that you read them gradually and thoroughly. They will prove helpful in acquiring knowledge and skills (and even when it comes to examinations). You can find here various additional texts (written in Polish or English). There are also interactive drawings, diagrams and animation - virtual experiments. They illustrate the phenomena mentioned during lectures, so you may want to experiment, but also read descriptions prepared for them. (http://www.chemia.pk.edu.pl/ wydzial/info/c1/mcho/wlab/#)

Training and assisting students in developing their own information and educational resources on the basis of Internet technologies

One such form of activity is the participation in an international organization called Think Quest (www.thinkquest.org), which has declared as its goal the creation of an information and educational Internet resources by international groups of students, exhibiting specific national characteristics of the education completed by each individual student group member.

A necessary condition for participation in the activities of this organization is the presence of an international team of students and teachers-trainers. Next the team, through telecommunication means, selects a topic of research associated with in-depth study of a scientific topic (or multiple topics), designs its information and educational resources, and publishes them on the site. All stages of the resource, as well as communication between the participants are carried out over the Internet. This form allows one to establish closer ties between teachers and students in the learning process that aims to create a resource from the results of the study of selected topics. This changes the role of the teacher, who acts as a consultant and organizer of the research activities of students. In addition, teacher-coaches exchange ideas to improve their strategic activities to achieve the objectives and obtain the necessary results. Parallel to this, students who acquire skills in technology of web page design in turn can become teachers’ consultants, which increases their self-esteem and sense of worth.

Creation of information and educational resources on the Internet requires from the participants (including the teachers) the allocation of great deal of their time, even at the expense of extracurricular time. But the effect and satisfaction from the work done usually pays for the time spent, because students more deeply "immersed" in the subject taught, and teachers have the opportunity to acquire more thoroughly the technology to create web-pages.

Effective use can also be made of such technologies as Web 2.0. such as Wikis, Blogging, Microblogging, Podcasting, Videocasting (Hyper Cam, Adobe Captivate, etc.) that can be accessed on the level of school website.

The important category of the teacher skills is the coordination of the development of Web Quest (WebQuest) by students. Web Quest is the information and educational resource on the Web, serving educational purposes on a particular subject, which satisfies the requirements for educational facilities (www.webquest.org)
A WebQuest is an inquiry-oriented lesson format in which most or all the information that learners work with comes from the web. The model was developed by Bernie Dodge at San Diego State University in February, 1995 with early input from SDSU/Pacific Bell Fellow Tom March, the Educational Technology staff at San Diego Unified School District, and waves of participants each summer at the Teach the Teachers Consortium (http://webquest.org/index.php). This is a separate type of activity that is designed for teachers who are interested in developing an information and educational environment for their courses in the form of information and educational resources and who have the competence in the field of independent webpage design. The teacher develops a scenario of all possible variants of use of future resources, gives the student (or group of students) a list of tasks to do, a list of essential information and educational resources, the requirements for skills and knowledge that students should acquire while working in the information and educational environment, the criteria for evaluation of their activities. Time limits for the completion of the tasks are set in advance, taking into account both in-class and extracurricular students’ workload.

Work on the Web Quest requires from students to look deeper into the subject, which research activity also requires. They act as the organizers of the formation of knowledge among the future users of this resource. Students should be like higher rank researchers, analyzing the possible situations that may be faced by persons who will be working with this resource, comparing different points of view and positions, combining different versions of data, methods of presentation, assessing different situations.

Obviously, the creation of a good teacher resource requires a lot of time and skills to structure the data that best meet those educational goals and objectives for the sake of which the resource was conceived and created. Not all teachers (and especially students) are capable of accomplishing this task. It is also quite a task to select the material and its content and scope. This activity activates and integrates all the knowledge and skills acquired and formed at the previous levels of use of Internet technologies. More detailed concept of web-quests, and examples of projects are presented in the author’s distance course "Project-based learning and training in co-operation" on the distance learning platform http://el2.us.edu.pl/weinoe and on the web-sites: http://webquest.furgol.org/, http://www.ii.uni.wroc.pl/~eko/webquest/, http://artplastyk.republika.pl/portrety.htm, http://doradca.oeilizk.waw.pl/wqlista.htm, other.

