



Something is happening in education. Can you see it?

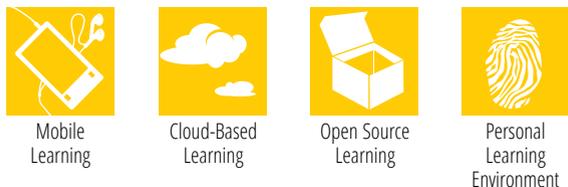
LEGEND



THE BOOK OF TRENDS IN EDUCATION 2013/2014

TRENDS

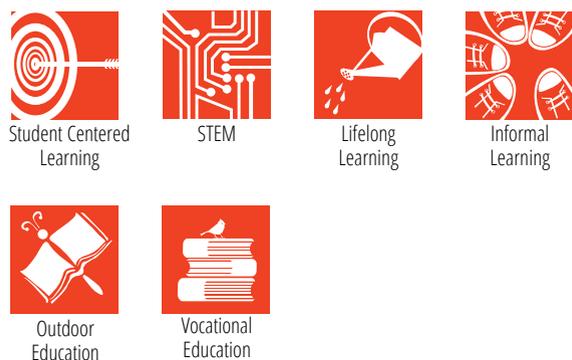
A. NEW FORMS OF ACCESS TO KNOWLEDGE



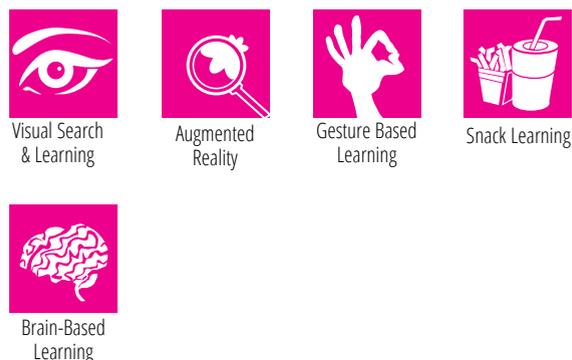
B. EDUCATIONAL EXPERIENCES



C. EDUCATIONAL ORIENTATION



D. NEW WAYS OF DATA RECEPTION



E. STUDENT - TEACHER RELATIONSHIP



F. STUDENT - STUDENT RELATIONSHIP



Note from the Editor

The following study a result of the cooperation of the Product and Marketing team at Young Digital Planet: Alina Guzik, Monika Mizerska, Wojciech Wiśniowski, Jolanta Gątecka, Olga Nerc, Magdalena Zalewska

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INTRODUCTION

What will the school of the future look like? Trends that are changing education

When we were children we used to base our ideas on dreams and emotions. Today we create new paths in education, taking into consideration changes that take place in all areas of everyday life. We observe the development of humanity and we ask ourselves a question: How can this influence education? Because the question about trends in education is in fact a question about the future.

Where exactly is education going?

What is the nature of the changes? How will the process of learning look in a year, in five years, or even in ten years' time? We can differentiate between several areas related to education where changes are taking place at the moment.

1. Innovative, fast-moving technologies create opportunities to access information and educational content that were not available before. Mobile Learning, Cloud-Based Learning, Online Learning and Open Source Learning are just some of the solutions that allow the learning process to reach beyond the classroom and enable students to experience it at any time and in any place.

2. Changes taking place in student-teacher relations are a natural consequence of the development of new technologies and the fact that knowledge is much more accessible at the moment. The increasing proactiveness of students requires some changes in the role teachers have traditionally played in the learning process. The teacher has to become more of a guide to his or her students. It is the student who has become the central figure both in the classroom and in the whole process of learning (Student-Centred Learning).

3. New measures, tools and roles require different models of work. Those based on the collaboration of students are increasing in value (Collaborative Learning, Project-Based

Learning, Peer Learning).

4. The importance of social platforms keeps increasing as they facilitate the exchange of knowledge and experience (Social Learning).

5. Today's students are 'digital natives' – it is a generation for which computers, tablets and smartphones connected to the Internet are tools used for social communication, designing one's own identity, for work as well as play. Our job is to bring that environment into education – Game Based Learning, Visual Search and Learning, Augmented Reality, and Gesture Based Learning create limitless possibilities.

6. The way we think about learning and teaching is changing as well – the philosophy of learning is subject to reevaluation. Not only do we hear about the trends based on the individualisation of the whole process (Adaptive Learning), but also the need to explain the purpose of learning arises as well (Relevance-Oriented Learning). Students and other people taking part in the process of education are becoming self-conscious.

New trends or old solutions?

A number of the above mentioned trends have their roots in solutions discovered some time in the past, which the market was not ready for several decades ago. The fast development of technology enables their immediate implementation.

Individualisation of the learning process is a very trendy concept that is often cited by education experts, politicians or educators as the base of 21st century education. But when we look back in history we are able to see that extensive work on individualising the learning process took place in the early years of the 20th century. It was when

Helena Parkhurst, an American teacher working with children at different stages of intellectual development, introduced an innovative programme based on individual work with each student. This was called the 'Dalton Plan' (from the place where Parkhurst worked) and it has been revolutionary and unattainable for many education systems until today.

Another example of a theory, several decades old, that still seems to be too revolutionary to be fully implemented in education, is the theory of an American psychologist, Harry Harlow. In 1949 Harlow conducted an experiment on monkeys. Its goal was to find out what would motivate the animals to perform a simple task of solving a mechanical puzzle. It turned out that it was not a system of rewards and punishments but instead of curiosity that was the most effective incentive. The monkeys performed better when the work gave them pleasure. Harlow defined that state as intrinsic motivation. The theory had to wait several decades to find a practical implementation. Nowadays it is the basis of all games, but has not yet found its regular place in any education system.

So, how did it happen that we managed to remove school desks from preschools? It was thanks to Friedrich Froebel, a distinguished educator (the creator of the 'kindergarten' concept) or Maria Montessori, a doctor who lived at the turn of the 20th century and was renowned for the creation of a revolutionary concept for the preschool education system at the time (one based on play). The school code was replaced with a 'learning through play' approach. Unfortunately, such an approach to learning with regard to older students has not yet been implemented.

The Book of Trends in Education – a unique publication

Collecting all the trends in education is extremely important as it has the potential of changing it and of making it more friendly and acceptable for students. Modern technology enables us to put all the theories

and ideas that were explored and proposed during past decades into reality. Access to the Internet has made education more global and detached from specific institutions.

Young Digital Planet (and other organisations with a similar mission) designs the future of education.

We create outstandingly good educational software that can be used in any country. This is possible due to the process of localisation, we simply understand current trends and know how to implement them into our products to make education universal – education that takes human predispositions into account, both the weak and the strong traits of its physicality, psychology and emotions.

However we cannot implement the changes alone. In order to achieve this, the necessity for such an implementation and for its direction needs to be understood. Without it, even the best products will be treated as just another curiosity that will be stored on a shelf with other educational supplements, although the core of the education process will remain unchanged.

'The Book of Trends in Education' follows a series of articles published regularly at ydp.eu/resources/trendbook which we invite you to follow. This publication includes shortened and more concise versions to make it handy and practical to use.

The authors who work at Young Digital Planet are truly passionate about this subject. Since the subject is vast, they have selected the material to be in the context of new technologies and the relation between new media and education. This unique collection will give an answer to the question:

What is going on in education?

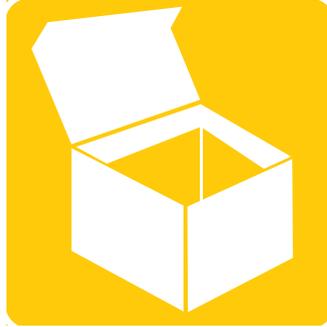
Mobile Learning



NEW FORMS OF ACCESS TO KNOWLEDGE



Cloud-Based Learning



Open Source Learning



Personal Learning Environment



1. MOBILE LEARNING

Learning anytime, anywhere

Related terms

Mobile devices, anytime, anywhere, learning on the go, ubiquitous learning, handheld learning, m-learning

Description

For some people, mobile education is a way of acquiring knowledge by means of applications designed for mobile devices, such as tablets or smartphones. According to others – it is an opportunity to use mobile devices for educational purposes. The number of educational materials dedicated to mobile devices is growing rapidly. We can now find textbooks, applications for foreign language learning, and educational games and programs on the market. It's becoming more common that websites are able to be viewed on mobile devices. Such compatibility is becoming an essential requirement. What is more, mobile devices are getting cheaper, resulting in the increase in the number of their users, which in turn, creates the need for such materials to be made widely available. The teachers' approach regarding the presence of mobile devices at schools evolves as well. Several years ago, using mobile phones at schools was strictly forbidden, whereas now there is a growing number of schools' wanting to provide its students with tablets for educational purposes and understands the advantages of keeping up with the changing reality.



MOBILE LEARNING

Background

- Need of access to knowledge at any time and place.
- Necessity of student-centered education.
- Need of self-paced learning.
- Students' willingness to decide on the range and subject matter of the material.
- Growing popularity and accessibility of mobile devices.
- Outdoor education.
- Instant access to education.

Advantages and opportunities

- Easy access to knowledge through mobile devices.
- Possibility of self-paced learning.
- Easy communication between teacher and student as well as among students.
- Personalisation of learning.
- Access to knowledge for students with special needs and conditioning.
- Possibility of active participation in educational events e.g.: conferences, speeches, webinars etc. in real time, without leaving home (saving time and money).
- Increase of prestige for schools which use tablets, building their image of a modern institution.

Potential threats

- Students' attention may easily be distracted from educational purposes.
- Mobile device, as any other electronic appliance, may break down.
- Because of fast technological advancement it is necessary to update/upgrade the devices, which may be costly.

Examples

- Applications for mobile devices: mSkills English – English learning course for adults, Nicole & Tommy Vocabulary for children – English, French, Spanish, Chinese and German language courses for children.
- Vast choice of other educational applications available in App Store, Google Play and Windows Market.
- Solutions for creating interactive textbooks: Digital Books Solution – Bookshelf, iBooks Author.
- Worldwide use of digital devices during classes at schools.
- Applications to be used by the teacher in the classroom: Groovy Grader – application for quick calculation of students' test results; iLeap Pick a student (helps to ask individual students questions and thus activates the students from one or more classes).
- Wordpress iPhone app – for teachers who write a class or school blog. This application helps to update the content instantly, upload photos and other multimedia in virtually no time.
- BookLeveler – helps to establish the level of difficulty of text in a book by means of the ISBN code, helps to adjust the content of a particular book to the syllabus.
- Teacher's Assistant Pro – electronic register for mobile devices, enables the teacher to instantly update student-related data if the teacher has a mobile device with internet access at hand, and many, many others.



2. CLOUD-BASED LEARNING

Your knowledge in the clouds

Related terms

Cloud, school in the cloud, training in the cloud, online education, web education, e-learning

Description

It is a software and infrastructure, used for educational purposes, based on the so called 'cloud'.

Learning in the cloud is often confused with education online. Indeed, from the end user's point of view it does not matter if they have access to the materials available online or in the cloud. The difference is merely of a technical nature.

Location in the cloud means that all data is kept on many servers, as opposed to an online location where the data is stored on one server.

For the end user the main benefit is having access to his or her data via several devices (e.g.: computer, tablet, smartphone) – always in the current version, regardless which device is used.



CLOUD-BASED LEARNING

Background

- Convenience of learning.
- Easy access to knowledge.
- Learning in a group.
- Project-based learning.

Advantages and opportunities

For the student:

- Co-operation among team members.
- Sharing knowledge.
- Access to information, educational materials or home assignments – from any place and via different devices.
- Access to formal as well as informal education.
- Faster analysis and presentation of data.

