Teaching Aids in Teaching and Learning Environments of Lithuanian Schools

Vaino Brazdeikis and Mantas Masaitis

Kaunas University of Technology
Donelaicio 73, LT-44239 Kaunas, Lithuania

Abstract

Contemporary new developments of computer teaching aids have an impact on education; researchers in education often link it with educational and learning environments. The aim of this article is to review computer teaching aids and their influence on educational and learning environments. As a result of this discussion, a theoretical model of the influence of computer teaching aids on educational and learning environments is developed and applied to the analysis of the use of computer teaching aids in educational and learning environments of Lithuanian schools.

Keywords: ICT in education, learning environment, computers, teaching methods.

Introduction

Information and communication technologies (hereinafter – ICT) have increased influence over various spheres of public life, including education, within a relatively short period of time. The most common application of new technologies in education is associated with the development of new computer teaching aids, but such impact, along with the causes and effects of their implementation are controversial. For example, Schacter (1999) reveals the positive impact of ICT, while international PISA 2006 study showed the negative influence of computers on teaching in schools (Loi and Rizza, 2011).

When discussing the relationship between education and computer teaching aids researchers frequently refer to shift of the educational paradigm from teaching to learning (Petkunas and Juceviciene, 2006) or the enrichment of educational and/or learning environments (Butrimiene and Stankeviciene, 2008; Brazdeikis, 2009) or the improvement quality of education (Cabrol and Severin, 2009). Researchers agree that ICT have a connection with the teaching methods, content, teacher and student competencies, social interaction and other factors. Usually such studies discuss teaching aids in the broader sense, seldom examining the differences between various computer teaching aids, although a variety of such aids may have different effects. However, almost no attention is given to investigate the country-specific capabilities of the educational environment to apply different computer teaching aids. Thus, this work aims to review computer teaching tools and evaluate their impact on educational and learning environments, contextualizing them to Lithuanian education. The paper deals with two objectives: firstly, provides rationale for the impact of using computer teaching aids and corresponding teaching methods on educational and learning environments; secondly, investigates the application of computer teaching aids in education and learning environments in Lithuania.

The paper draws on the research literature and document analysis to address the first objective, whereas the second objective is achieved by processing the results of a survey carried out in Lithuanian schools using various statistical analysis techniques.

The conceptual base of the study lies in the parameters describing the learning enabling educational environment, developed by Juceviciene et al. (2010).

The first part of the article reviews the computer teaching aids and teaching methods applied while working with them; the second part discusses educational and learning environments and their links with computer teaching aids and methods, whereas the third part presents and analyzes the survey carried out in Lithuanian schools.

1. Computer teaching aids, methods of application

Further in this paper we will discuss teaching methods and the computer teaching aids used with the methods, so we first need to establish these two concepts. An aid is understood as a tool, an appliance or any other object necessary while performing an action. A teaching aid is an aid used for teaching purposes (i.e. used while teaching). They can be classified according to various criteria:

- educational approach (teaching aids used for frontal teaching methods vs. learning aids used for individual learning methods – this will be discussed in more detail below);
- user (teacher work-related aids vs. student activities-related aids vs. aids for both teacher and student activities);
- subject (mathematics teaching aids, history teaching aids, etc.);
- main element (computer-based training tools, paper teaching aids, technical teaching aids, teaching aids for cars, etc.);
- nature of the application (teaching aids designed for teaching about them vs. teaching aids designed for teaching with them, integrated aids);

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- transmission of information (sound (audio) teaching aids, visual (media) teaching aids, sensory aids, etc.);
- type of presentation (digital teaching aids, paper teaching aids, fabric, hardware, network, etc.);
- interactivity (demonstration (static, static with moving images and sound), exercises control (allowing to give answers (with tasks), allowing to update the initial conditions), modeling (design, simulation)).

When classifying based on the above features, the same teaching aid can be assigned to different groups. A computer used for education purposes can also be considered a teaching aid. Based on the main element used a computer can be classified as a computer teaching aid, but it can also be considered a technical teaching aid or digital teaching aid, because of the digital content within itself. Based on the user a computer is a teaching aid for both students and teachers, while a classification by educational method could appropriately classify it under different teaching methods.

However, in modern society, the computer is not used as a single element but rather connected to other equipment, creating modern computer teaching aids. Throughout the further discussion we follow the definition that computer-based teaching aids are the teaching aids of which the key element is a computer. Given the type of computer (desktop, laptop, tablet, smart phone, reader), as well as additional configuration, computer teaching aids may be very different, and one aid can include a number of computers. The key element – the computer – can be additionally equipped with:

- hardware (interactive whiteboards, multimedia projectors, audio - video equipment, computer learning toys, measuring devices, digital cameras, etc.);
- software (operating system, standard general-purpose applications (graphical, audio, video, text editors, calculator, etc.), educational tools, digital content);
- internet access/network equipment (networked general-purpose standard tools (e.g. e-mail systems, webpage creation tools), training aids/tools (e.g. a virtual environment), digital content (e.g. online courses).

