

9. E-learning (distance transfer of knowledge) for organizations, institutions and companies

9.1. Division and characteristics of e-learning trainings

Technological advances, dynamic changes, competitive market and providing social welfare are important challenges. Nowadays, a variety of communication channels encourages people to look for answers to the bothering questions and explanations of mysterious phenomena. With the latest technology at hand, they are able to gain new knowledge which would help them become more respected members of the society.

Modern technology has many dimensions and concerns different areas, e.g.: a single citizen, the community, finance, ecology or logistics. The logistics involves: material, technical, medical, infrastructure and transport procurement. In organizations and companies logistics operates in production, procurement, warehousing, distribution and services. These are only examples, as it is impossible to list all areas and organizational levels where modern technologies bring the expected benefits.

People who start e-learning course in organizations, institutions and companies should be well informed and well prepared for this. In Polish, different terms are used: e-teaching, e-education and electronic education. A letter *e* in *e-learning* means:

- ◆ exciting,
- ◆ energetic,
- ◆ enthusiastic,
- ◆ emotional,
- ◆ extended,
- ◆ excellent,
- ◆ educational,
- ◆ electronic²⁰⁵,
- ◆ everything,
- ◆ everyone,
- ◆ engaging,
- ◆ easy²⁰⁶,
- ◆ economical,
- ◆ effective,
- ◆ executive,
- ◆ experimental,
- ◆ eclectic.

E-learning is a distance transfer of knowledge and can be organized in a form of trainings for anybody, at any place. To start training we need only a computer and the Internet access. E-learning has two perspectives - of a learner and of a person in charge of the program (in possession of the knowledge). This form brings organizational and economic benefits and can be adapted on various organizational levels and in various areas and branches. The search for

205 <https://sites.google.com/site/smarteducation333/about> Bernard Luskin [4.12.2014].

206 <https://sites.google.com/site/smarteducation333/about> Parks [4.12.2014].

the most effective solutions to improve logistics processes is a challenge that only well prepared (trained) workers (experts) can face. Effective training is carried out with the use of many methods. One of them can be e-learning, i.e. distance transfer of knowledge.

At present, free access to the Internet facilitates introduction of new methods to the existing educational model and vocational trainings. To find sources of educational materials we use new and efficient technologies of communication which reduce the training program costs. **This is the only method to collect materials and carry out the training programs, even for a few thousands of students (the Internet bandwidth is the only limitation).** E-learning would not be that attractive without live connection to the Internet or intranet, ensuring two-directional exchange of information (sound and vision) between a student and their teacher.

Distance learning is an educational process where the learner and the tutor are at a remote distance from each other²⁰⁷. There are many definitions of e-learning. For example, M.J. Kubiak defines **distance learning** as a method of teaching process in an environment, where students and teachers are often at a considerable distance from each other and do not stay at the same location. Information is transferred not only by traditional communication means but also by the state-of-the art communication technologies²⁰⁸. Those provide direct contact in real time, between a teacher and a student, by audio- or videoconference, no matter how far they are from each other. The major feature of distance learning is directing the teaching materials to dispersed training groups. It is also going beyond the frames of traditional training, which gathers all participants at the same place and at the same time²⁰⁹. It is a teaching system with the comprehensive set of organizational rules, teaching contents, methods and means that create a goal-oriented and internally coherent structure. The e-learning system is evaluated by the achievement of the assumed goals. Since e-learning draws more and more interest and is a point of discussions on modern educational solutions, it is crucial to examine its characteristics, define how it influences the society and how effectively it can be used. Distance learning has the following characteristic features:

- ◆ a teacher and a student are not at the same place but there are time and space gaps distance between them,
- ◆ a teacher organizes the teaching process and controls it (this makes a difference between distance learning and self-learning),
- ◆ a student may contact a teacher in person (if needed),
- ◆ technical tools are a medium between a teacher and a student, e.g.: printed materials, a computer, TV, telephone, radio message, etc.