For educational institutions:

- Lower costs of infrastructure.
- Lower costs of trainings and software installation.
- Possibility of greater focus on education itself, rather than on maintaining and updating IT infrastructure.

For the teacher:

- Opportunity to monitor students' progress.
- Possibility of instant interaction – exchange of thoughts, comments, guidelines and educational materials.

Potential threats

- Lack of control over the quality of educational materials.

Examples

Microsoft 365 Office solution used in:

- Akademia Leona Koźmińskiego in Warsaw (Poland).
- 250 educational institutions in Radom and its vicinity (Poland).
- Glasgow Caledonian University in Scotland (Great Britain).
- University of Texas in San Antonio (USA).
- University of Massachusetts (USA).

Google Docs solution used in:

- Zespół Szkół Ogólnokształcących nr 10 in Gliwice (Poland).
- American University in Cairo (Egypt).
- The University of Westminster (Great Britain).
- Khon Kaen University (KKU) (Thailand).
- The University of Benin (Nigeria).

Other solutions:

- Platform School Loop <http://www.schoolloop.com> - solution for school administration placed in technological cloud.
- WizIQ – a virtual classroom with the possibility of conducting video conferences, chats, supplemented with other communicators.
- TalentLMS – platform for course creation.



3. OPEN SOURCE LEARNING

Copying, sharing, reusing - free educational materials

Related terms

Open learning, free learning, collaborative learning, MOOC courses (massively open online courses) , OER – open education resources, open-ness

Description

In case of learning based on open software all learning resources are offered to teachers and students to use, customize, share and re-use free of charge. Educational materials may come in a form of documents, presentations, videos, animations, slides, electronic courses, mp3 files, syllabuses, lesson plans, textbooks, data, educational games, tests, quizzes etc.

Education based on open software builds a global and universal knowledge database, which its main asset is free access. Using this kind of solution is possible due to the idea of the Creative Commons licence.



OPEN SOURCE LEARNING

Background

- Need of widespread access to educational materials.
- Interest in free access to knowledge.
- Social need to share information, achievements and ideas.

Advantages and opportunities

- Free access to knowledge.
- Levelling education opportunities.
- Sharing the knowledge, work and experience not only as a teacher and not only at a school or college environment.
- Access to educational materials in diversified forms, e.g.: audio or video lecture, presentation, film, photos, graphics or animation.
- Permission to copy and edit available resources.
- Access to a constantly updated and extended database of materials.

Potential threats

- Lack of control over the quality of educational materials.

Examples

- MIT OpenCourseWare <http://ocw.mit.edu> (USA)
- Projekt Connexions – Uniwersytet Rice <http://cnx.rice.edu> (USA)
- Japanese Consortium OCW <http://www.jocw.jp> (Japan)
- Learning Space Project <http://openlearn.open.ac.uk> (Great Britain)
- <http://ted.com> – source of over 1400 videos with talks by most inspirational scholars and activists related to technology, entertainment and design (USA)



4. PERSONAL LEARNING ENVIRONMENT

Education tailored to your needs

Related terms

edukacja osobista, nauka przez całe życie, edukacja nieformalna, personal learning, virtual learning environment (VLE), PLE, blended learning, lifelong learning

Description

A personal learning environment is, in other words, an educational universe composed by the learner himself. It is a collection of various sources of knowledge for the user. The most important feature of this universe is the fact that the learner himself chooses the materials, plans his education, compiles subjects and sources, thus having full control over what he learns, when he learns and how he learns. He selects the information and decides himself what is important, interesting, what to look into further and what to omit. In other words – it is an excellent solution for the independent.

It is not possible to define a complete list of sources. Each of us has his or her own collection and own educational universe, which is unique, just as every human being.

Where are the sources making up the personal learning environment from? Here are just a few:

- Internet – news websites, educational websites, blogs, RSS channels , all types of social media: Facebook, Twitter, Google +, LinkedIn, Youtube, Vimeo, Instagram, Flickr, newsletters, VoIP e.g.: Skype and other communicators and solutions such as social bookmarking, e.g.: <http://delicious.com>, where our favourite pages which we would like to revisit are saved.
- Telephone: text messages, photos, videos, audio recordings.
- “Offline” sources – e.g.: interactions with people – family and friends, teachers and other people being the knowledge and experience authorities.
- Also: radio and television.



PERSONAL LEARNING ENVIRONMENT

Background

- Different learning styles.
- Different interests and habits.
- Different students' needs and interests.
- Strong need of customized interface.
- Popularity of e-portfolio.
- Need of controlling one's life and one's education.

Advantages and opportunities

- Helping students to take control over their educational process.
- Greater effectiveness of learning – students learn what they are interested in and what enables them to explore the subject in greater depth.
- Joy of learning.

Potential threats

- Difficulty meeting every student's needs.
- Lack of teacher's control over student.
- Difficulty assessing progress.
- Abandoning of the standard syllabus by the student.

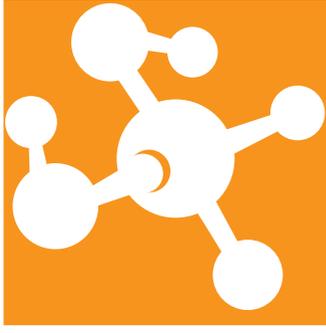
Examples

- ROLE project (Responsive Open Learning Environments) European and Chinese project examining the phenomenon of Personal Learning Environment. Identifying PLE tools and example uses <http://www.role-project.eu>
- Matrix Learning (NTK)
- Plex
- Symbaloo EDU
- Evernote
- iGoogle



EDUCATIONAL EXPERIENCES

Adaptive Learning



Project-Based Learning



Relevance-Oriented Learning



Game Based Learning & Gamification



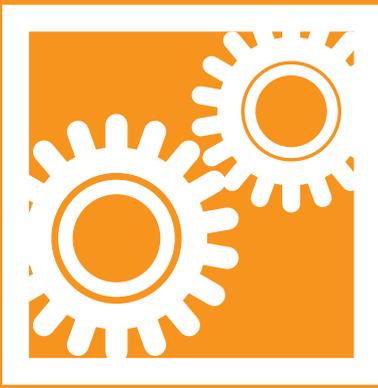
Edutainment

Storytelling
with Technology



PBL – Problem-Based Learning





5. ADAPTIVE LEARNING

Optimal content tailored to the needs, styles and pace of acquiring knowledge

Related terms

Learning based on adaptive techniques, computer-based education, intelligent learning system, personalized learning, learning modality, adaptability, individual learning paths, adaptive hypermedia, intelligent tutoring systems, computer-based pedagogical agents

Description

Each person using Google services receives profiled search results and product advertisements. A similar tendency is appearing in education. The basic assumption of the idea of adaptive learning is the computer as a tool is able to improve the results of the students' learning process. Including the computer into the learning process makes it possible to provide the system or a set of tools adjusting the learning methods to its recipient. Thanks to a platform gathering data on user's behaviour and efficiency it is possible to define the student's profile and make guidelines as to his performance and further tasks which he should perform.

Thanks to employing the adaptive method the educational content becomes dynamic and truly interactive and the student becomes a means of his own, individual educational process. Computer software gathers enormous amounts of data, monitoring the user's activity and learning to adapt to the needs of a particular user. Data regarding the user is generated not only during student's interaction with the system or during his interaction with traditional materials (textbooks) as well as with unconventional resources (games, social network), but also during his contacts with teachers and peers. Owing to the collected data the system not only knows about the user's skills and abilities at that moment but is able to specify what actions and in which form and order should be taken to increase the chances of educational success of the user.

The system gathers detailed data about the user during online classes every day, e.g.: results, speed, accuracy of performance, delays. Students learn in their own pace while the program adapts continuously, posing challenges and encouraging them to learn in the optimal way. Furthermore, behaviour of an individual user is compared against data collected from hundreds and even thousands of other users, thanks to which the adaptive learning platform not only creates the current image of a student along with diagnostic information, but above all by its feedback suggests the possibility of self-correction and self-improvement early enough. This eliminates the necessity of students taking tests after every lesson, chapter, semester or year of learning, tests which only detect deficiencies without providing specified data or answers how to get rid of those deficiencies. In adaptive learning information about specific deficiencies and suggestions of corrections are presented to students and teachers on the spot, during the lesson, which makes it possible to react immediately. Additionally the application of adaptive techniques in learning lets the teacher save time spent on reaching all students with knowledge which means more time left for real interaction with students and taking actions with a view to engaging the students directly into work.



ADAPTIVE LEARNING

Background

- One of the biggest challenges facing teachers in a contemporary school is catering for the needs of many different students – some acquire knowledge easily, others find it much more strenuous
- It is not easy to work with and evaluate students in one mixed ability class – some will get bored while others in spite of making an effort to acquire the material will still be frustrated by the lack of noticeable progress.
- To achieve the desired educational effect it is vital to divide the learning content into appropriate chunks and to deliver them with proper timing. Frequently the problem with the acquisition of new material is rooted in the student's basic knowledge gaps, which get more and more conspicuous in the process of learning.

Advantages and opportunities

- In education based on adaptive techniques, the accurate content design enables to obtain the student ability assessment in such a way so as to assign him the tasks within his capacity and simultaneously posing a challenge for the student.
- The system helps the teacher to identify natural talents and skills of the students, facilitating the teaching of basic terms and their meanings.
- During the process of educating based on adaptive techniques, students may absorb educational contents going through them in different, personalised educational paths. The contents provided to the student are nonetheless compliant with the core curriculum. Notwithstanding the paths which students choose to go, each of them will eventually gain the same knowledge (e.g.: understand basic mathematical terms).
- Application of adaptive techniques in learning helps to enhance the skills of weaker students as well as to develop and reinforce natural talents of more talented ones. Because of the system which adapts subject matter to the needs of individual student learning is easier and more intuitive.
- System based on adaptive techniques makes it possible for the teacher to monitor each student's progress (frequently in real time). The feedback obtained immediately may be used to help those students with difficulties and to develop skills of those students who extend the requirements listed in the curriculum.
- Education method based on adaptive techniques produces impressive results in individual teaching of mathematics.



ADAPTIVE LEARNING

Potential threats

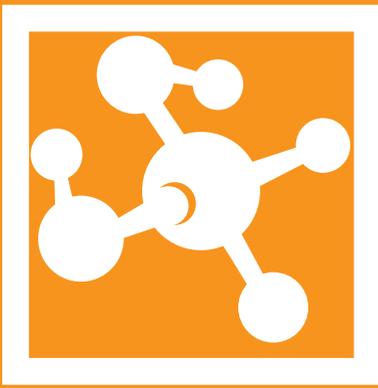
- Computers cannot teach facts and give information which is subject to interpretation (e.g.: reasons of the outbreak of World War I).
- Computers will never be able to replace a teacher. It can however help to automatize the acquisition of basic information on a given subject, the acquisition of which is often insufficient among first year students.
- In certain fields of education, like philosophy, it is not useful to apply adaptive techniques. It pertains to such areas of knowledge which require a clear and strictly ordered structure as to learning objectives or notions.
- Utilising adaptive techniques in teaching offers students a certain extent of autonomy as regards the sequence of the content to be learned. It simultaneously guarantees the adequacy and clarity of the content delivered. That is why it is essential to prepare the materials taking advantage of the full potential given by technology. It is important to remember that the use of adaptive techniques is not a miracle solution to the problems in education, and applied technology can both improve and worsen the performance of students.
- Educational content should be written in a style appropriate for every student, it should also represent an adequate difficulty level and be delivered in a suitable manner. It entails the preparation of various versions of the materials by the author, to adjust to the needs of different users. Often the author has to define the criteria as to the version which is to be suggested to a given user. It is therefore important for the adaptive system to support the authors, offering them the possibility to legibly create relations and connections between the notions used and between the notions and the material.
- One of the significant elements of the learning system using adaptive techniques is providing the user with the information which he is ready for at the moment (has the solid ground to adequately absorb new information). If the student receives other materials, due to badly designed connections between parts of the material or inappropriate preparation of the materials, it may do more harm than good.
- Changes in the material may pose a certain problem in the application of the adaptive method each time when the user moves on the educational path. Material may look different, whole extracts may be altered or removed, links on pages may be marked differently or hidden. Continuous changes might cause confusion to the user, impeding the use of the system. A possible solution is monitoring the layout of the page and limiting the number of versions in which the given page is available.