Thus, the modern computer teaching aid today can be made up of different elements and used for personal teacher or student activities. Several computers with teaching programs may comprise a classroom for teaching different subjects (e.g. information technology, primary school classrooms, etc.) or specialized classrooms, such as:

- natural science training lab with various measuring devices (e.g. temperature, light probes) that allow taking research measurements as well as controls in place to operate robots and other equipment, and the necessary software;
- a creative laboratory that uses the video/audio equipment;
- virtual reality/simulation class with virtual reality hardware and simulators;
- educational games class with educational computer games;

- distance learning classes that use distance learning systems;
- etc.

Modern classrooms can be packed with various computer equipment (multimedia, calculators, displays, interactive whiteboards). If computer teaching aids are used by children with disabilities, these will most likely have a special keyboard and mouse, or a special display (larger screens for the ill-sighted, Braille displays for the blind), speaking interfaces (for the deaf, and hard of hearing children with speech impediments) which are able to understand commands spoken by the sound, and so on.

The annual Horizont (2010, 2011, 2012) reports take an even more flexible view on computer teaching aids, focusing on the function rather than the composition. These reports annually elect six technologies that would be most relevant for the nearest future. In 2010 - 2012 the report mentioned technologies such as: Open Content, Electronic Books, Augmented Reality, Gesture-based computing, Game-Based Learning, Learning Analytics, Mobile Devices & Apps, tablet computing, Personal Learning environment, Augment Reality, Natural User Interface. All these technologies can be decomposed into elements that would include the computer and its complement parts as well as the software and networks.

Researchers at SITES also highlight the hardware, software, and communication equipment of computer teaching aids. Computer teaching aids are divided into the following groups:

- equipment and practical supplies (laboratory equipment, musical instruments, art supplies, graphic projectors, slide projectors, electronic calculators);
- training and practice software;
- general office package (text editor, databases, spreadsheets, presentation software)
- multimedia production tools (visual and auditory information restoration and editing software, drawing programs, webpage/multimedia creation tools);
- data collection tools;
- simulators/modeling software/digital learning games;
- means of communication (e.g. email, chat, discussion forums);
- digital resources (e.g. portals, dictionaries, encyclopedias);
- mobile devices (e.g. PDAs, mobile phones);
- interactive blackboards;
- learning management systems (e.g. a virtual learning environment).

In this paper we focus on the educational process when differentiating between different computer teaching aids. We will look at the applications of computer teaching aids in the teaching and learning processes of education with the understanding that teaching aids are designed for teachers' activities while individual learning aids are targeted towards the learning process. In this case, the technologies suggested by SITES 2006 or Horizont, for example, can be divided into three groups: teaching-oriented aids, teaching and learning-oriented (i.e. universal) aids, and learning-oriented aids (Table 1).

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In April 2012, a survey organized by the Ministry of Education and Science of the Republic of Lithuania also shows a certain division according to the educational process and usability: a 'mobile classroom' is design for activities organized by a teacher, a 'Tablet' is design for personal student needs.

Teaching (and learning) methods and computer teaching aids. Teaching methods are defined quite differently. Based on the historical aspect teaching methods are often divided into traditional and modern methods. Sometimes they are also divided in terms the active involvement of students into 'active' and 'less active'. We build on the definition that has become a classic to the Lithuanian educational practice: 'a teaching method is the system of operations and activities of the teacher and his/her students, which help students to acquire knowledge, skills and abilities, develop capabilities, and form a view of the world' (Jovaisa and Vaitkevicius, 1989), (Figure 1). For us this definition is important because it is neutral with respect to the teaching and learning paradigms, i.e. the relationship and significance 'encoded' in the operations and activities of the teacher and his students. Figure 1 shows the classification of teaching methods from the work of abovementioned researchers.

Naturally, different methods will be more applicable in different cases, changing together with level of activity: in some cases the teacher will be required to be more active, in others – the students. This duality of teacher and student activity is seen more clearly when examining the classification of teaching methods proposed by Jovaisa and Vaitkevicius (1989): methods are identified either by activities of the teacher or the students. Hence, teaching methods can be classified according to which activity (teacher training or student learning) is the predominant one.

According to Juceviciene (2008), educational environment is a 'dynamic and information-intensive space for learning developed and impacted by the educator (teacher, human resource manager or someone else who provides educational impact)

Table 1

Distribution of computer teaching aids with respect to the educational process

Teaching-oriented aids	Universal aids	Learning-oriented aids
General office package, training and exercise software, interactive whiteboards, digital resources	Data collection tools, multimedia development tools, equipment and practical supplies	Mobile devices, communication tools, games, simulation/modeling software, learning management systems,
Open Content, Electronic books	Learning Analytics, Augmented Reality, Gesture-Based Computing	Game-Based Learning, Mobile device& apps, Tablet computing, Personal learning environment, Augment reality, Natural user interface
Mobile classroom	School equipment	Personal tablet computers