The range of the training ventures and very often shortage of financial means create the need to gain knowledge and to use it in a new way. It means that education should be organized in a way different than it has been so far. It can be accomplished by training of the future that would combine some traditional teaching forms and the up to date technological solutions, like e-learning. Such a solution streamlines the fast and efficient transfer of knowledge from a supplier to a recipient, so that this knowledge could be used at any place and time. Thus, e-learning can be adapted for transfer of knowledge almost in any area. The factors determining fast development of e-learning are: search for effective teaching methods at different locations, need for new skills and qualifications, additional training, just-in-time learning and increased scope of knowledge and skills. New media for the information flow, like the Internet, intranet and extranet, are also of crucial importance. The Internet bandwidth is getting even wider, the quality of online teaching materials increases and standards to design the training programs are developed.

207 *Distance Learning Glossary*, <http://www.elearners.com/resources/glossary.asp> [15.01.2013].

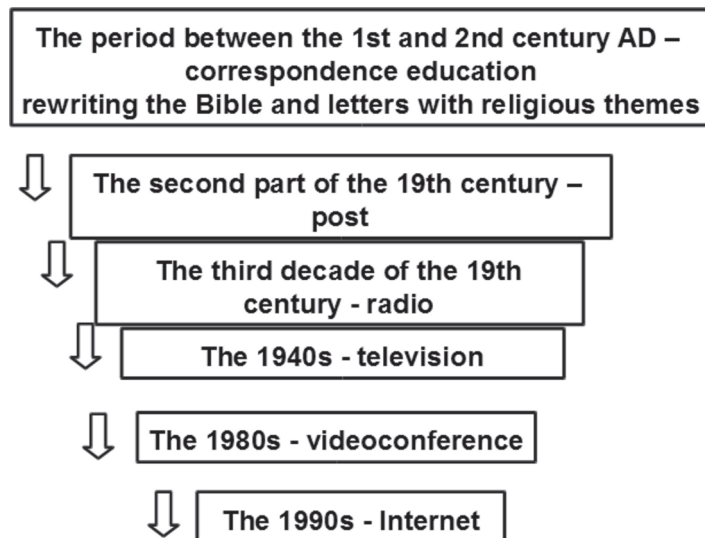
208 M.J. Kubiak, *Wirtualna edukacja*, Wyd. Mikom, Warszawa, 2000, p. 11.

209 Edustrada, Dział Metodyki Kształcenia na Odległość, sierpień 2001

[http://www.edustrada.pl/index.php?section=nauczanie &sub=wprowadzenie](http://www.edustrada.pl/index.php?section=nauczanie&sub=wprowadzenie) [15.01.2013].

Anyone with the access to the Internet may enroll for the program and gain knowledge. People can be trained everywhere: at work, at home, in a café, park or while travelling. This modern solution can be applied at all teaching stages, ranging from planning, design, implementation, distribution and promotion to assessment and evaluation. Trainees can cooperate with one another, despite the distant and different place, room, building, city, country, or, if necessary, another continent. This method integrates the training process with other procedures within an organization, institution or company. It also helps to define what an employee, holding a particular position (workplace), should know and what programs he should then participate in.

The pioneers of correspondence education are J. Steward and I. Pitman who sent the teaching materials via mail. In 1856, Toussaint-Langenscheidt School in Berlin commenced to hold correspondence foreign language teaching programs. Twelve years later, British universities introduced the correspondence teaching systems. The autonomous colleges of Edinburgh, Cambridge and Oxford²¹⁰ were then founded. The beginnings of distance learning can be marked by the beginnings of the institutionalized, i.e. school, education. Actually, the first forms of distance education appeared much earlier between I and II part of A.D. when rewriting the Bible and writing letters with biblical contents could be interpreted as correspondence education (Fig.45.)