ADAPTIVE LEARNING

Examples

- ALEKS Corporation – company offering automatic system of diagnosing deficiencies in knowledge and materials to cope with them.
- Carnegie Learning – a publisher offering, along with traditional textbooks, adaptive programs for mathematics learning (Cognitive Tutor) for secondary school students.
- CogBooks Ltd – company offering corporate trainings based on adaptive platform.
- eSpindle Learning (learthat.org) – non-profit organization, creating and delivering software for learning vocabulary and spelling rules using adaptive techniques.
- Knewton – company offering solution for adaptive learning, cooperating with many publishers and educational content providers.
- McGraw-Hill Education – company offering educational content, educational software and educational services, using adaptive techniques in its products for college students (LearnSmart) and high school students (Power of U).
- Pearson – educational publisher offering among its products a program utilising adaptive techniques (Success Maker) designed for reading and mathematics learning for primary school and high school students. The company has started the cooperation with Knewton in order to apply adaptive techniques in MyLab/ Mastering product.
- Sherston Software – British retailer of educational programs offering PlanetSherston – learning platform utilising adaptive techniques.
- PrepMe – company offering adaptive system of online tests, after each stage of education in K-12 education system.
- iKnow! – website offering online courses and adaptive mechanism supporting learning and memorising of new material.
- Grockit – online game for multiple players offering test preparation. Learning takes place through interactive game with other players, learning for the same test.



6. PROJECT-BASED LEARNING

Exceptional project called “my life”

Related terms

Project work, PBL, project approach, project method, project based science, inquiry based learning, inquiry based teaching strategy

Description

Project based learning is a training method in which students are given fact-based tasks, problems to solve or a particular goal to attain. To get involved in the project effectively, students must use information, skills and experiences, discover new fields and topics consequently gaining knowledge by doing so. Each member of the project team is responsible not only for his own contribution but also for the overall result of the team's work.

The project method is based on the theory of collaborative learning. The differences between these two trends in education consist of work structure and clearly defined tasks of the group of students engaged in the project. In the case of collaborative learning the working team should be small in order to ensure a safe and friendly learning environment. When the project method is used, the size of the group is not of such great importance.

The project method (known as early as from the beginning of 20th century) plays an important role in acquiring skills and knowledge by stimulating students' motivation to creative work. Combining the effectiveness of the project method with possibilities offered by telecommunication and IT technologies, within this methodology enabling students to work remotely, creates the possibility of effective learning in any place and at any time.



PROJECT-BASED LEARNING

Background

- Lack of skills necessary in professional life: problem solving, decision making, responsibility for oneself and for the group.
- Interdisciplinary knowledge is essential in today's world.
- In a typical school environment it is not possible to learn analytical and critical thinking.

Advantages and opportunities

- Better overview of a problem, when it is not artificially divided into mathematical, chemical, historical issues etc.
- Learning skills which are becoming more and more popular, such as: critical thinking, teamwork, analysis and ordering of information, communication, discussion, presentation of ideas, giving and receiving feedback, defending one's opinions etc.
- Students are truly and personally involved into problem solving tasks.

Potential threats

- PBL is not suitable for standard methods of evaluation and assessment.
- It may be difficult to keep the balance between the results of learning and the results of the project.

Examples

- The projects are included in curriculum of many school subjects and used on various levels of education. Sometimes they are a predominant element of the curriculum (e.g.: in community schools in the USA or other unconventional schools such as the Khan Academy).
- 'Talented Student' product by Young Digital Planet.
- WebQuest method.
- Project Foundary – Learning Management Tool based on the project method.
- Intel® Teach Elements – project methods.



7. RELEVANCE-ORIENTED LEARNING

Why are we doing this?

Related terms

Relevance-oriented learning, problem-oriented learning, goal-oriented learning, experiential learning, head and hand, knowing and doing, abstract and applied, place-based education, community-based education

Description

Understanding the goal of our actions is the most crucial factor affecting our motivation to perform them. The fairy tale example of Cinderella, who, as a punishment, was made to perform pointless activities, like separating lentils from peas is not far from the school reality where students do endless mathematical calculations, read all chapters from textbooks, prepare posters and do all other typical school tasks. They treat them as a punishment, pointless actions, since they do not see how they could apply this knowledge or skill in practice or in their social lives.

That is why it is so important to help students see the practical application of knowledge and skills acquired at school. Discovering the connection between educational content, students' experiences and previous learned material has an enormous influence on their interest and motivation to learn and succeed in reaching the goal. Relevance-based method reinforces the natural learning process where the acquisition of new information is only possible when it has a point of reference in the students' own experiences and knowledge they already have and when it is possible to trace the link between the new and the familiar.

The role of a teacher employing the relevance-based method is to facilitate finding those links and references for the students so that any new content is firmly grounded in a wider context, embracing the reference system students are familiar with. This can be achieved by teaching in an environment possibly related to a given topic: in the forest, museum, planetarium etc. In a relevant environment, new

information is absorbed more quickly, since students discover it themselves, which enhances the memorising process and establishes associations more easily.



RELEVANCE-ORIENTED LEARNING

Background

- Difficulty understanding academic notions by students (e.g.: mathematical).
- Poor learning results, reflected by scores of standardised tests.
- Lack of common communicative ground between students and teachers who use different language and do not share a common vocabulary base.
- Difficulty reaching students of different backgrounds, talents and predispositions.
- Difficulty keeping class discipline where most students are uninterested in matters being taught.
- Lack of solution for incorporating individual lessons as parts of a whole, bigger system of gaining knowledge.

Examples

- <http://www.mathalicious.com>
- <http://www.e-zadania.pl>

Advantages and opportunities

- Improvement in students' achievements, including results of standard tests.
- Better school control.
- Learning to assimilate and connect the contents of different courses.
- Learning of critical thinking and higher level of cognitive thinking skills.
- Preparing students for life in the future, especially in professional and social aspects.

Potential threats

- It is not a universal method – cannot be used for subjects which require more abstract thinking.



8. GAME BASED LEARNING & GAMIFICATION

Mixing learning with games

Related terms

MMOLG games, MMO games, ILE platforms, eduGames, serious games, massively multiplayer online learning games, massive multiplayer online, immersive learning environments, edutainment

Description

Game based learning – GBL means incorporating games into lessons or topics. Gamification in learning uses techniques known from games as well as their dynamics, construction and mechanics in order to streamline the context of education and to promote the desired responses. The game schemes are used in situations not related to gaming and may be implemented in the entire learning process.

Both trends have the same objective – increasing students' involvement and motivation. They do not constitute the ultimate solution of educational problems. They are one of the aspects to be integrated with other methods such as discussion, presentation, writing or lecture.

Attractiveness of games aroused interest among scholars, who noticed the difference between the attitudes of gamers and students. Games cause involvement, development of problem-solving skills, instant feedback and the state of flow (Mihály Csíkszentmihályi), where the challenges are perfectly matched with the gamer's skill level. Educators are trying to introduce the motivating potential of games in schools.

Games represent numerous important principles of learning, such as: interaction, risk taking, matching, challenge and consolidation, providing needed information 'on time' and 'on request' and placing them in a specified situation and context (James Paul Gee).



GAME BASED LEARNING & GAMIFICATION

Background

- Crisis in education.
- Lack of involvement in students.
- Boredom, lack of creativity, critical thinking and lack of problem-solving skills among school graduates.
- Growing number of students quitting school.
- Deteriorating learning results.
- Image of school as a 'necessary evil'.
- Students' withdrawal and unresponsiveness.
- Lack of preparation of students by the school to what they may find useful in the future.

Advantages and opportunities

- Positive influence on learning at school.
- Change of students' approach towards learning
- Increase in students' motivation and involvement.
- Monitoring results, receiving detailed feedback regarding results achieved and opportunity to draw attention of students who do not actively participate in learning at school.
- Development of multiple skills not included in the school curriculum.
- Learning of critical thinking.
- Focus on the student, functionality.
- Open-mindedness towards mistakes.
- From an educational point of view games help to develop the so called 21st Century Skills. Playing games in groups imposes collective decision making and encourages users to learn together with their peers.

Potential threats

- There is still no such game designed which would be simultaneously educational and entertaining.
- The main point of many so called educational games is to verify

knowledge rather than to transmit knowledge.

- Maintaining the balance between freedom of game playing and educational system needs structuring. Playing games cannot be an activity forced upon students.
- Combining educational content with game experience is hard to accomplish.
- Games are primarily based on intrinsic motivation. Adding too many external rewards may ruin the joy of gaming.

Examples

- Schools making use of free online games during classes.
- Teachers creating their own games or diversifying classroom learning with elements of gamification (award system, competitiveness, combining fun with learning).
- Educational conferences devoted to games (e.g.: European Conference on Game Based Learning, Virtual Worlds – Best Practices in Education).

Elements of gamification can also be found in:

- simulation: Pulse – the Virtual Clinical Learning Lab <http://breakawayltd.com/serious-games/solutions/healthcare>
- commercial electronic games used in formal education: Whyville <http://www.whyville.net>, Cywilizacja <http://www.civilization.com>
- educational games: Dimension U <https://www.dimensionu.com>, SimSchool <http://simschool.org>, Virtual History <http://knowledgematters.com>, Wowzers <http://www.wowzers.com>, Lower Primary Maths <http://lpm-teachers.ydp.com.pl>
- schools using games: Washington DC's McKinley Technology High School, Quest to Learn, NY <http://q2l.org>



9. EDUTAINMENT

Learning while having fun, having fun learning

Related terms

Educational entertainment, educational television, experiential education, enter-educate, pro-social entertainment, pro-development entertainment, edu-tainment, infotainment, cloaked learning, covert learning, stealth learning, learning by playing, experiential learning, serious play

Description

The term 'edutainment' is a compound of two other terms: education and entertainment. Edutainment is nothing else than taking advantage of the power of entertainment in the process of learning. Its definition covers all the actions, where education is a priority and entertainment serves as the appealing element in the transfer of knowledge to reach the recipient and sometimes – conceal the educational content.

The idea of placing the transfer of knowledge and contents aimed at shaping social attitudes in an attractive, entertaining formula is nothing new. The first consciously used edutainment goes back to the 1950s, when BBC started its radio broadcast 'The Archers'. Until 1972 it maintained its educational nature – into an elaborate saga, narrating the life stories of residents of a small English town, the elements of economy, ecology and agriculture were entwined. Although after 1972 the broadcast lost its educational character, it is still broadcast up to the present day.

The biggest edutainment project worldwide, continuously since 1969 has been 'Sesame Street'. This program has taken the audiences by storm – today it is well known not only to children, but to parents and grandparents alike in 120 countries.

The use of edutainment can be very broad. Wherever we deal with a deepening knowledge and in forms traditionally reserved for entertainment, like: songs, soap operas, variety shows, quiz shows, TV series' and other popular entertainment formats (e.g.: films, games,

radio, toys, museums) spreads educational entertainment.