Informational methods		
Imparting		**Reproduction**
Narrative (plot, descriptive, explanatory); *Lecture* (scholastic, academic); *Demonstration.*		*Retelling* (written, oral); *Repetitory conversation (recreation, summarizing)*; *Writing assignments* (examination, impression, and other).
Operational methods		
Practice	**Practical assignments**	**Lab work**
Training (based on example, instruction or task); *Contextual practice (commenting, explaining);* *Creative practice;* *Reading, writing methods.*	*Instruction;* *Technical work;* *Production assignment.*	*Demonstration of experiments;* *Illustrator laboratory work.*
Creative methods		
Heuristic	**Problem-based**	**Research**
Heuristic conversation; *Logical demonstration;* *Search;* *Technical construction.*	*Problem-based lecture;* *Problem-based case study discussion;* *Problem solving;* *Technical modeling;* *Creative writing.*	*Observation;* *Experiment;* *Processing the research findings.*

Figure 1. Classification of teaching methods (based on Jovaisa and Vaitkevicius, 1989)

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and determined by the educational goal, relevant content, ways and methods as well as other objects or subjects that influence (1) educational information and/or (2) its way towards the learner'. If educational environment highlights the first function, it implies teaching-oriented environment, also teaching-oriented methods and aids, whereas the focus on the second function is an indicator of learning-oriented environment, methods and aids.

In a teaching oriented environment, methods where the teacher takes a more active role, finds the curriculum and leads activities are more common. Students carry out the instructions and their initiative is unnecessary.

Methods characteristic to a learning environment are where teachers and students consult on activities, project themes, and so on. Decisions are usually made by the students who act and make decisions independently.

Of course, it is possible to distinguish universal methods used in both teaching and learning environments. Compared to the typical methods for teaching environments, the students here have much more freedom of initiative. The teacher articulates a common task and directs the search, while the students work independently.

Such a breakdown of teaching methods gives a new structure, shown in Table 2.

Researchers at SITES 2006 also collected data on methods of teaching. Building on considerations provided in the previous section the researchers' presented methods can be divided into three groups based on how they are characteristic to one environment (Table 3).

We can thus far conclude that computer-based teaching aids are teaching tools consisting of a key element - the computer, along with other co-operating elements (hardware and software, network access). These aids can be used in various educational methods. Both the aids and the methods can be classified according to what they are more focused on: teaching or learning. Computer teaching aids are more suitable for predominantly teaching methods, whereas learning aids are more suitable for learning-dominated methods.

2. Educational, learning environments and computer-based teaching aids

Lipinskiene (2001) defines the educational environment as a dynamic teaching and learning space, developed and influenced by an educator and lead by an educational purpose, its corresponding content and methods that support the uptake of this content. More precisely and in more detail the educational environment is defined by Juceviciene et al. (2010, page 68): educational environment is a dynamic space for learning activities, developed and influenced by an educator and lead by an educational purpose, its corresponding content and the educational forms and measures that support the uptake of this content, and also by other objects and entities in the environment that have any influence on the student, educational information and / or its path to the student.

Table 2

Teaching methods typical to teaching and learning environments

Teaching-oriented	Universal	Learning-oriented
Informational methods		
Narrative (plot, descriptive, explanatory); Lecture (scholastic, academic); Demonstration.		Retelling (written, oral); Writing assignments (Examination, impression, and other).
Operational methods		
Training (based on example, instruction or task); Instruction; Demonstration of experiments.	Contextual practice (commenting, explaining); Creative practice; Illustratory laboratory work.	Technical work; Production assignment.
Creative methods		
Problem-based lecture.	Heuristic conversation; Problem-based case study discussion; Search; Process the findings of a research.	Problem solving; Technical modeling; Creative writing. Observation; Experiment.

Table 3

Teaching methods researched by SITES 2006

Teaching-oriented	Universal methods	Learning-oriented
Lectures by a teacher Trainings and exercises; Lab experiments (with concrete guidelines and results); Short-term projects.	Information processing and analysis; Creative assignments (e.g. to build a model, write a report); Learning about national phenomena through simulation; Search for ideas and information.	Long-term projects; Individual courses and/or learning activities; Scientific activities (unlimited time); Research of a specific area.

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Lipinskiene (2002), based on Tight (1996) and emphasizing the learning paradigm, argues that the main thing that separates social education and learning is that education is associated with organized and continuous, long-term training. Therefore, the educational environment can include an educator, which can either be a teacher, material or informational resources, or an institution. However, according to the learning paradigm, learning is not necessarily associated with teaching, so the educator or institution is not necessary in this process. In the learning environment the position of the educator is changing: he is a participant of the learning process, studying along with others. According to Juceviciene et al. (2010) the learning environment is individually formed by each learner from the surrounding educational environment. This creates a personal learning environment – an environment identifiable by each person according to his individual learning objectives, skills, needs and experience. It is proposed to separately examine the effects of learning environments on learning in a group. The learner will use the educational environment and surrounding aids if the environment meets his needs, and if he/she identifies them as potentially useful. On the other hand the learner must also have appropriate expertise.