Source: the author's own elaboration

Fig. 45. Evolution of distance learning

In 1883, the Correspondence University of Ithaca in the state of New York state and in 1890, the International Correspondence School, offered more than 300 programs. In 1925, along with the development of wireless technologies, the University of Iowa organized radio educational programs. In the late decades of the 20th c. the information society contributed to the foundation of many educational institutions which offered distance learning. The examples are:

- 1969 – Open University, the UK,
- 1973 – Everyama's University Tel-Aviv, Israel,
- 1973 – Universidad Nacional de Education a Distancia, Spain,

210 J. Pułturzycki, *Edukacja dorosłych za granicą*, Adam Marszałek, Toruń 1998, s. 301.

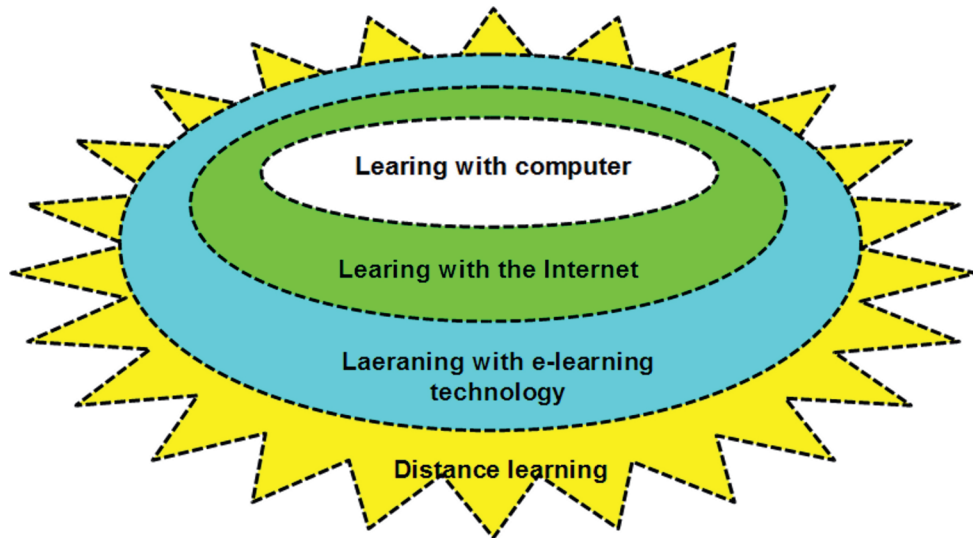
1973 – Fernuniversität, Germany,

1975 – University of Lagos Correspondence and Open Studies Unit, Nigeria,

1984 – Open University, Heerlen, Holland,

1986 – Open University „Paris VII”, Vincennes, France.

In 1940, the University of Iowa launched the educational television. In the years that followed, computer educational programs were developed as a result of cooperation of Stanford University and IBM (Fig.46).



Source: J. Kuck, *Potrzeba czy moda*. Dwutygodnik nr 7(96) 1-15 kwietnia 2004., p. 29.

Fig. 46. E-learning and other educational forms

The late 1990s brought the development of videoconferences and the Internet. Rapid progress of the information society, rooted in the state-of-the art technologies, triggered implementation of e-learning. It was the Internet which influenced considerably e-learning, created new opportunities for students and teachers and enhanced effectiveness.

Development of the Internet and multimedia has increased interests in distance learning. This form of teaching varies from the traditional ones and affects also people: trainers and trainees. Distance learning stems from the concept of combining trainees' own efforts and the teaching support of the trainer as a tutor, advisor, mentor, expert or consultant. The trainees decide by themselves about a teaching process and content, to much greater extent than in case of traditional learning. They must be more self-disciplined as well.

E-learning comprises the whole range of training forms, with various sources and teaching methods. Single modules are usually prepared in a text form and include elements which make understanding easier, such as multimedia, pictures, colorful boards, audio commentaries, animations, short film extracts, expertise advice or even a chat. During the teaching process, consolidation of the previously gained knowledge is equally important. For this purpose, the practical solutions, such as: exercises, tests, simulations, quizzes are used. All those not only help to revise but also show how to put the theory into practice, or how much time to allow for a given material to acquire.