Learning through entertainment gains value especially in the digital natives era. The differences in the ways of discovering the world and ways of learning by representatives of this generation force the necessity of using new methods and educational tools. To reach the digital natives, who were born with a smartphone in their hand, one has to speak their language, using their everyday tools: language of films and tv series, entertainment and popular science programs, cartoons, skill, strategic and simulation computer games, social networks, communicators, blogs, e-learning courses and comic books.

Regardless of which media is used, the goal is the same – to create an unforgettable experience and to teach through entertaining. Edutainment gives a unique opportunity to reach the contemporary student, as it is not possible to teach if not addressing them properly.



EDUTAINMENT

Background

- Social changes.

Advantages and opportunities

- Creating positive associations with education and learning, resulting in change of students' attitude towards learning and gaining knowledge and as a consequence – improving their results and overall learning experience.
- Method of increasing students' motivation to learn by increasing their involvement.

Potential threats

- Maintaining a balance between education and entertainment may prove to be difficult – too many components based on knowledge may make it boring whereas too much entertaining content will spoil the educational value.

Examples

- <http://www.bbc.co.uk/schools>
- <http://www.bbc.co.uk/worldservice/learningenglish/flatmates>
- <http://www.sesamestreet.org>
- <http://www.oregontrail.com/hmh/site/oregontrail>
- <http://www.mathblaster.com>
- <http://www.reader-rabbit.com>



10. PBL – PROBLEM-BASED LEARNING

Discovering knowledge through problem solving

Related terms

Education based on experience, learning processes, problem-solving, project method learning, open education, constructivist learning environments, self-directed learning – SDL, project-based learning, collaborative learning, discovery learning, inquiry-based learning.

Description

One of the problems of contemporary education is the theoretical nature of knowledge acquired by students in the learning process. Encyclopaedic knowledge which they are fed during lectures or get from textbooks is not applicable in the real world. Students cannot make use of knowledge gained through traditional learning methods in their professional or private lives because they cannot translate this theory into practice. One of the ways to bridge the gap between theory and its practical application is to introduce the strategy of problem-based learning into the educational process.

To put it simply, problem-based learning consists of students working either in groups or individually, solving authentic problems, selected and delivered to them by the teacher. The greatest asset of problem-based learning is requiring students to be self-contained in gaining knowledge and skills, whilst at the same time mastering problem-solving skills which are so desired and useful in today's job market. Skills learned whilst working by the problem method prepare students well for the efficient functioning of society. That is why the best results are achieved when using the problem method in a group, as cooperative thinking ensures even the most complex problems are solved successfully.

In the problem-based method, the role of a teacher is significant, however, parallel with trends in changes of a teacher's role in the classroom, he or she becomes more of a guide, pointing in the direction of research rather than imposing his or her own point of view. The

teacher's task in this method is to facilitate the course of learning, providing students with problems to work on and solve. It is vital, that the problems are of key importance for a given area of knowledge – they cannot be petty and trivial.

While working on problem-solving tasks, students are given considerable autonomy and independence. Then the teacher refrains from imposing on students, even subconsciously, external patterns of thinking and acting, at the same time being sure that the knowledge acquired at school refers to students' current experience. The problem-solving strategy is in fact built upon strategies of memorising and ordering knowledge used by the students.



PBL – PROBLEM-BASED LEARNING

Background

- The goal of learning is not only the acquisition of theoretical knowledge, but also learning how to put that knowledge into practice and in social life. Traditional transmission methods do not reach this goal.
- Traditional learning strategies force students to gain knowledge in isolation from their current experience.
- There is a demand for methods developing in students the skills of critical thinking, analysing and synthesising of contents, decision making, searching and selecting information. The problem-based method fosters these skills.

Advantages and opportunities

- The problem-based method presents a systemic approach to the learning process, uniting all the educational objectives.
- Promotes the importance of comprehension in learning, as it is not possible to work in this method without deep analysis of the problem.
- Offers gradation of difficulty, allowing students to pass from easier tasks to more difficult ones, from simpler to more complex.
- Develops regularity in students' work, demanding constant ordering and synthesising of knowledge.
- Promotes an illustrative principle of learning, combining abstract with factual thinking, theory with practice.
- Supports the process of knowledge consolidation creating new components of the parts of content already known to the student.
- Develops students' efficiency, offering the possibility to make use of acquired knowledge and skills in new situations.

Potential threats

- The problem-based method is time-consuming, content acquisition takes relatively more time than when using traditional teaching methods.
- Teaching with the problem-based method requires a lot of preparation by the teacher: choice of problems and drawing up lesson plans is a laborious task.
- There may appear to be difficulties with the evaluation criteria of students' work – this method is not compliant with the grading system existing in schools.
- Familiarising students with the new form of learning takes time – at the beginning students may feel confused by a less ordered nature of work.
- The problem-based method functions better with students motivated to work and learn, in groups with lower motivation its effectiveness decreases.

Examples

- <http://pbl.massey.ac.nz/pbl-interactive.htm>
- <http://www.udel.edu/inst/index.html>



11. STORYTELLING WITH TECHNOLOGY

Placing information in context

Related terms

Narration, role play, digital narration, case-based instruction, narrative-based instruction, scenario-based instruction, problem-based instruction.

Description

Stories organize and transmit information, bestowing our life and environment with a sense of purpose. A story has a stronger impact than a mere example. Narration (story-telling) is a remedy for learning by heart and for automatic memorising of rules and laws without understanding their purpose or the context of the information. It is one of the most powerful forms of communication, with enormous potential as a teaching tool. Storytelling is creative and interactive. It helps to imprint information in students' long-term memory and helps in understanding, storing and in subsequent retrieving information from memory.

Stories present a sequence of information ordered in time. They use the attention-grabbing mechanism, placing data in context based on real life experiences. Events and solutions presented in this way can be established and the recipients adopt the role of observers or subjects who control the final result. Students should be able to face up to the challenge to come up with a solution, for example during a group discussion. The potential emotional aspect of such an activity plays an important role here. Learners may also actively create the story or take part in its classroom performance.

New technologies offer numerous possibilities of animating the story and making it more interactive. Consequently, making it is easier to transfer and acquire knowledge.



STORYTELLING WITH TECHNOLOGY

Background

- Innate human inclination for narration and stories.
- Natural ability of the brain to seek patterns and recognize them effectively.
- Development of technology makes narration more effective.
- Children frequently get their first knowledge of the world and basic values in the culture-based form of stories, passed on to them by parents and relatives.

Advantages and opportunities

Stories, providing context and frequently presenting true to life problems, involve listeners, encouraging them to use a number of resources, which results in learning becoming more effective.

Stories...

- Arouse interest and curiosity, draw students' attention involving them in the learning process,
- Help create distinct mental images, which stimulate the imagination and enhance brain development,
- Improve reading skills, verbal skills and listening skills,
- Improve the understanding of cause and effect relations, which improves the understanding of events, anticipating subsequent events, develops critical thinking skills and listening comprehension skills,
- Shape the structure and information flow, emphasising their meaning and creating relations between events, making the material easier to memorise and evoke later,
- Make learning easier and more relaxing, showing the information in a safe context and familiar form,
- Improve the student-teacher relationship, making it more personal,
- Create magic and a sense of bewilderment with the surrounding world,
- Develop understanding, respect and recognition of other cultures,

promote acceptance and tolerance towards cultural, religious and political differences;

... technology gives the students an opportunity to be more creative storytellers, allowing them to:

- Adopt a dynamic and attractive approach to learning,
- Quickly make a film, comic book or a cartoon version of a story,
- Combine story writing, illustrating and image gathering, recording and selecting music.



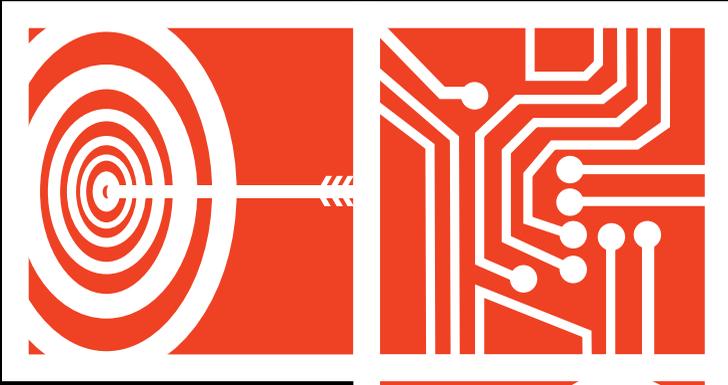
STORYTELLING WITH TECHNOLOGY

Potential threats

- Extensive use of narrating can be confusing because of too many plots.
- If the stories are told inappropriately, students may choose an unsuitable solution to the problem.
- Students may concentrate on details instead of focusing on the main point of the story.
- Stories are not always the proper method of learning.
- It is vital to make stories connecting with one another, coherent and short, as too many elements may cause students to get distracted from the main idea.

Examples

- National Storytelling Network <http://www.storynet.org>
- Tellebration!TM <http://www.tellabration.org>
- In the military environment: virtual reality software used to develop effective, comprehensive monitoring strategy http://www.cert.org/insider_threat
- Quand la colère fait tomber les masques, And the Oscar goes to... http://www.medeo-awards.com/files/publications/MEDEA-Awards-2012_press-release_20121115_EN.pdf



STEM – Science, Technology, Engineering, Mathematics

Student Centered Learning



Lifelong Learning

EDUCATIONAL ORIENTATION



Informal Learning



Outdoor Education



Vocational Education



12. STUDENT CENTERED LEARNING

Students and their needs in the centre of the learning process

Related terms

Learner-centeredness, student-centred learning environment, child-centred learning, student-centred classroom.

Description

Student-centred learning emphasises focus on the individual needs of every child. In this learning model other participants of the educational process: teachers, parents and administrative staff play a supporting role. The student is the most important element – along with his or her abilities, talents, weak points and preferred learning style. Equally important are the child's interests and its dynamically evolving social, intellectual and psychological needs. After decades during which the teacher-centered system prevailed, the time has finally come to realize that it is a child who is the primary participant of the educational process.

The implementation of a student-centred method may take various forms. It is sometimes said that the child alone must decide on what and how it learns, and what the evaluation and reward system look should like. Others see this method as a way to transform students' attitudes towards school, from passive to active, which is to be supported and assisted. In the past, these matters were mentioned in the works of such eminent thinkers as John Dewey, Jean Piaget and Lew Vygotski.

The problem connected with the implementation of the student-centred method is the difficulty of its practical application, as reported by teachers. The amount of time necessary to be devoted to each student and treat him or her in a personalised way is one of the reasons. The evaluation of progress and the implementation of standards imposed by the education system is not easy, either. Despite all that, executing the student-centred learning and its objectives is not only a suggestion but an obligation.



STUDENT CENTERED LEARNING

Background

- Students acquire knowledge in various ways and styles.
- Level of students' skills and abilities is not homogeneous.
- Social changes force new requirements regarding the qualifications of students and graduates.
- Poor learning results obtained by 'uniformed' methods.

Advantages and opportunities

For students:

- Better learning results and mental wellbeing,
- Increased active participation in classes,
- Ideas and questions are welcome and appreciated,
- Treatment of students as partners in their educational journey,
- Taking responsibility for one's learning,
- Encouraging personal comments and, consequently, developing creativity,
- Defining one's own opinions through conversations, listening, writing, reading and reflecting on content, terms, problems and concerns,
- Students become sources of knowledge for one another,
- Learning the ways of acquiring information.