Participation in the development of an educational portal (school, region, etc.).
Use of educational portal resources

The development of thematic portals until recently was a very complex task and required developers to have advanced programming knowledge in the field of software development for web sites. Free software developers were first to realize these deficiencies, so they embarked on Creating Free Software content management systems (Content Management System) in short called CMS. A CMS should be understood as a platform allowing the user to build on their own information service or an Internet portal based on the pre-developed modules. The most well-known and popular CMSs include: Drupal, Joomla, Wordpress, Mambo and others. The Apache PHP Nuke is still used although it has lost some of its popularity. Depending on the specific type of CMS, the number of modules is different, but in all CMSs the following tools are always available: news, FAQ, Download, Links, Search, Surveys, and many others. To this list one can add other modules downloaded from the Internet or developed by oneself. Each module can be disabled at any time, or its availability will be limited to selected users. Blocks are elements of web pages that are displayed in the form of an independent frame. Modules are examples of such blocks (Smyrnova-Trybulska, 2012). Today, access to various IT systems to support the content management – Content management System (CMS) (including Open Source such as Drupal, Joomla!, WordPress, etc.), the use of which does not require advanced programming skills, yet they provide a wide range of different functions and capabilities of
their use, for example, can be placed on the portal server educational resources (news, articles, notes, papers, didactic multimedia materials and other projects, including possible to copy on your computer (download)), create a cataloged Internet resource links to support the theme, a discussion forum, chat, create a glossary of terms, concepts (general and thematic), a vote (poll) on the topic of interest and much more. To participate in the development of this interesting and useful resource, you can bring the entire class of students or schools, but especially teachers, each of whom can oversee the information and educational resources and services to interact and communicate (Chat, Forum, an internal messaging system, etc.) users of the portal on your subject. An example might be sites http://erudyta.weinoe.us.edu.pl, www.interklasa.pl, www.profesor.pl, etc. The positive side of using this method is teachers’ and students’ familiarity with useful and modern multi-purpose tools as these systems are available, as well as the possibility of creating an educational portal of school or region that presents the achievements of the institution or region, as well as links to the most interesting and useful Internet resources.

For example, more and more Polish schools are using CMS for developing their school web-sites:

  http://www.zs2-gostynin.edu.pl/index.php?option=com_frontpage&Itemid=1,
  http://www.gim1.cieszyin.pl/,
  http://www.sp1.mielec.pl/index.php?option=com_frontpage&Itemid=1, other (CMS Joomla!);

Development and conducting of distance learning courses using Content Learning Management System (CLMS MOODLE, Claroline, ATutor, Dokeos, etc.)

Today, various IT systems are available for for planning, organizing, and supporting distance learning (including Open Source: MOODLE, Claroline, Atutor, Dokeos, etc.). Their use does not require teachers (tutors) and users to have expertise in programming. These systems also provide a wide range of different functional characteristics, such as the ability to develop and deploy the system in distance learning courses that allow one to support virtually all stages of learning: planning, training, reinforcement, repetition, routine and final control, different types of interactions (as in synchronous or asynchronous mode), the means for discussion: forum, seminar, administration of the learning process (log (activity), evaluation, statistics, reports, etc.), the possibility of representing feedback and opinions about the course, both from the students and the teacher (the questionnaire, the voting (polling), questionnaire, etc.). It is important to emphasize that all of these systems are constantly developed and improved, for example, the system MOODLE now includes over 35 modules and their number is constantly growing. At the same time the functions of existing modules are being expanded too.

All teachers in a given school or region can be encouraged to participate in the creation and development of UP, each of them h can develop courses in their subjects. An example might be such sites as http://www.2lo.vdl.pl/moodle/, http://gim2mielec.kei.pl/moodle/, http://el2.us.edu.pl/weinoe, etc. The positive side of this activity is, on the one hand, familiarity of teachers and students with modern multi-functional and useful tools in form of the above systems, distance learning, and on the other hand, the possibility of creating a the school’s or region’s platform of distance learning, which will provide the possibility of conducting classes in the remote mode for different categories of users.
Use all (or most) Web 2.0 services for development of one’s own information and education environment