Typical elements of e-learning refer to the following three domains:

- ◆ **Cognitive:** mental skills (*knowledge*), the whole range of behaviors and skills stimulates thinking and evokes the need to learn,
- ◆ **Affective:** growth in feelings or emotional areas (*attitude or self*) of all activities motivating to continue learning,
- ◆ **Psychomotor:** manual or physical skills (*skills*), teaching content triggering movement.

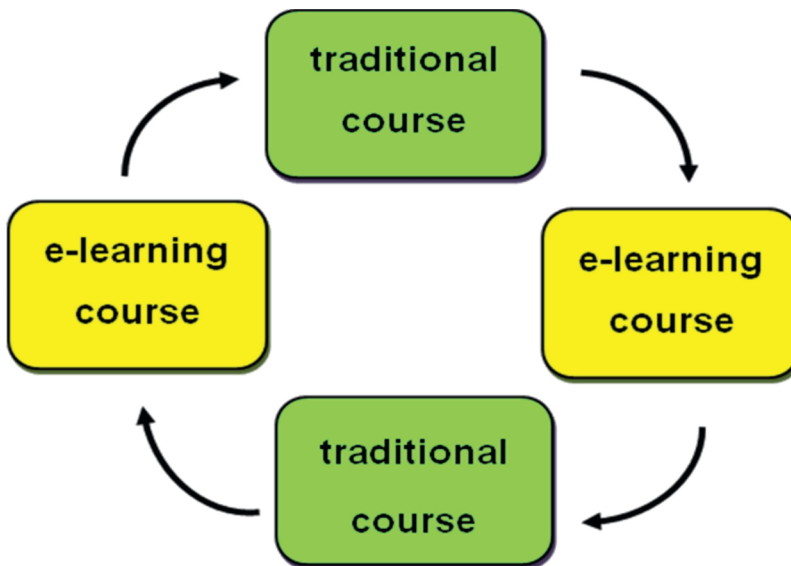
The training programs may be divided by different criteria. How the knowledge is transferred divides them into: traditional, e-learning and blended learning. At this stage of technological development and the level of positive attitude to the program, blended learning gains most popularity. The information about types of training can be found on website of Europejski System Edukacji E-learningowej.



Source: <http://www.edulider.pl/edukacja/blended-learning-przyszosc-polskiej-edukacji> [15.06.2013].

Fig. 47. Blended learning (type I)

In all types of courses, the trainees are provided with multimedia materials before meeting in a group. This makes it possible to get familiar with the contents, to learn new topic and to catch up with others. The time with a trainer is devoted to explanation, exchange of experience and extension of the knowledge. The next step of e-learning program is to consolidate the gained knowledge and to assess progress through testing.



Source: <http://www.edulider.pl/edukacja/blended-learning-przyszosc-polskiej-edukacji> [10.02.2013].

Fig. 47. Blended learning (type II)

Blended learning provides free access to the unlimited range of information with the support of experts motivating for further learning. With this modern, effect-oriented, commitment of participants and the set of methods and techniques adapted during the teaching process, we can list the following distance learning models²¹¹:

- ◆ Socratic model, all participants share their knowledge during the discussion, controlled by a teacher,
- ◆ Teacher/student model, the main role of the teacher is to stimulate the students' critical attitudes,
- ◆ Group work model, the teacher supervises the students as they are developing a project,
- ◆ Small group model, the students are divided into groups, usually of four, to develop some projects,
- ◆ Instructor/student model, students work on provided materials, supported only with the course instructions and progress (how well the materials are understood) is measured with a test,
- ◆ Self-education model, a student is provided with materials and requirements and is not supported, either by the teacher or by the training program instructions.

The most effective techniques are: a small group model, a group work model and the Socratic model. In terms of availability, distance learning programs may be divided into **synchronous** and **asynchronous**.