For teachers:

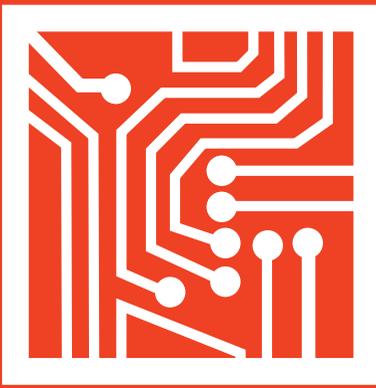
- Less ineffective traditional work.

Potential threats

- Teachers may cease to feel responsible for learning results.
- Time-consuming method.
- Method problematic to apply in the early stages of education.
- Problems with groupwork.
- Difficulty with standard evaluation of students.

Examples

- http://www.educationworld.com/a_curr/voice/voice117.shtml
- <http://www.facultyfocus.com/articles/effective-teaching-strategies/the-benefits-of-making-the-shift-to-student-centered-teaching/>
- <http://www.youtube.com/watch?v=ya0IK3yuuyg>



13. STEM – SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS

Change of innovative structure

Related terms

STEM, science education

Description

STEM is an acronym of: science, technology, engineering and mathematics – four basic disciplines essential for the development of technological innovations now and in the future. The acronym was first used in educational programs of the National Science Foundation – NSF. The reason behind such initiative was a lack of qualified candidates for employment in the industry of advanced technology. Another reason was the concern that STEM subjects were being taught in isolation from the remaining subjects, without creating an integrated education system.

Effective STEM education arouses interest and influences students' experiences from an early age. Thanks to STEM education it is possible to identify their skills and knowledge development, activating their mathematical and scientific thinking whilst gaining practice, which would sustain interest in science, mathematics and technology in the future. The key elements which may contribute to an effective STEM education are both educational standards and curricula and well-qualified teachers. The testing and evaluation systems are also extremely important elements supporting the educational process, as well as equal access to high standard teaching for all students.



STEM – SCIENCE, TECHNOLOGY, ENGINEERING, MATHEMATICS

Background

Innovations are the driving mechanism of the economy. However, the innovations are not made without well-educated, dynamic and motivated professionals who have extensive knowledge and science, mathematics and technology oriented skills. Moreover, the requirements of the job market change constantly. Today the practical knowledge of technological processes, mathematical and scientific thinking and problem-solving abilities, developed whilst learning STEM subjects, are mandatory in most professions. This puts a necessary emphasis on mathematical and scientific subjects in education. As humanity continues to develop new technologies and broadens its knowledge exploring new areas, the number of new professions where STEM skills are required is growing.

Apart from all that, in today's world, many decisions made each day, both personal and social (such as interpretation and comprehension of research results, but also the management of daily activities by means of numerous computer applications) requires a certain extent of STEM knowledge and thinking.

Advantages and opportunities

- Increase in the number of employees with STEM knowledge and skills.
- Raising the basic level of STEM knowledge in society.
- Greater participation of women in science and technology related areas.
- The development of positive attitudes in society towards STEM subjects.
- Preparing students to life-long learning.
- Improving the quality of resources used for teaching STEM subjects.

Potential threats

- Difficulties in the recruitment of highly qualified teachers of STEM subjects.
- Difficulties in the coordination of activities and cooperation of STEM-related groups with organizations like job centres, economic development organizations, school inspectorates and other educational institutions, universities and colleges, scientific and technology centres and organizations, informal educations providers.

Examples

- <http://www.stemedcoalition.org>
- <http://stemeducation.com>
- <http://k12s.phast.umass.edu/stem>
- <http://www.pbs.org/teachers/stem>
- <http://www.mcgraw-hill.co.uk/html/033520645X.html>
- <http://www.usnews.com/news/features/stem-education-center>
- <http://www.whitehouse.gov/blog/2010/09/16/changing-equation-stem-education>
- <http://www.stem.neu.edu>
- <http://www.soe.vt.edu/istemed>
- <http://www.cehd.umn.edu/stem>
- <http://ojs.jstem.org/index.php?journal=JSTEM>
- <http://www.intel.com/about/corporateresponsibility/education/k12/stem.htm>



14. LIFELONG LEARNING

In pursuit of a better life

Related terms

Adult education, educational experience, experience-based education, home-based learning, self-study, autonomous learning, University of the Third Age, voluntary education, experiential learning, ongoing learning, knowledge work, PLE – personal learning environments, self-directed learning, brain fitness, e-learning, life-wide learning, community education, work-based learning, part-time adult learner

Description

The process of constant renewing, mastering and the development of general and professional qualifications, occurring from early childhood until old age is a new educational reality. This phenomenon may be referred to as voluntary education, with its own motivation, lasting a life time and touching every aspect of our lives.

Today's world and the surrounding reality keeps changing at an unprecedented pace and nothing is able to stop or even slow down the changes. The only thing a person can do to keep up to date with an unstable reality is to learn the ability to quickly adapt to new conditions. Life-long learning is an obligatory condition of this adaptation: it is not possible to endow people at the outset of their professional life with all the knowledge and every skill which they will need throughout their entire life. New tasks and new problems appearing in a completely new environment will require constant learning.

In 2006 the European Union established a program of actions concerning life-long learning. The aim of the program is to ensure continuous economic growth for the Member States by increasing the number of workplaces and eliminating the social stratification. The development of different forms of life-long learning is the promotion of an active society, capable of quick professional adaptation.

Common access to technology makes life-long learning more accessible than ever before. Education does not have to be connected to a particular place or

time and can literally take place at anytime and anywhere.



LIFELONG LEARNING

Background

- Knowledge and skills must be constantly updated and extended – to remain competitive on the job market, adults should keep up with new trends, taking part in educational programs, which are dedicated to them.
- Changes occurring in the contemporary world force people to constantly raise their qualifications, increasing the importance and relevance of an ongoing education.

Advantages and opportunities

- Employment opportunities – keeping up to date, change of qualifications or professional development.

In professional aspect:

- Avoiding degradation on the job market.
- Increased income.
- Better employment opportunities.
- Change of profession.
- Job security.
- Successful career.

Personal development – change of interests and life-long learning:

- Change of lifestyle.
- Family values.
- Better health and wellbeing.
- Life experiences.

Examples

- Massive Open Online Course (MOOC) is an online course available for free, designed by academic writers from all over the world and validated by educational institutions. Most courses are certified, some of the platforms available are: Coursera, Futurelearn, iversity, Veduca, Schoo.
- The European Union strategy of growth -Europe 2020- offering support for life-long learning.
- Free educational programs for mobile devices, available in the AppStore and Google Play.



15. INFORMAL LEARNING

Education through practice

Related terms

MOOC course, learning in the community, community learning, immersion learning, non-formal learning, formal learning, social learning, online learning community, massive open online course, work-based learning

Background

Human beings are genetically programmed to learn – we learn constantly, in many ways. This process occurs when we perform our daily tasks (connected with both our work life and family life, and leisure): we observe, listen, talk, read, make mistakes and simply cooperate with other people. Informal education may stem from an incentive to learn something, but more frequently it is involuntary and accidental. It is a natural companion of our daily lives, the oldest form of education and the basis of our early childhood education, informal, not requiring any preparation or planning in advance, how most people gain skills and knowledge. Many people enjoy learning, but they dislike being educated. Education is forced, whereas learning is a matter of personal choice.

Some of the skills which we gain through informal education are:

- Skills learned at work: project management and computer skills,
- Language and intercultural communication skills, learned while travelling,
- IT related knowledge gained outside of the workplace,
- Qualifications acquired during contact with art and culture, doing sport, temporary work, household duties (e.g.: childcare) or voluntary or charity work.

The basic method of informal education is conversation. It is during a discussion where knowledge is exchanged and transmitted further. Open dialogue promotes innovations – people love to get together and talk in a lively atmosphere which favours the exchange of knowledge, of thoughts and ideas. Informal education is remarkably strengthened by the development of

technology and omnipresence of the internet. Due to these factors, education has no borders – it can appear as a result of an exchange of experience on an internet forum, chat room, through participation in a videoconference or in a corporate event. It is the most natural way to learn and develop.



INFORMAL LEARNING

Background

- The younger generation needs methods of gaining knowledge – providing simplified information in a form which allows only one correct answer to a given question and discouraging independent thinking is not sufficient in today's world.
- World becoming a global village means competing on a global level, shorter production cycles and more matters to deal with and catch up with.
- The more our civilisation develops the faster time flows. Nowadays learning in advance is impractical, because it is never certain whether what we learn will still be up to date and valid tomorrow.

Advantages and opportunities

- A dynamic advancement of technology creating informal learning situations may lower costs and save time.
- Informal learning, being more personal than formal (institutionalised) learning, becomes less stressful.
- Experts and specialists share their knowledge more willingly and more freely in an informal situation, they are also more eager to participate in educational initiatives.
- Learning in an informal way is the natural way people learn, which is why learning during an ordinary working day increases employees' receptiveness to new knowledge and eliminates resistance to its acquisition.
- An informal approach to education, arousing curiosity and boosting self-confidence is beneficial for less talented people or those with negative experiences connected with formal education. It offers such people an opportunity of finding a good, satisfying job.
- Informal education unites people and whole communities, contributes to defying stereotypes and increases association among people from different backgrounds.
- In the aging societies of a contemporary world, informal learning builds a bridge over the generation gap, enables people to stay active and independent at any age.

Potential threats

- People, whose knowledge is taken for granted may learn very little or nothing at all.
- Informal learning depends on individual learning abilities – not everyone benefits from using this method.

Examples

- Chat rooms and internet communicators
- Internet forums
- blogs
- course management platforms – Moodle
- Wiki
- Social network websites – Flickr



16. OUTDOOR EDUCATION

Learning in the open air

Related term

Outdoor education, recreational learning, experimental education, culture of fear, green learning initiatives, nature deficit disorder, teaching out, cotton wool kids, environmental learning, environmental education, nature education, adventure education, wilderness experience, adventure therapy

Description

Spending time outdoors is vital for the healthy functioning of our body. It is especially important for proper, balanced growth and development of children and young people. Spending time outdoors is not a prominent part of a modern lifestyle – the development of technology makes our lives easier, more comfortable and convenient. More and more services, like shopping, are available online, without leaving the home. Children are especially tempted to spend many hours playing video games in front of the computer or television screen. With children's safety in mind, parents drive them to and from school, and at the weekend spend time together at shopping malls instead of going for a walk or on an excursion. Nowadays, children play outside three times less frequently than their parents did when they were of the same age. Therefore it is hardly surprising that so many children suffer from modern age diseases such as obesity, vitamin D deficits or ADHD. Spending time outdoors is in fact indispensable for proper development: aerating and immunizing our bodies and ensuring a healthy physical condition. Playing with peers and taking part in team games are beneficial factors of our social development, stimulate imagination and learning new skills boosts self-esteem.

In view of all this, it is extremely important to include outdoor activities into the educational process. This does not only refer to physical education classes but also to try to transfer as much of the teaching process beyond the walls of the school as possible. Mobile technology makes it possible to study in various places. Thanks to tablets and smartphones, schools do not have to, or rather should not, be a place limited to only a building and location.

One example of education taking place outdoors is 'Green Schools', most commonly propagated in primary schools. Another idea is to take the learning process outdoors, holding biology lessons in the park, whilst physics and geography lessons would be spent observing the sky and history lessons in open-air museums.



OUTDOOR EDUCATION

Background

- Disappearing habit of walking to and from school.
- Spending time in front of the monitor.
- Parents' anxiety and fear concerning child being kidnapped or other disturbing accidents like being bitten by a fierce dog
- Schools, while concentrating on students' test results neglect other forms of education, their main argument being, overloaded curriculum and time deficits.