Educational environments are influenced by increasingly evolving ICT. It should be noted that the use of ICT include: *first* – the environments in which the computer, computer networks are used as the main tool; *second* – the methods and processes that are used in those environments; *third* – the information and people operating in those environments (Brazdeikis, 2009). Thus ICT and educational environments may be related through: *first* – teaching aids in which the main tool is a computer; *second* – working methods, which use computer-based teaching aids; *third* – teachers, students and their competence of ICT usage. Educational environments, that seek to enable teaching in using ICT, are environments that have been developed and operated by ICT competence teachers and learners, based on methods that accommodate computer-based teaching aids. In his article the main focus is on the aids and methods rather than the competences of teachers and learners.

Specifying the relationship between educational and learning environments, Juceviciene et al (2010) notes that educational and learning environments: a) may overlap, b) may completely disagree, or c) fully match. The common thing between learning and educational environments is that they consist of learning objects which contain information that is important for the educational effect and learning as well as learning subjects - people who can be a source of such information. Juceviciene et al. (2010, pages 75) offers to characterize educational environments that seek to enable learning based on these Parameters (hereinafter – Parameters):
1. Educational goal.
2. Learner's learning capacity.
3. Characteristics of the educational content (information form, extent, multi variability, emotional suggestibility (e.g. games), rational dynamics (balance).
4. The methods and means of communicating educational content as in advance presented information:

- Information provided by the teacher using multimedia, blackboard;
- Information within objects such as articles, guides;
- Virtual information provided by using ICT networks.

5. Methods and means of creating educational content during the learning process (individually – reflection, in-group - observation, dialogue, discussion).
6. Physical space.
7. The people necessary for the realization of the educational objective.

In this work, the examination of the relationship between environments and computer teaching aids is limited to the characteristics associated with educational content (3, 4, 5) and ignores the other proposed options. Naturally the investigation of computer teaching aids with the selected parameters raises some questions:

- How do computer teaching aids provide the right content in advance?
- What information communication methods are ensured when using computer teaching aids?
- How are the needs of the learners accounted for during the development process?

Given the above Parameters it is likely that learners more fully recognize an educational environment as their personal learning environment if the answers to the above questions show computer teaching aids to provide:

- Completeness of the content, multi variability (e.g. works of several authors are provided on the same subject), attractiveness (e.g. teaching younger children through games), dynamics;
- Ensuring communication both in synchronous and asynchronous mode;
- Ensuring maximum virtual communication;
- The creative process, opportunities for reflection.

Analyzing the works of various authors (Cabrol and Severin, 2009; Petkunas and Juceviciene 2006; Puentedura, 2006; Brazdeikis, 2009) on the implementation of ICT in schools in the context of the change of educational paradigm from teaching to learning, we can observe certain stages:

1) In the *introduction stage*, the teacher often uses explanation, questioning, writing, text reading, traditional lecture, demonstration, computer teaching aids substitute traditional tools without major changes in the educational process. The focus is on teachers' workplace, particularly those suited for demonstrations, and computer classrooms;

2) In the *application stage*, in addition to traditional training methods teachers often use games, simulators, short-term projects, creative tasks, research in a specific area, computer teaching replaces the previous arrangements improving the performance of their functions. There is a greater need for natural science laboratories, modern classrooms for specific subjects;

3) In the *Integration stage*, the teacher uses individual and group projects, work with information sources, individual and creative tasks. Computer teaching aids allow achieving new education objectives that were not achievable without the technology. Creative labs, educational games rooms are often used, dominated by various networked training devices;
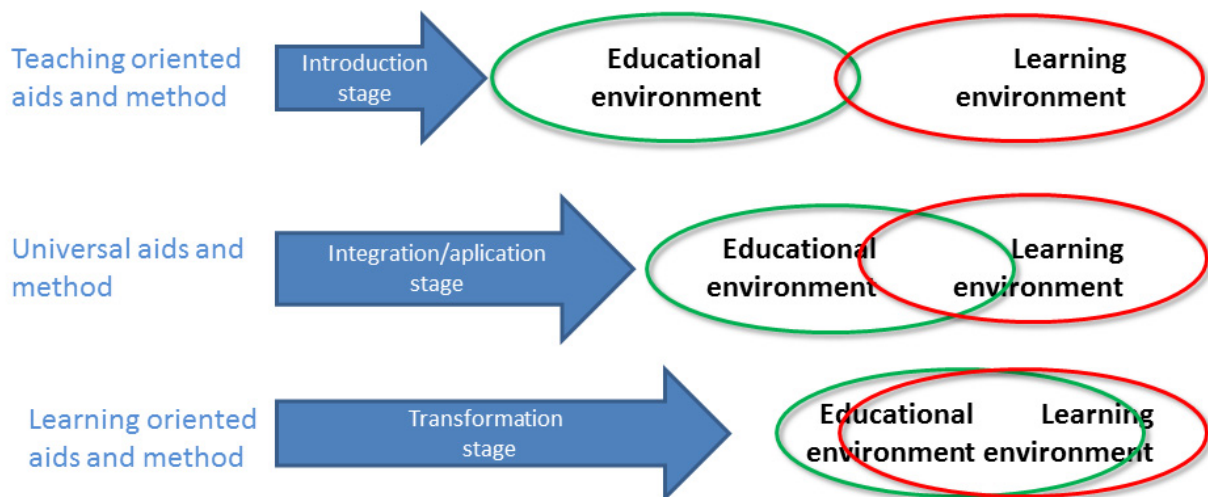
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Figure 2. Convergence of educational and learning environments

4) In the *transformation stage* is dominated by long-term projects, learning from experience, scientific research, reflection. Computer teaching aids allow to significantly modifying the teaching methods and educational objectives pursued. Opportunities for students to use personal mobile workstations with Internet speeds of at least 10 Mbps prevail, networked tools and distance computer workplaces or classrooms are often used.