During the asynchronous courses there is no direct contact between a tutor and the trainee. Trainees gain and check their knowledge independently. The tutors only to supervise the progress and pace of the teaching process. These courses use the teaching materials on CDs or in databases. Communication between an instructor and the participants takes place through e-mail or within a discussion groups.

Synchronous courses are run in real time. Participants contact the instructor and other participants at a previously agreed time. Self-study in an asynchronous course can be combined with discussions and tests, organized at a given time synchronously. This course may take single session or several weeks, months or years. It is organized through the Internet, videoconferences or two-way radio broadcast.

Blended learning is a combination of traditional and distance learning. E-learning solutions support the teaching process, organized in a traditional way. This is a very effective method and is getting more and more popular. The direct method of learning where a teacher or instructor meets his students (directly or by technical tools) is combined with distance learning, where the resource base includes materials and tasks for the students' use. A key to e-learning success is the choice of appropriate media for a particular stage of the course. Knowledge is provided from online courses and skills and habits are mastered during traditional classes.

The criterion of access to the teaching materials, divides distance learning into:

- ◆ Offline form – materials for e-course are downloaded from the system without the fixed contact with a training portal,
- ◆ Online form – materials for e-course are available online from the portal.

The courses can be divided also according to *the information processed/stored in the system*:

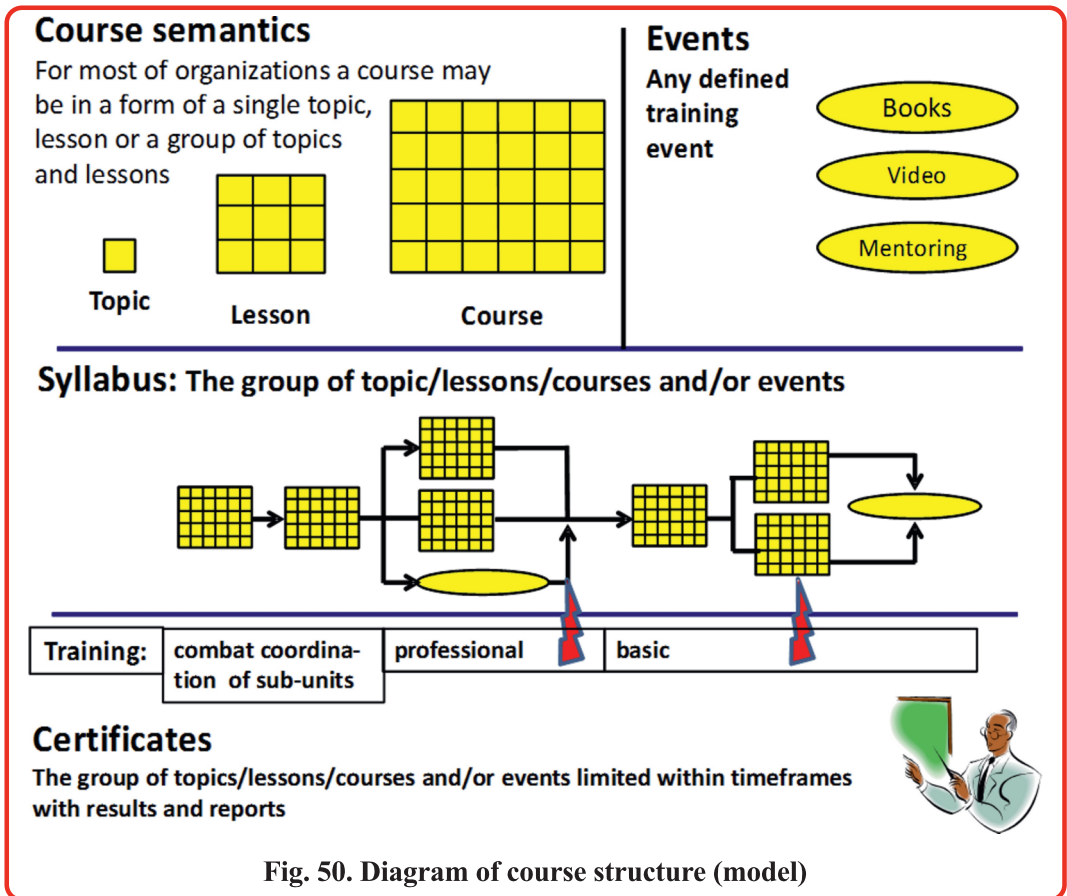
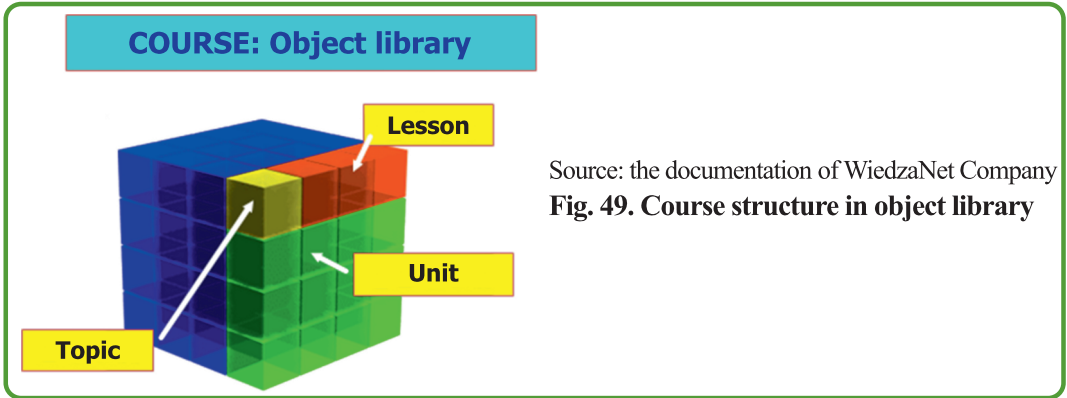
- ◆ No tracking form – the program management system does not collect information about the users' progress and results,
- ◆ Tracking form - the program management system collects information about the users' progress and results. It counts the points automatically and assesses the users' progress in a given e-course.