Advantages and opportunities

- Encouraging students with low motivation by offering them alternative ways to learn rather than traditional forms.
- Broadening students' mental horizons by drawing their attention to the beauty of nature, quality of art, pleasure of interaction with peers.
- Support for teachers in areas that are difficult to conduct in the classroom.
- Use and development of different learning styles, especially kinaesthetic.
- Building and extending abilities to interact with other people, supporting the development of independence and social skills by emphasising teamwork and leadership skills.
- Building a student – teacher relationship based on a mutual understanding.
- Involving young people in the participation of school life, helping to develop mature behaviour in both school and social contexts.

Potential threats

- Outdoor education will bring optimal results if it is incorporated into the subject's syllabus and will be closely related to issues discussed in the classroom.
- Chosen forms of outdoor activities have to be compatible with the potential of every child.

Examples

- Agriculture and 'back to nature' exploration classes
- Nature excursions.
- Visiting places of national heritage.
- Various outdoor workshops.
- 'Adventurous' exercises such as: climbing, water sports, trekking, cave exploration, archery, quad bike riding, obstacle course, mountainboarding, integration exercises.
- Expeditions.

Great Britain:

- Council for Learning Outside the Classroom <http://www.lotc.org.uk>
- Institute for Outdoor Learning <http://www.outdoor-learning.org>

USA:

- Outdoor Ed – <http://www.outdoored.com>
- Association for Environmental and Outdoor Education <http://aeoe.org>
- Association of Outdoor Recreation and Education <http://www.aore.org>



17. VOCATIONAL EDUCATION

Vacancies / qualified workers wanted!

Related term

Vocational schools, technical education, employability, occupationally-oriented education, vocational education and training, occupation, VET

Description

Vocational education is frequently associated with less talented students, with people with no alternative in life – namely, those who failed to achieve good enough results to study at university or college. Vocational education is perceived as the opposite of academic education and as such, often treated contemptuously by society. Such an approach is harmful and unfair.

Do you remember Maslow's hierarchy of needs? According to him, people first strive to meet their basic needs – food, water, sleep and safety – only then trying to satisfy the higher level needs. In this context when pondering the purpose of education, and consider it thoroughly, we reach the conclusion that the answer is quite simple – the aim of education is to deliver the knowledge and skills necessary to find a job and support oneself and one's family.

Economists describe the contemporary global economy as unique in the world's history. Never before has it been more turbulent. Never before has the idea of returning to vocational education seemed in such great demand as it is today.

It also seems obvious that the requirements students have to meet today differ greatly from the ones their parents and grandparents had to comply with in the past. These differences are mainly a result of the development of technology and greater freedom of access to information. They also have a lot to do with the global economic crisis. Taking all the above mentioned factors and their massive impact on the shape of today's education into account, we should discuss the employability of school graduates. 'Employability' is the ability to develop the skills that are needed to work in a group and to act in a

creative way. If we are employable, it means that we are ready to start work and to start our working life, but most of all – that we have chosen a profession for which there is a demand on the job market.

The ability to find and keep a job is very important. It is perfectly obvious for employers who have problems finding employees in professions such as: technicians, drivers, chefs or construction workers. This problem also concerns students at the threshold of their adult life and the unemployed, who need to provide for their families. Vocational education and its values should once again be recognized. It is worth trying to restore its good reputation. Let us not forget that vocational education focuses on practical use of skills, not on theoretical aspects of different issues. This type of education brings society a great number of representatives of needed professions. We meet them regularly in our daily routine. What is more, sometimes they contribute more to our lives than scholars and professors from prestigious universities.



VOCATIONAL EDUCATION

Background

- Global economic crisis and unemployment.
- Lack of qualified workers.
- Growing number of 'unemployable' graduates.
- New professions and vacancies.
- Demand for high-quality services (e.g.: in restaurants).

Advantages and opportunities

- General appreciation of vocational education.
- Opportunity for talented students, who do not want to do 'impractical' jobs.
- Supporting talents.
- Better quality of services.
- Well-paid non-academic professions.

Potential threats

- Lack of general knowledge and education.
- Threat of drop in profitability of colleges and universities.
- Difficult re-training process.

Examples

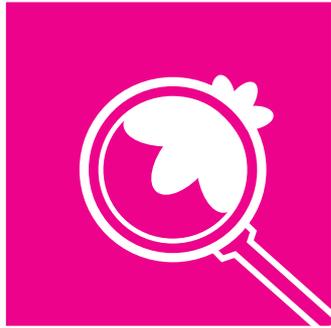
- <http://www.nbcnews.com/business/some-employers-want-return-vo-ed-training-232202>
- <http://www.oecd.org/edu/skills-beyond-school/41538706.pdf>
- <http://www.rand.org/topics/vocational-education.html>
- <http://www.7eu-vet.org>
- http://ec.europa.eu/education/lifelong-learning-policy/vet_en.htm
- <http://world.time.com/2012/10/04/who-needs-college-the-swiss-opt-for-vocational-school>



Visual Search & Learning



Augmented Reality



Snack Learning

Gesture Based Learning



Brain-Based Learning

NEW WAYS OF DATA RECEPTION

NEW WAYS OF DATA RECEPTION



18. VISUAL SEARCH & LEARNING

Thinking with images

Related terms

Learning styles, visualisation, imaging, visual-spatial intelligence, graphic search

Description

There are many different ways of presenting data and transferring information. At school it is conveyed mainly in verbal or numerical form. Visual learning is the inclusion of visual imagery to education through the use of pictures, mind maps, graphs and in creating graphic organizers, diagrams and sketches. Graphic layout, perspective, spatial planning, sizes, shapes, textures, angles and three dimensional depth are the components taken into account for this way of learning, with the extensive use of tools such as highlighters and flashcards.

The visual form helps in making associations and in creating connections between pieces of information. It shows relations and common elements, and helps to analyse, memorise content, order your thoughts, assimilate new knowledge and recall details. Visual stimuli dominate over other senses. They allow you to see the possibilities of grouping and ordering information. Let us not forget that the signs and symbols have always been used to convey meaning in a fast and often simplified manner.

Visual objects contain more information than we can process at once, however, it is easy to adjust the pace of message assimilation to our individual needs. Visual search lets students browse and order a vast number of images or videos. Data regarding the size, colour, position and distribution is used for this purpose, being selected from audio-visual material and recorded as metadata. Such methods allow us to transmit a broader scope of information about objects seen at first glance. Visual search has changed the way we perceive and select information.



VISUAL SEARCH & LEARNING

Background

- Difficulty in the reception of verbal instructions, students' boredom.
- Information overload.
- Problems with focusing attention.
- Lack of comprehension of a subject without visual context and visual aids.
- Extensive exposure to images in other spheres of life.

Advantages and opportunities

- Increase in students' involvement and level of comprehension.
- Simplicity and profundity of understanding new concepts (especially if linked with knowledge already acquired).
- Help in critical thinking.
- Improvement of retention, comprehension and information ordering abilities.

Potential threats

- The method should not be used independently but rather combined with auditory and kinaesthetic education.
- Accuracy and meaningfulness of visual learning may be questioned at times.

Examples

- Teaching with the use of interactive board
- using YouTube in the classroom
- 3D animations
- e-textbooks
- Eye-Tracking
- Cyber-eye
- Google Graphic Search
- Pinterest <http://pinterest.com>
- WINEfindr by Cortexica <http://www.cortexica.com/winefindr>
- oSkope <http://www.oskope.com>



19. AUGMENTED REALITY

Augmentation of human perception

Related terms

Internet of things, authentic learning, computer-generated sensory input, mediated reality

Description

Augmented reality (AR) is the enhancement of reality 'seen' by a mobile device which places text and pictures on it, extending the visual depiction of the world.

This technology makes use of virtual information provided by software and real images and videos. This offers instant learning, establishing its context.

AR technology is partly virtual and partly real. It is closer to our surrounding world than to virtual reality. It enriches reality, adding graphics, sounds, animations, GPS coordinates and feedback. In this way the real world is made interactive and yields to digital processing.



AUGMENTED REALITY

Background

- Students' mobility and need of instant access to information.
- Possibility of intensifying perception of reality through mobile devices.
- Need of placing education in context, opportunity to learn from the surrounding environment.

Advantages and opportunities

- AR, referring to real experiences personalises learning and makes it more meaningful.
- Involves students, provides necessary educational interaction and offers needed support.
- Helps students to understand contents and information from the environment more extensively.
- Creates realistic models, demonstrating students a contextual, three-dimensional nature of the real world.

Potential threats

- Innovation and attractiveness of technology may end up with less attention devoted to quality and content which are of key importance for educational objectives.
- It has not yet been tested or proven in which educational areas are AR beneficial.

Examples

- SixthSense <http://www.media.mit.edu/research/highlights/sixthsense-wearable-gestural-interface-augment-our-world>
- Buffalo Hunt <http://gameslab.radford.edu/ROAR/games/buffalo-hunt.html>
- GoS-kyWatch Planetarium <http://www.youtube.com/watch?v=S-yRIH-bHDw>
- ARIS Global Game Jam and ARIS games <http://arisgames.org>
- St Mary's w Norton-le-Moors primary school in Great Britain using semacodes http://news.bbc.co.uk/local/stoke/hi/people_and_places/newsid_9371000/9371536.stm



20. GESTURE BASED LEARNING

Learning with your entire body

Related terms

Kinaesthetic learning, bodily-kinaesthetic intelligence, gesture-sensing techniques

Description

Kinetic devices can now detect almost every movement, enabling the control of software by clicking, dragging a finger or changing the position of the device itself. Gestures have always been a universal form of human communication and direct contact with a device is a more natural form than navigating it with a mouse or a keyboard. It facilitates interaction with the software, transferring a person into a sort of virtual world and letting him or her instinctively manipulate the program. It allows the user to place a greater focus in the education on the student.

In the technology of the brain-computer interface, the computer makes it possible to read EEG signals directly from student's brains and to facilitate direct communication. Brainwaves, their reading and potential reinforcing are still an insufficiently used sphere of educational possibilities. Fast evolving progress in the field, along with science concerning dreaming, its stages and their influence on learning may soon revolutionise our understanding of the process of how our brains handle the acquisition of knowledge.



GESTURE BASED LEARNING

Background

- Lack of universal devices controlled by mouse or keyboard.
- Necessity of making learning more active (movement activates the mind).
- Need for intuitive interface.

Advantages and opportunities

- Learning by the kinaesthetic method leads to achieving better results by every student.
- Encourages students to more active participation.
- Develops kinaesthetic abilities and supports methods of active learning.
- Shifts technology to the real world, where moving and reacting occurs in a more a instinctive way.
- Helps students with special educational needs and disabled students (as a technology useful for developing skills or facilitating actions).
- Translates body language and sign language.
- Supports activities which develop social skills.
- Promotes cooperation through involvement into group work and develops problem-solving skills.

Potential threats

- High cost in comparison with its benefits.
- May distract attention from learning.
- Need of space to prevent potential injuries.

Examples

- Nintendo Wii, Kinect, KinectEducation
<http://www.kinecteducation.com/blog/tag/kinecteducation>
- Kinect Nat Geo TV, EyeMusic Project
<http://www.cs.uoregon.edu/Research/cm-hci/EyeMusic>
- Virtual Autopsy table <https://www.tii.se/projects/autopsy>
- Emotiv Epoc <http://www.emotiv.com>
- SixthSense <http://www.media.mit.edu/research/highlights/sixthsense-wearable-gestural-interface-augment-our-world>



21. SNACK LEARNING

Small and tasty bites of knowledge

Related terms

bite-sized learning

Description

Snack learning is education served in bite-sized pieces, therefore easy to swallow. This metaphor shows that a chunk of knowledge conveyed to the student at one time is easy to receive because it does not exceed his ability to acquire knowledge and focus his attention. Bite-sized learning often involves the introduction of multimedia into the education process e.g.: films, short animations or interactive presentations. Additionally, snack learning makes the educational content more condensed, more involving and in the long run ensures the acquisition of a better quality of knowledge.