The teaching aids provided for each of the ICT implementation stages reflect the different educational environments and their ongoing changes. On the other hand it is obvious that the various educational environments have differing influence on the creation of learners' own learning environments (this can be seen by comparing the educational environments with the Parameters discussed above). The introduction stage of the educational environment have probably the least in common with the development of personal learning environments, while the transformation phase educational environment has the greatest potency to be transformed into personal learning environments. It is likely that the educational environment of the application and integration phases can also be transformed (albeit not as successfully) to personal learning environments. Thus it is logical that the relationship between educational and learning environments must be associated with the stages of ICT development, teaching methods and teaching aids (Figure 2).

The appropriate use of aids and methods in educational environments may be related to the effectiveness of the educational process, that is, by properly selecting the teaching aids and methods educators may hope to achieve the best educational results. For example, the lecture method can be effective in educational environments if the lecturer uses a multimedia projector or an interactive whiteboard. But the selected computer-based teaching aids (multimedia, interactive board) by themselves will have no effect on the success of the transformation of educational environments into learning environments. What is more, if

the lecture include simulators or other means the lecture may become ineffective, because there will be less time to convey the content. Another example: during individual assignments when the task is close to the students' learning objectives a reflective e-portfolio can serve as a means of increasing the students' confidence in their activities, but the use of an interactive whiteboard can have little effect or even interfere with individual student work.
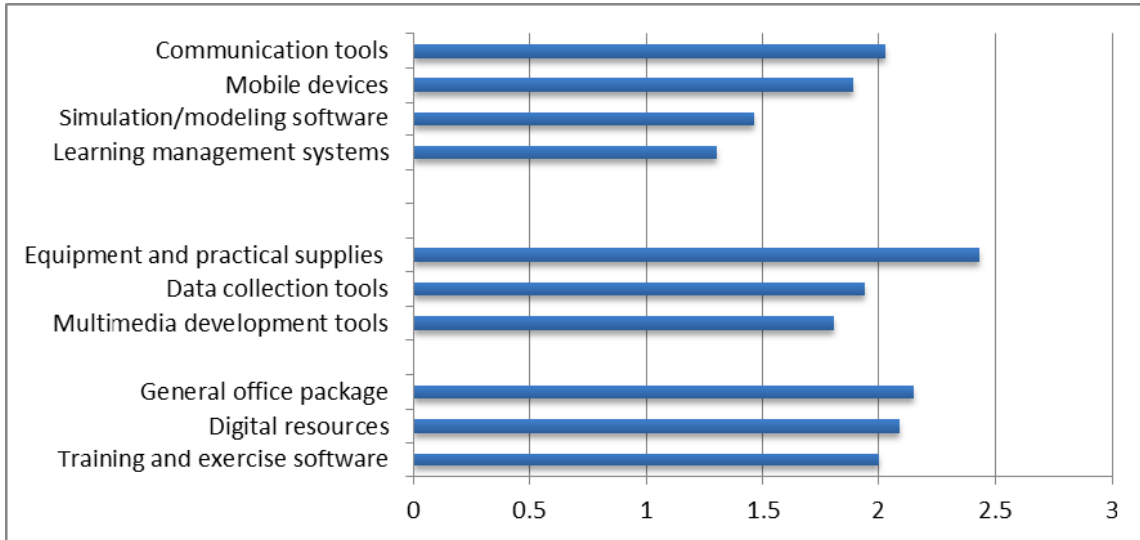
Apparently the recognition of personal learning environments in the educational environment is primarily determined by the students' needs and the learning tools and methods can only enhance or hinder the development opposite results.

From the discussion above we can now make an assumption that when seeking to more effectively transform educational environments into personal learning environments greater emphasis must be put towards learning aids and methods instead of teaching aids and methods.

3. Situation in Lithuanian schools

In order to assess the situation in Lithuania, we performed a secondary analysis of data collected from research related to ICT implementation.