211 A.K. Stanisławska, W poszukiwaniu optymalnego modelu kształcenia przez Internet, http://puw.pl/sites/default/files/content_files/zasob_do_pobrania/337/referat-kielce-k-stanislawskiej.pdf [16.01.2013].

In terms of the form, the courses may be divided into: **closed and open**. Closed programs are ordered by big organizations, to train people within a given institution or company. Open courses are designed for wider groups, e.g.: professional groups, age groups or societies.

From the technical point of view, one can distinguish **tailor-made or off-the-shelf programs**. The first ones are designed to meet individual needs while off-the-shelf programs are ready-made courses with basic professional materials.

The object library (Fig. 49) provides an opportunity to combine and compose particular resources freely, to design new courses and training programs.



E-learning courses are built up from modules, called teaching objects. The structure of the course is composed of topics which are the sub-components of higher level elements – lessons, while lessons are sub-components of the units. Every element constitutes a complete, independent part of the course, with its own defined aims, training activities and testing elements. This flexibility allows to compose them freely and to modify and design new courses and programs.

Design of an effective and well-working knowledge management system needs time, commitment and formal preparation. Before starting the training course, it is important to identify the actual needs. Training projects are designed to satisfy the needs of an organization, institution or company, taking into consideration the workers' qualifications and experience as well as their planned career pathways. A well designed training project features:

- ◆ Clear and attractive contents of the lectures,
- ◆ Professional structure and easy navigation,
- ◆ Well selected multimedia,
- ◆ The course prepared according to rules of medial didactics,
- ◆ Variety of educational paths, flexibility, possibility to match knowledge to the needs, preferences, abilities and skills of a trainee,
- ◆ Well designed testing elements to check the trainees' knowledge reliably.