SNACK LEARNING

Background

- Limited ability of concentration and short attention span.
- Lack of time.
- Need of multi-tasking.
- Limited acquisition of knowledge and retention abilities.
- Necessity of fast access to information.
- Need to assimilate information divided into small chunks.
- Review-refresh-reinforce process .
- Learning in one's free time.

Advantages and opportunities

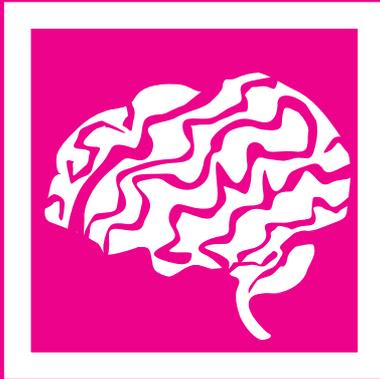
- Optimising attention span.
- Maximizing memory cycles.
- Reinforcement of learning.

Potential threats

- Lack of time for sufficient assimilation of material.
- Superficial learning.
- Lack of time for reflection and questions.

Examples

- Mobile Comprehensive Curriculum – interactive course for mobile devices for biology, chemistry, mathematics, physics, science and humanities designed for junior high school and secondary schools, by Young Digital Planet.
- <http://mathsnacks.com>
- Snack Learning® by Metriss.com
- Educational materials in the form of short films and animations.
- Textbooks including short texts, rich in illustrations, photos and charts.



22. BRAIN-BASED LEARNING

Recognition of brain power

Related terms

Multiple intelligence theory, learning styles (these two terms had been used before the latest discoveries in neurology and are rooted in psychology and social sciences), brain-based teaching, brain-compatible learning, brain-based strategies, integrated thematic instruction

Description

Each brain is different, although there are common features for everyone. These features, namely the way in which the brain is designed to learn, are the ground on which brain-based strategies are built. Brain-based strategies were discovered during numerous neurological studies and it was proven that for the learning process to take place, different areas of the brain have to cooperate and communicate. Understanding the meaning of these processes will allow us to find out how the brain learns and to apply this knowledge in educational methods.

- Comprehensive learning is reinforced by challenges and impeded by severe stress blocking creative thinking on a higher level (a phenomenon called 'gear reduction' or 'fight or flight' response occurs). Our brain is its own source of reference. It is designed to react on the basis of feedback which lessens uncertainty and lowers the level of stress. Immediate and constructive feedback motivates students.
- Students ought to be given time for assimilating the material before passing on to the next stage of education. It is also advised to take regular breaks whilst learning – in order to process information and reflect on it. The stress should be placed on analysing information in an active manner. There are two types of memory: spatial and rote memory. We learn most efficiently when facts are stored in the natural spatial memory (ordinary experiences). Neurons and synapses are strengthened by exercises and revision. The brain has a social nature. Learning in groups equips it with the means of searching for new information.
- The brain assimilates the pieces of information which are of direct relevance. It is aware, however, of other data, lying beyond the area of its closest activity, responding to the whole context of the educational environment.
- The brain is shaped by experiences and remains flexible throughout our entire life. Not used synapses are removed. Because the learning process occurs when the mature axon is connected with a neuron, it is important to take into account previous experiences. The brain creates patterns and always searches for context and sense. It needs to establish a connection for the knowledge to be acquired (the brain is naturally conditioned to learn by what helps it to survive).
- Attention, sense and memory are driven by emotions (positive emotional state makes learning possible).



BRAIN-BASED LEARNING

Background

- Latest achievements in technology allowed scientists to explore the inside of the brain and verify the way of how its structures communicate with one another. In this way it was possible to understand how the process of assimilating knowledge takes place.
- Criticism of current education model.
- Withdrawal and lack of involvement and interest in students.

Advantages and opportunities

- Optimizing and improvement of the quality of teaching and learning.
- Creating a better educational environment, adjusted to the functioning of our brain.
- Understanding of methods of motivating students.
- Establishing awareness of how the brain learns mathematics and of the difference between comprehension of numbers and learning of abstract mathematics.
- Understanding of how memory operates.
- Encouragement and assistance for teachers in order to enable them to effectively educate different types of students.
- Establishing awareness of the influence of experiences on students.
- Designing a new grading system better suited to the students' needs.
- Helping students with special educational needs.

Potential threats

- Incorrect interpretation of neurobiological studies' results create myths circulating in the public opinion which are taken into account in the education process (teaching according to the division into right and left hemisphere, myth

about critical periods for learning and that of a distinction between the 'male' and 'female' mind).

- Since the brain is a complex structure, where the interactions between its parts occur constantly, jumping to conclusions before properly examining the complexity of the brain-related phenomena may negatively affect the students.
- Focusing the education on 'developing dendrites'.
- Education based on one strength (strong intelligence or multiple intelligence theory), disregarding weaknesses or focusing on a specific learning style may bring students more harm than good.
- Schools should not function basing education on only brain biology and brain-based teaching.

Examples

- Schools which implement strategies of brain-based teaching in education
<http://www.jensenlearning.com/schools.php>
- Making use of brain-compatible methods and strategies in order to improve results in teaching mathematics
<http://schools.gedsb.net/ar/passion/pv/LiteracyNumeracy/VanKuren.pdf>
- Key Largo School in Florida
<http://www.edutopia.org/brain-based-learning-key-largo-school-video>



Edutainer



Flipped Classroom



Virtual Learning Assistant



STUDENT - TEACHER RELATIONSHIP



23. EDUTAINER

The art of teaching

Related terms

Expert, leader, tutor, trainer, guide, project-based education, mentor, pedagogue, counsellor, advisor, scholar, discipline, educator, edutainer, up-to-date teacher, teacher artist, sage on the stage and guide on the side, flipped classroom

Description

Today, when students have almost unlimited access to vast amounts of information, they no longer need a teacher who is the main provider of facts. For several years, a heated debate on the role of teachers in the process of education has been going on. We ask pedagogues: “Are you intellectuals on the stage or guides standing at the side?” We observe a growing significance of personalised and adaptive education and a student-centred approach, which means that our expectations towards teachers are continually growing. Their role keeps changing and not all teachers are able to adjust to the new circumstances. Research shows that almost half of them experience burnout syndrome during the first five years of work. Some of them sometimes lack even the basic operational and interpersonal skills, indispensable for the construction of an optimal learning environment. There are also those, who still separate the school environment from the real world, which is unacceptable from the point of view of contemporary students. Others are simply not able to meet constantly growing expectations to abandon the role of a lecturer and start acting as counsellors, mentors and guides.

Furthermore, contemporary cultural and social trends affect education to much greater extent than formal education. New technologies and virtual worlds have become extremely important for all of us. Moreover, contemporary students are more focused on how to gain practical skills, how to think, how to learn and how to cooperate and, consequently, how to find a job. Teachers find it wearisome at times to support students in facing such difficult challenges. All that leads to the conclusion that a new generation of fulfilled teachers will be referred to as a generation of edutainers (edutainer = educator + entertainer). This means they will be rather artists than fact providing and discipline maintaining individuals. The existing edutainers are people with a sense of mission and very passionate about what they do.



EDUTAINER

Background

- Student-centered education.
- Lack of connection between formal education and the world outside the classroom.
- Outdoor education – students go outside of the school walls.
- Attempts to make students more independent in the learning process.
- Growing importance of cultural and social trends.
- Project-based education.
- Learning in group and cooperation.
- Personalisation of learning (focus on problems and individual abilities).
- Learning based on real life issues.
- Increasing importance of practical and creative skills, of thinking and learning which help to find a job.

Advantages and opportunities

- Edutainer will need new tools and modern educational materials.

Potential threats

- The number of teachers may decrease, but their role will be much more prominent and remuneration – higher.

Examples

- Flipped classroom <http://www.knewton.com/flipped-classroom>
- <http://www.amazon.com/The-Edutainer-Connecting-Science-Teaching/dp/1607096137>
- Khan Academy



24. FLIPPED CLASSROOM

Improving the contact with the teacher

Related terms

flip teaching, reverse instruction, inverted instruction, reverse teaching, flipped classroom, backwards classroom, inverted classroom

Description

The 'Flipped classroom' is the effect of combining and implementing a few educational trends. Since different educational methods are used with more or less an equal result – increased satisfaction of students and teachers, greater involvement and we hope an intensified acquisition and retention of knowledge – we have decided to include it in this compilation of trends in education.

The flipped classroom is an example of reversing the traditional approach to the lesson plan. Usually the teacher first, introduces a new subject to students, then, follows exercises and home assignments. In the flipped classroom the teacher introduces the subject in a way that allows the student to do some research on it before the actual lesson. This makes the lesson more time effective, giving the teacher the opportunity to interact with students, answer their questions, solve any problems and devote extra time to practice and discussions.



FLIPPED CLASSROOM

Background

- Poor learning results.
- Theoretical introduction to a subject is usually the most boring part of the lesson.
- The number of students in classes and the necessity to present the subject, excluded interaction of the teacher with students.
- Constant lack of time for practical exercises.
- Encumbering students with many home assignments – especially when they have to do homework after school, when they are tired.
- Each student has different abilities of acquiring knowledge, it is necessary then to adjust the pace of presentation of new subjects to individual requirements.

Advantages and opportunities

- More time for practice.
- Opportunity to receive answers to questions and to discuss unclear matters.
- Possibility to further explore the subject – after the students learned the basic facts and information.
- Opportunity of discussion and student-teacher interaction.
- Providing time for problem solving and learning of critical thinking.
- Improvement of classroom atmosphere.
- Forcing on some teachers to get familiar with the latest technology.
- Teaching how to clarify doubts, ask questions and defend one's opinion.

Potential threats

- Not all teachers are able to prepare educational materials individually and independently.
- The quality and level of recorded materials may vary from one teacher to another.
- If the student has not prepared the lesson in advance, he or she will not fully participate in the lesson.
- Students may find it harder to concentrate whilst listening to a recorded lecture than during the lesson.

Examples

- Khan Academy.
- Making use of already existing materials, such as TedTalks or CNN website.
- yTeach.



25. VIRTUAL LEARNING ASSISTANT

Teaching on demand

Related terms

Virtual assistant, e-learning assistant, virtual teaching assistant, one-on-one interfaces, distance education, many-to-one tutoring, video learning, online training

Description

The virtual educational assistant or online learning are becoming more and more popular throughout world. Dynamic growth in the number of users of the KhanAcademy and Coursera.org has proven that there is an extraordinary demand for these types of services. Place and time are not the issue anymore. Students from distant parts of the globe are able to attend classes taught by the best teachers or native speakers without leaving their hometowns and even enrol in a course organized by renowned universities, such as Harvard or Oxford. Advanced systems help to trace progress and personalise education, making it more reliable. On the contrary, one of the biggest threats of virtual learning may be the fact of the de-humanizing of education. Also, it may be disquieting to imagine that computers will be one day able to replace not only teachers, but students as well.



VIRTUAL LEARNING ASSISTANT

Background

- Growing popularity of personalized teaching.
- Lack of time for individual attention given to student in the classroom.
- Globalisation and easiness of becoming a trainer.