SITES survey data. In 2006 Lithuania participated in a study organized by the International Association for the Evaluation of Educational Achievement, 'Second Information Technology in Education Study' – SITES 2006. The teachers sample consisted of eighth-grade natural science and math teachers. A probability sampling method was used to select the teachers. The questionnaire was filled online, access to which was given to 1,164 teachers, 834 responded (72 percent); 88.1 percent of surveyed teachers were female (86.8 percent of educators in Lithuania are female), according to education – 95.9 percent of respondents had a university degree (actual value in Lithuania – 92.6 percent). 75.2 percent of the respondents have access to a computer at home (97 percent
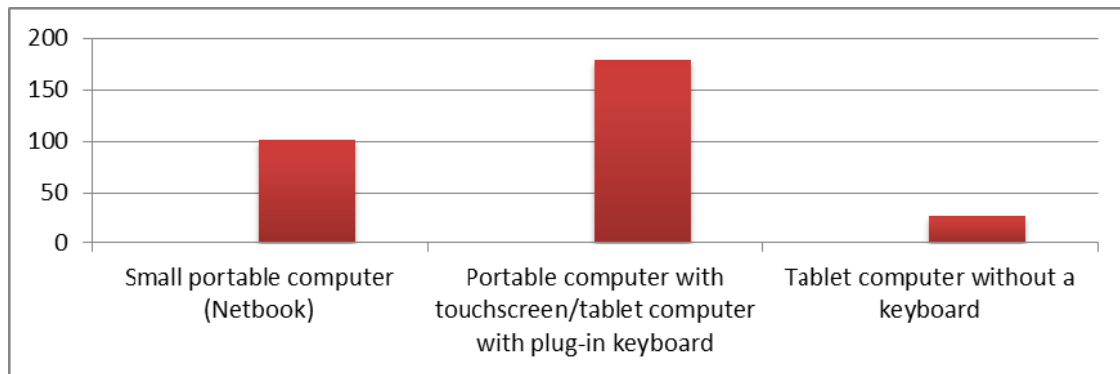
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Figure 3. Statistical analysis of usage of computer teaching aids in the SITES 2006 study *(Note: data on usage of interactive whiteboards were excluded from the analysis as they are unpopular in Lithuania.)*
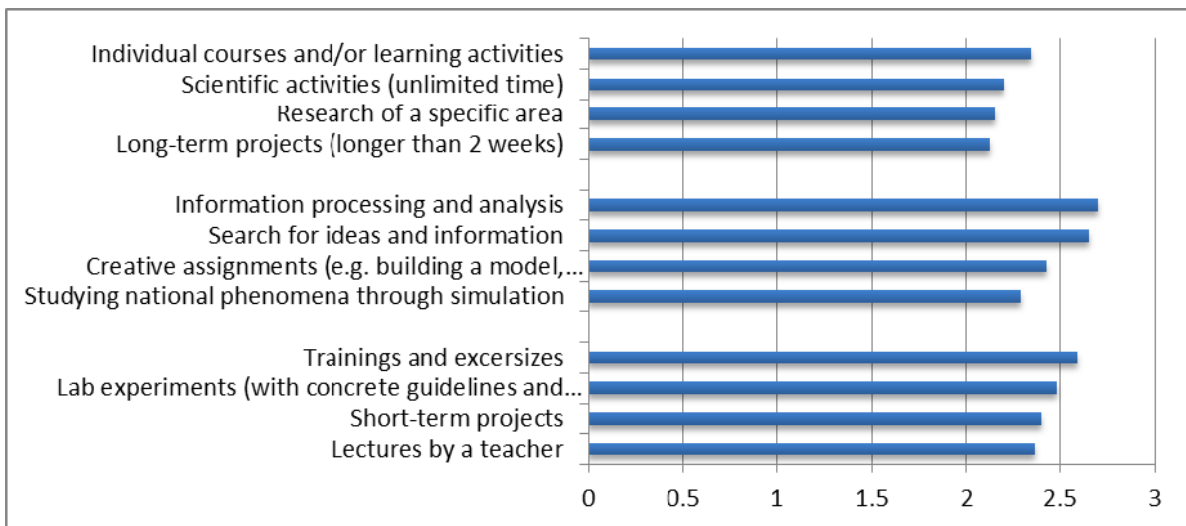
Figure 4. Statistical analysis of educational methods from the SITES 2006 study
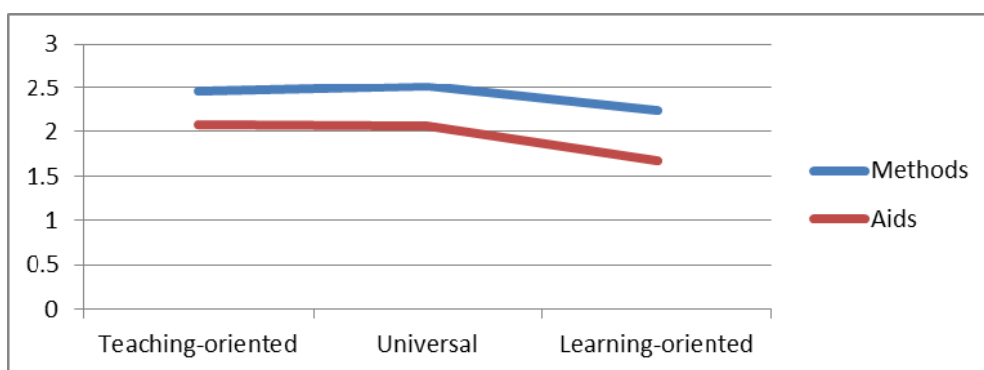
Figure 5. Statistical analysis of usage of groups of teaching aids and methods in the SITES 2006 study

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Figure 6. Computer equipment required by schools

of them use it for purposes related to teaching), while 80.3 percent have access to the Internet. This data allows evaluating the usage of teaching aids and computer teaching aids in Lithuanian schools.