The needs, knowledge and skills are verified with the use of traditional or e-learning solutions. Once the needs are identified, the goals are set. Distance learning comprises many elements. The key elements are selection of the teaching materials, their components and the person who performs this training. The remaining elements are:

- ◆ Content management,
- ◆ Teaching materials distribution,
- ◆ Course management,
- ◆ Trainee management,
- ◆ Providing the course content online,
- ◆ Reporting on the course results,
- ◆ Tracking progress in knowledge and skills,
- ◆ Distance communication and cooperation²¹².

IT systems for e-learning can be divided into three groups:

- ◆ People-oriented – systems for course and people management during the teaching process and systems for competence and skills management, systems for testing (LMS²¹³, SMS²¹⁴, AS²¹⁵),
- ◆ Knowledge-oriented – systems for course content management and the copyright tools (LCMS²¹⁶)
- ◆ Communication-oriented- systems for distance presentations, communication and cooperation (VCS²¹⁷).

LMS – system for course management – it is a computer environment for administration, documentation, tracking and reporting of any teaching event during the course. LMS is not only used in educational institutions, but also in thousands of organizations, institutions and companies. There are five categories of functions:

212 M. Hyla, *Przewodnik po e-learningu*, Oficyna ekonomiczna, Kraków 2005, p. 65.

213 LMS – *Learning Management System*

214 SMS – *Skills Management System*

215 AS – *Assessment System*

216 LCMS – *Learning Content Management System*

217 VCS – *Virtual Classroom System*

- ◆ Managing – supporting training departments with planning, designing, implementing, performing and analyzing the training process,
- ◆ Tracking – registering every users' activity, data can be entered manually or automatically,
- ◆ Analytical and reporting – providing cross-sectional data on all trainings events in the organization,
- ◆ Functions connected with the contents– building the e-learning course in the environment, publishing, distributing and creating elements of the course,
- ◆ Supporting – performing distance training, i.e. supporting courses with interactive mechanisms between trainees and the trainer²¹⁸.

From the users' perspective, LMS allows to supervise their own skills and competence, to navigate and to register onto a course. This system manages the access to the course, entering, tracking, managing and reporting the training program activities within the organization. Teaching materials should be technologically universal throughout various systems, as it helps to transfer courses between different layers²¹⁹. LCMS manages the course contents with the following functions:

- ◆ Designing and developing the course contents – means distance work on the teaching material, supporting the team work, automatic data import, managing a content matrix, speeding the designer's work, object construction of the content and possibility to reuse the previously designed elements,
- ◆ Storage of content – managing every subsequent version of the element, reference to existing elements, managing metadata, searching and filtering the contents.

LCMS controls interactions between the students and the course objects, providing feedback to improve both, the contents and the teaching materials. This system creates, processes, localizes, provides, manages and improves the contents. LCMS does not manage the competences, has no additional administrative functions, nor does it manage trainings and logistics²²⁰.

The communication solutions are a kind of link between the courses and the business processes. This system is usually applicable to synchronous e-learning.

VCS – system for distance management of synchronous communication. The main functions are:

- ◆ Management – planning the session of distance communication, sending invitations to a session, confirming participation, authorizing access and collecting statistics, tracking and reporting interactive activities, analyzing.
- ◆ Technical functions – imports of presentations, synchronous transfer, voice and video transmission service, recording, editing and publishing, chat service with recording and publishing FAQ,
- ◆ Presentation support - cooperation of leaders of the session, smooth connection between different presentations, effective navigation, accepting feedback from participants, responding to it and to important elements appearing on the computer screen,
- ◆ Interactive functions – possibility to share the computer screen among participants, interactive board, possibility to answer questions, possibility to elaborate and screen the opinion survey, sending individual and general notices²²¹.

With these functions, VCS proves to be user-friendly and interactive. It operates in the low bandwidth network and offers an option of audio-video transmission.

218 *Ibidem*, pp.70-77.

219 M. Plebańska, *O kompetencjach kluczowych, e-learningu i metodzie projektów*, WSiP, Warszawa 2009, p. 56.

220 Z. Zieliński, *Systemy informatyczne w zarządzaniu e-learning*, http://www.elearningonline.pl/wp-content/upload/konf_kielce06.pdf [22.05.2013].