Advantages and opportunities

- Lower staff and infrastructure costs.
- Equal educational opportunities for children living further from urban areas.
- Easier access to high quality educational services.
- Personalization of education.
- Education anytime and anywhere.
- Easier access to native speakers.
- More precise tracing of progress in learning.

Potential threats

- Virtual teachers may replace people altogether.
- Lack of communication and social skills.
- Dependence on technology.
- Unreliable interface.

Examples

- <http://cyber-kap.blogspot.com/2011/09/top-10-sites-for-online-tutoring-and.html>
- <http://mashable.com/2012/08/28/homework-tutor-istaedu>
- <http://www.aleks.com>
- <http://online.carnegielearning.com>
- <http://cognii.com>
- <https://www.coursera.org>
- <https://www.khanacademy.org>



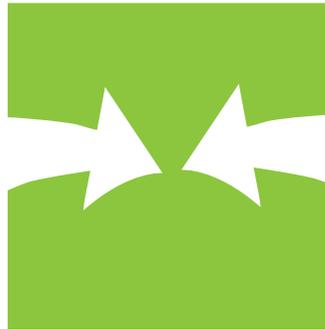
Social Media Learning



Collaborative Learning



Peer Learning



STUDENT - STUDENT RELATIONSHIP



26. SOCIAL MEDIA LEARNING

We are all social beings

Related terms

informal learning, social network learning, personal learning networks, social learning environments, social learning platforms, Facebook, Twitter, Flickr, MySpace, Pinterest, LinkedIn, Google +, Friendster, Hi5, Orkut, Digg, Badoo, NetLog, Instagram, SlideShare, Prezi

Description

Social media learning is a trend in education which makes use of internet communication tools to share materials. Knowledge and to work collaboratively. Social media or technologies used by social media promotes conversation, discussion and learning from others.

For technology to be defined as 'social', it should fulfil at least one of the following criteria: enable sharing of contents, also the ones created by the user, encourage cooperation, facilitate formal and informal learning.

When we talk about technologies of internet communication which are used by social media, we mean blogs, social network websites such as Facebook, Twitter, Flickr, Pinterest or LinkedIn, websites dedicated to file sharing such as SlideShare -for sharing presentations, YouTube – for sharing videos or the entire set of Google applications and Elgg – a open source-type software for organizations and individual users. It allows users to create their own online platforms with options of blog and microblog writing, sharing files, creating forums, work groups and numerous other functions.



SOCIAL MEDIA LEARNING

Background

- Diversity and accessibility of materials on all subjects. People love to share their point of view with others and to discuss different topics, from the methods of solving mathematical problems, through psychology of adult behaviour to gardening and travelling.
- Social media is flooded with intellectual junk, but, on the other hand, there are also serious, academic or strictly scientific publications, which serve the same purpose as traditional trade journals had before.

Advantages and opportunities

- Instead of traditional school newsletters, educational institutions may write blogs and activate students interested in politics, music, mathematics or sport and encourage them to write about their hobbies.
- Since the aim of education is to share knowledge and experience, social media, just like any other channel of communication, may increase the effectiveness of learning and assimilation of knowledge. We should therefore find creative methods of using social platforms to boost the effectiveness of learning.
- Social media learning may be used in case of structured forms of e-learning courses.

Potential threats

- Facebook is perceived as an environment mainly for students, which teachers or schools do not have access to or whose access to it is limited (the case of Victoria University in Melbourne).
- Insufficient linguistic competence impedes the process of sharing knowledge.
- Excessive amount of time spent on chatting and browsing irrelevant websites.
- Blocked access to social platforms at school.
- Presence and the scope of activity of social networks at schools is an administrative decision not always dependent on teachers.
- Initially, the social network websites were created to share ideas and thoughts, but nowadays they are primarily used for marketing and advertisement purposes.

Examples

- myeverCLASS by Eruditis, Lithuania
- Peer Instruction (PI) Network <http://www.peerinstruction.net>
- Khan Academy <http://www.khanacademy.org>
- SlideShare and blogs often used for publication of miscellaneous presentations.



27. COLLABORATIVE LEARNING

Two heads are better than one

Related terms

Collaborative learning, cooperative learning, teamwork, work group, study group, social group, team-based learning

Description

Collaborative learning is a method consisting of acquiring knowledge in a group. Each member of a created team is involved in its activities individually, and takes advantage of the knowledge, experience, viewpoints, skills and opinions of other team members. Thanks to such a working method, the problem is analysed from different perspectives and the ideas are evaluated by a number of individuals.

The methods of collaborative learning may be informal, e.g.: conversations or – when technology is used – chats and online discussions, or structured, like pair work (so called 'think-pair-share'), reciprocal teaching, think-aloud pair problem solving, analysis and classification of materials according to familiar criteria ('group grid'), defining the problem connected with the discussed topic ('group writing assignments'). Group work is sometimes preceded by students' individual preparation.

As far as structured methods of collaborative learning are concerned, it is recommended (or even advised) to create conditions facilitating this type of work, e.g.: assigning educational tasks to a particular group, direction and training of students, group formation, ensuring efficient cooperation between students, evaluating students in the conditions of group learning.

Although the methods of acquiring knowledge are group based, it does not mean that the results achieved by each member of the group have to be identical – on the contrary – they may vary considerably.



COLLABORATIVE LEARNING

Background

- Difficulties with subject comprehension – complicated topics are easier to understand with the help of other students.
- Large amount of information is difficult to analyse individually.
- Lack of motivation to learn caused by multitude of data.

Advantages and opportunities

- Students adopt the role of the teacher and the teacher – the role of students.
- Better understanding of new notions – research shows that collaborative learning allows to grasp meaning and memorise content more effectively.
- Easy detection of the elements which have been misunderstood.
- Less time needed for the comprehension of complicated notions.
- Increase in the students' interest and involvement.
- Practising the key learning skills like critical thinking, group work, analysis, ordering information, discussion, presentation of ideas, giving and receiving feedback, defending one's opinions etc.

Potential threats

- A collaborative learning situation may easily evolve into a social get together, failing to produce the desired educational effect.

Examples

Mainly the informal ones:

- Virtual classrooms – located in different places around the country (or the world), by means of audiovisual connection: http://en.wikipedia.org/wiki/Collaborative_learning
- Atlantic Link – Collaborate to Create.



28. PEER LEARNING

Where one teaches, two learn

Related terms

Peer learning, peer-to-peer learning, peer assisted study sessions, peer tutoring, peer instruction, study groups, peer led team learning, flipped classroom

Description

Peer learning defines a situation where peers interact with each other and focus on the same topic, learning from one another. Peer learning may assume a form of face to face contact, social networking or may take place during special events promoting such forms of learning. The educational environment in those situations is friendly, without the stress caused by adult supervision. People enjoy learning new things from a friend being an authority in the given area.

In this form of learning the 'lecture' may be interrupted with questions concerning the subject. It helps students make sure whether they have properly understood the material. They also have the opportunity to work with two or three other people and to take their time to think, discuss and formulate the correct answer. The above described method is very popular in academic and vocational education. The primary condition of peer learning is equal status of all participants of the process.



PEER LEARNING

Background

- Stress connected with typical school environment.
- Shared objectives, common threats and pressure.
- Easy contact with another person.

Advantages and opportunities

- Learning through teaching – better understanding of certain notions – research has proven that teaching others allows the person teaching to thoroughly understand and retain the matter in memory. There is no better way of acquiring knowledge.
- Increase of students' interest, improvement of their self-esteem.

Potential threats

- Difficult management and control, lack of control.
- No certainty concerning the actual relevance of the topic of discussion.

Examples

- Hole in the wall by Sugata Mitra <http://www.hole-in-the-wall.com>
- Victoria University (VU) in Melbourne, the introduction of methods of peer learning and mutual student support model are the elements of leading strategy of this university (Students Supporting Students Learning)
<http://ro.uow.edu.au/cgi/viewcontent.cgi?article=1013&context=ajpl>
- Peer Instruction at Harvard University by Eric Mazur
<http://mazur.harvard.edu/education/educationmenu.php>
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<http://woodlandownernetworks.wordpress.com/2008/06/25/overview>



TECHNOLOGICAL NOVELTIES

Technology is rapidly changing the way in which we learn and teach others. Sometimes, the innovative solutions completely open up new horizons and sometimes technological novelties fade away before they even reach public awareness.

Below you will find some examples of technological novelties. Watch out – some of them may soon become an essential part of your everyday life!

- Hybrid television, intelligent television, 3Gtelevision (Smart TV, Connected TV),
- Augmented reality glasses (Head-Up Display), e.g.: Google Glasses,
- 3D Printers,
- Internet of Things,
- VRD - Virtual Retinal Display, RSD - Retina Scan Display,
- Holography,
- Translator of speech in real time (Speech To Speech Translators),
- Immersive Virtual Reality.

For those of you who are especially interested in technological novelties and the life cycle of technology, we recommend a further study of the research of Gartner Company, particularly with Gartner Hype Cycles, available at: <http://www.gartner.com>



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Alina is an originator and leader of The Book of Trends in Education project. She is interested in the process of product creation and in innovative technologies. As an experienced manager, marketing specialist, teacher and speech therapist she has got extensive experience in creating new, user-oriented products, particularly for pre-school children and primary school pupils. Alina is a happy and proud mother of Oliwia, who takes an active part in the process of product creation as a consultant and a product tester in the early stages of its development.



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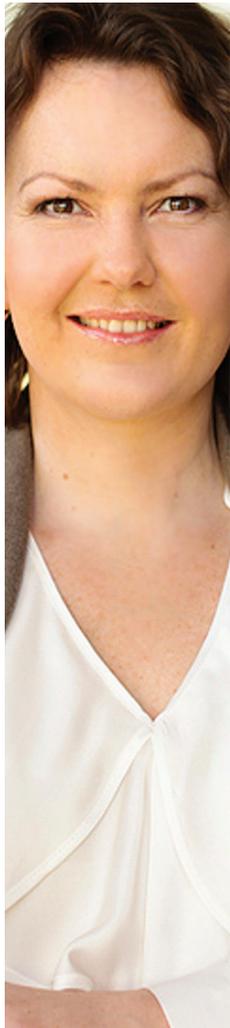


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To be continued...

I. TRENDS	
II. INTRODUCTION	
A. NEW FORMS OF ACCESS TO KNOWLEDGE	A
1. Mobile Learning	A1
2. Cloud-Based Learning	A3
3. Open Source Learning	A5
4. Personal Learning Environment	A7
B. EDUCATIONAL EXPERIENCES	B
5. Adaptive Learning	B1
6. Project-Based Learning	B5
7. Relevance-Oriented Learning	B7
8. Game Based Learning & Gamification	B9
9. Edutainment	B11
10. PBL – Problem-Based Learning	B13
11. Storytelling with Technology	B15
C. EDUCATIONAL ORIENTATION	C
12. Student Centered Learning	C1
13. STEM – Science, Technology, Engineering, Mathematics	C3
14. Lifelong Learning	C5
15. Informal Learning	C7
16. Outdoor Education	C9
17. Vocational Education	C11
D. NEW WAYS OF DATA RECEPTION	D
18. Visual Search & Learning	D1
19. Augmented Reality	D3
20. Gesture Based Learning	D5
21. Snack Learning	D7
22. Brain Based Learning	D9
E. STUDENT – TEACHER RELATIONSHIP	E
23. Edutainer	E1
24. Flipped Classroom	E3
25. Virtual Learning Assistant	E5
F. STUDENT – STUDENT RELATIONSHIP	F
26. Social Media Learning	F1
27. Collaborative Learning	F3
28. Peer Learning	F5
III. TECHNOLOGICAL NOVELTIES	
IV. AUTHORS	

CONTENTS



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