Considering computer teaching aids SITES 2006 researchers highlight hardware, software, and communication tools. Teaching aids were grouped in accordance with Table 1. Figure 3 gives the frequency of use for different computer teaching aids (using a Lickert scale where 0 – never, and 3 – always or almost always).

The results of this analysis show that Lithuanian teachers are more likely to use teaching-oriented computer teaching aids and universal computer aids while learning-oriented aids are used less often.

A similar analysis was performed on the educational methods, grouping them in accordance to Table 3.

We can see that the results are similar to those for teaching aids: teaching-oriented and universal teaching methods are used more often, while learning-oriented methods are used less frequently. Additive inter-group indices of the frequency of use were then calculated for computer teaching aids and methods (Figure 5).

One may note that the frequency of using computer aids and methods change in the same direction from one group to another. Thus we can presume that the methods and computer aids used by the teacher are interdependent. This dependence may be a subject of further research.
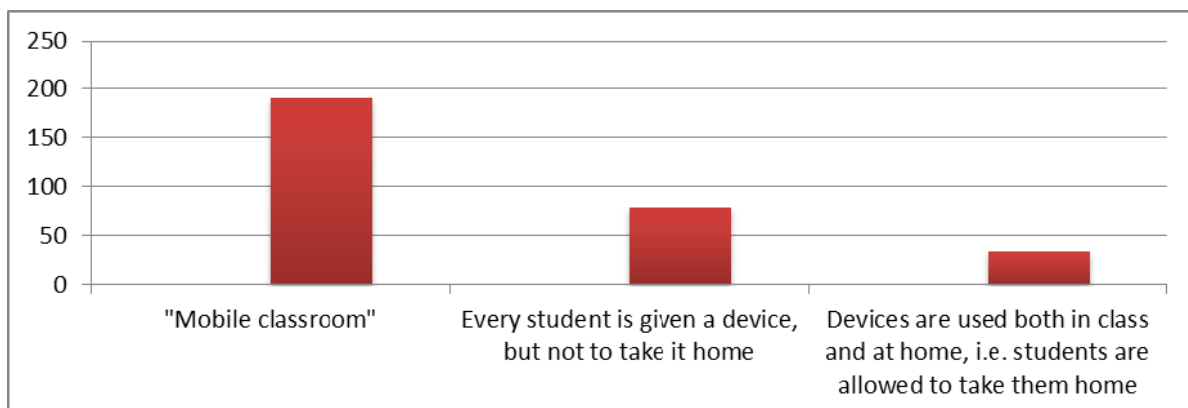
When planning provisions of computer equipment to Lithuanian schools the Ministry of Education and Science in April 2012 interviewed headmasters of schools (n = 320) gathering, what computer hardware the schools require and what are the planned uses for the technology (Figures 6 and 7).

Provided that a laptop, having all the usual features of a computer are attributable to the education-oriented group of devices, tablet computers with keyboards are attributable to the universal group of devices, and Tablet PCs – to the portable, personal, learning-oriented group, it can be stated that the distribution of preferences is in accordance with previously established patterns. The most preferable devices are teaching-oriented, while less preference is given to learning-oriented devices.

Planning ways to use computer teaching aids heads of schools were given three possible choices:
a) devices are handed out to students during certain classes, pre-planning their activities, i.e. organizing a 'mobile classroom';
b) each student is given a device, but he/she cannot take it home;
c) equipment is used in the classroom and at home, i.e. students can bring the device back home.

As indicated in Table 1, the first option is teaching-oriented, the second – universal, and the third is learning-oriented. Frequency table of respondents' answers is provided in Figure 7.

Figure 7. Use of computer teaching aids

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Unlike in the case of educational aids and teaching methods, here we see a clear advantage of the 'mobile classroom'. It can be assumed that in the sense of education organization Lithuanian education is teaching-oriented and school leaders do not intend to change the situation.

Similar results can be seen in Kriliuviene's (2009) study of methodical works. When using ICT in schools the methods used are predominantly teaching-oriented (lecture, demonstration, explanation), and less often – teaching and learning-oriented (group work, work in pairs, project activities, practical work), rather rarely - learning-oriented methods (creative thinking, games, discussion, cooperation).

The computer teaching aids are dominated by teaching-oriented computer tools (multimedia, single computer, computer classroom, general-purpose software packages). In the methodological works investigated authors indicate the most commonly used software being MS PowerPoint (51.8 percent), Internet Explorer (40.3 percent), MS Word (33.6 percent). With reference to methodological works, Kriliuviene (2009) notes that for 85.3 percent of the methodological works no computer teaching aids were listed or none were used.