The highest and most advanced level is the one which integrates all the above described skills, simultaneously taking into account the implementation of the connectivism theory as a theory most adequately designed for the challenges of the digital age. Connectivism is a new theory (concept) of human learning. Its author is George Siemens, who described his theory as early as 2005 in a document entitled Connectivism: A Learning Theory for the Digital Age. According to him, learning is a process that is not under complete control of the learner and teacher. We do not have to have everything in our heads. The knowledge we have does not have to reside inside us it can be in areas outside of us (for example, organized resources, or databases), and it is our connecting to these resources that starts the learning process. The very act of connecting to (for education) is more important than what we currently know. The Connectivism theory assumes that we make decisions on the basis of a specific resource of information, which is constantly changing. New pieces of information are constantly input into this resource. The key skill is to distinguish what is relevant and what is not. Equally important is to realize at which moment in time the new information significantly changes the basis on which a given decision was made. In other words, “to know how” (know-how) or “to know what” (know-what) is replaced by “to know where” (know-where), because this is the key leading to the required body of knowledge. It becomes a meta-principle effective learning, as important as knowledge resources, which we already have (Sawicki, 2010).

Learning and teaching in the digital age can be performed according to several important principles: Preparation of information resources, networking with them and processing them; Knowledge (better educational information) discovery and ability to find and to show; Critical thinking, perception of connections between nodes; Selection the content of learning, assessment of their significance and independent decision.

More principles of connectivism can be viewed on the thematic Web-site (http://en.wikipedia.org/wiki/Connectivism) and in the theory (Downs, 2008), (Siemens, 2005, 2007). The authors of connectivism theory describe in their works (Downs, 2008) new types of educational resources (available and newly created), new concept of access to them and other important categories regarding learning and teaching process.

Information. Information becomes free and ubiquitous; easily found via personalized semantic social networks; data becomes embedded into learning resources. Learning resources as a thing - book, learning object, pages, video, audio, etc. Learning resources as events – class, lecture, seminar, conferences meeting, lecture, lessons, etc. The first two models are information-theoretic and medium-based models: they stress content; they stress rules. Learning resource as a flow: stresses experience; stresses learning recognition. What does personal learning look like? User generated content – personal, opinionated;

Interaction can be implemented across Games, Simulation, Training, Learning Objects. Games-based learning is becoming widely accepted; games and simulation are becoming more and more realistic; new tools and kits to help people program their own work. Network of interaction can be implemented across different services, such as Messenger programme (Skype, Yahoo messenger, Gadu-Gadu, etc.), Adobe Connect, Big Blue Button, etc., Forum, Social Network, other. Possible of implementation of the new kind of immersive learning (after natural integration of the constructivism, connectivism and other pedagogical theories). New roles – for the student, for teacher, for the rest of us – as teachers of Web of user generated content: Wikipedia (e.g. http://Wikipedia.org). Learning can be seen as a network phenomenon. There are different web-tools for creating environment for students and teachers: Second Life, WordPress, Diigo, other. But

Co-location changes. Learning and teaching is not going on only in traditional laboratory, classroom (Coaching, Mentoring, Interaction, Play, Creation), but also in virtual laboratories. Some good examples are described above. With such services as Second Life, Adobe Connect, Elluminate, etc. it is the possible to conduct effective cooperation and application of the Collaboration method (across: Conferencing, Meeting, Conversation, Co-creation, Teaming, Network). Collaboration is becoming more and more mobile; facilities for recording and capturing are also becoming available.

Simultaneously, some problems and issues are still arising (Downs, 2008) during the implementation of the connectivism theory and in the use of Internet services and resources in education such as too much information. There is the need for critical evaluation and verification of retrieved (found) information; too many resources to scan, new sources; localization, personalization, relevance. With the introduction of this type of educational activity, teachers should also pay special attention to critical thinking (critical evaluation of Web materials by students) and compliance with copyright laws.

Conclusion

This paper discusses teachers’ levels of competence in the use of information and education Internet resources in the education process, which are very relevant for contemporary teachers. The author also describes examples and methodological bases for the implementation of these skills into practice at school. In the near future teachers will be tested in the use of information and education internet resources in teaching and learning. In the near future the next stage of research will be carried out to review the current level of teachers competences in using and education of information internet resources in the education process. Also, as part of the research, distance courses are being developed, available on the faculty distance learning platform (http://el2.us.edu.pl/weinoe) work is also continuing on developing postgraduate programs in the WEINOE Faculty, the aim of which is to raise teachers’ competence in the Silesian region in this respect.

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