Summarizing the studies performed, we can state that Lithuanian schools are dominated by teaching methods rather than learning methods and the related computer-based teaching aids. Therefore, Lithuania is in this sense the opportunities to promote the transformation of educational environments into personal learning environments are not fully exploited.

Conclusions

Educational and personal learning environments can either completely disagree, overlap, or fully match each other. Computer teaching aids and educational methods can promote the transformation of educational environments into personal learning environments. Learning-oriented aids and methods support the recognition and use of personal learning environments in educational environments. The latter correlation is achieved when the educational environment is fully accepted by students as their personal learning environment.

In Lithuanian practice the application of teaching methods and computer teaching aids used is evidently determined by the fact that traditionally more attention is paid to the educational environment, disregarding the effect of the methods and teaching aids in transforming the educational environments into students' personal learning environments.

It is recommended to evaluate the planned use of computer teaching aids in schools by taking into account the aim of transforming educational environments into students' personal learning environments.

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Kompiuterinės mokymo priemonės Lietuvos mokyklų edukacinėse ir mokymosi aplinkose

Santrauka

Atskleidžiant švietimo ir kompiuterinių mokymo priemonių santykį dažnai remiamasi pedagoginės sistemos kaita (Petkūnas, Jucevičienė, 2006), edukacinių ir mokymosi aplinkų praturtinimu (Butrimienė, Stankevičienė, 2008; Brazdeikis, 2009). Mokslininkai savo darbuose sutaria, kad informacinės komunikacinės technologijos turi ryšį su mokymo metodais, turiniu, pedagogo ir mokinio kompetencijomis, socialiniu bendravimu ir kitais faktoriais. Dažniausiai kalbama apie priemones plačiąja prasme, rečiau gilinamasi į kompiuterinių mokymo priemonių skirtumus, nors įvairios kompiuterinės mokymo priemonės gali turėti skirtingą poveikį. Be to, beveik nesigilinama į konkrečios šalies švietimo aplinkos galimybes taikyti įvairias kompiuterines mokymo priemones. Tad šiame darbe siekiama apžvelgti kompiuterines mokymo priemones bei įvertinti jų įtaką edukacinėms ir mokymosi aplinkoms (kontekstualizuojant Lietuvos švietimui). Darbe sprendžiami du uždaviniai: pirmasis - teoriškai pagrįsti kompiuterinių mokymo priemonių ir jų taikymu grįstų ugdymo metodų poveikį edukacinėms ir mokymosi aplinkoms; antrasis – ištirti kompiuterinių mokymo priemonių naudojimą edukacinėse ir mokymosi aplinkose Lietuvoje.

Atlikus teorinę analizę kompiuterinės mokymo priemonės suskirstytos į tris grupes: 1) į mokymą orientuotos priemonės, 2) į mokymą ir mokymąsi orientuotos priemonės, 3) į mokymąsi orientuotos priemonės. Straipsnyje keliama hipotezė, kad kuo labiau į mokymąsi orientuojami mokymo metodai ir priemonės, tuo didesnė galimybė individualią mokymosi aplinką priartinti prie klasės edukacinės aplinkos.

Lietuvos situacija analizuojama remiantis tarptautinio tyrimo SITES 2006, 2009 m. atlikta metodinių darbų analize ir 2012 m. atlikta mokyklų vadovų apklausa.

Apibendrinus tyrimų rezultatus galima teigti, kad Lietuvos mokyklose vis dar vyrauja mokymo, o ne mokymosi metodai ir su jais susijusios kompiuterinės mokymo priemonės. Tad Lietuvoje šia prasme dar nepanaudojamos galimybės skatinti edukacinių aplinkų transformavimą į asmenines mokymosi aplinkas.

Pagrindinės straipsnio išvados:

1. Edukacinė ir asmeninė mokymosi aplinka gali visiškai nesutapti, persidengti, taip pat visiškai atitikti viena kitą. Kompiuterinės mokymo priemonės ir ugdymo metodai gali skatinti edukacinių aplinkų tapimą asmeninėmis mokymosi aplinkomis. Į mokymąsi orientuotos priemonės ir metodai skatina asmeninių mokymosi aplinkų atpažinimą edukacinėse aplinkose ir jų panaudojimą. Pastarasis atitikimas pasiekiamas tada, kai edukacinė aplinka besimokančiojo pilnai priimama kaip jo asmeninė mokymosi aplinka.

2. Lietuvos praktikoje ugdymo metodų ir kompiuterinių mokymo priemonių naudojimą, matyt, lemia tai, kad tradiciškai didesnis dėmesys skiriamas edukacinei aplinkai, neatsižvelgiant į metodų ir priemonių poveikį tam, kad edukacinės aplinkos virstų mokinių asmeninėmis mokymosi aplinkomis. Rekomenduojama įvertinti planuojamas naudoti kompiuterines mokymo priemones mokyklose atsižvelgiant į siekį edukacines aplinkas transformuoti į mokinių asmenines mokymosi aplinkas.

Reikšminiai žodžiai: IKT ugdyme, mokymosi aplinka, kompiuteriai, mokymo metodai.