221 M. Hyla. *Przewodnik...*, cit., p. 127–30.

9.2. Standardization of e-learning processes

Standard is a commonly established criterion to define the most desirable characteristics of a thing, e.g.: produced object or human behavior. Standards play a crucial role almost in every area of life. They ensure conformity of particular products or their components with commonly defined conditions, which reduces the costs of production, distribution and encourages wider usage. Standard is a set of recommendations approved by the standardization authorities. They can have a form of an accepted document that includes rules, clues, definitions and criteria to ensure the expected quality of materials, products, processes and services²²².

Organizations and institutions, like ISO, IEEE, World Wide Web Consortium (W3C) or JPEG, develop and define norms. Some national norms have become international standards in a given area, e.g.: ANSI American norms, DIN German norms. In Poland regulations of the Polish Norms (PN) are valid.

To organize a course effectively, it is advisable to follow the standards, as they facilitate management of a course and reduction of the preparation costs. As a consequence of standard application, it is possible to design courses in modules. The course with such a modular structure is reusable. There are two main types of standards:

Codes of practice recommend sound, good practice as currently undertaken by competent practitioners. They are not approved by any standardization authority. They are commonly used on the market, e.g.: in the area of information technology (Windows, Java, etc.)

Official standard – based on legal national and international regulations approved by authorities, e.g.: *International Organization for Standardization* (ISO). They are globally legally binding and authorized by governments for common use²²³.

E-learning standards ensure interoperability of single components and cost effectiveness. This is agreed upon document including guidelines, principles, rules and criteria to ensure the desirable quality of the teaching process. There are three areas of standards for particular stages of distribution of the educational contents:

- ◆ standard of interoperability – single components and the whole course can be transferred to another e-learning platform,
- ◆ standard of meta-data – metadata is data which describes the teaching contents and a course itself,
- ◆ standard of communication – an individual lesson, test or other component which can be available for a single user.

E-courses can be published in standard-conformant formats AICC, SCORM.

SCORM (Sharable Content Object Reference Model)²²⁴: a set of specifications that produce small, reusable learning objects when applied to course contents. A result of (DOD) the USA Department of Defense's Advanced Distributed Learning (ADL) initiative. SCORM-compliant courseware elements are easily merged with other compliant elements, to produce a highly modular repository of the training materials. They meet requirements for:

- ◆ accessibility,
- ◆ interoperability,
- ◆ durability,
- ◆ reusability of content and systems.

222 R. Lorens, *Nowe technologie w edukacji*, Wydawnictwo Szkolne PWN, Bielsko-Biała 2011.

223 S. Szablowski, *E-learning dla nauczycieli*, Wydawnictwo Oświatowe FOSZE, Radom 2009.

224 <http://scorm.com/scorm-explained/>

There are 17 rules on how to design a good online course²²⁵:

- ◆ information about the course is provided online, people interested in it have access to the description of this course and the person responsible for further details
- ◆ every course needs pre-training in navigation and using the functions; this pre-training should indicate how to use the course and also how to communicate with other participants,
- ◆ the basic description of a course includes: title, name and contact data of the person in charge of the course, starting date, length of the course and estimated time a participant should devote to it, bibliography, materials and description of tasks and contents, examination schedule and assessment system,
- ◆ the materials are presented in a simple, clear, appealing, dynamic and well-organized way with visual materials and multimedia tools
- ◆ reference to interesting websites should encourage students to explore other contents associated with the course,
- ◆ single hyperlinks expand basic information and transition from one lesson to another is fluent,
- ◆ presented materials are interesting, colorful (graphics, films, team work or project, discussion groups),
- ◆ while designing the course one should consider different learning styles (visual, audile, kinesthetic),
- ◆ the material is logically presented and navigation simple,
- ◆ communication with the tutor is fast and easy,
- ◆ information can be shared via chat, open discussion,
- ◆ the course should attract the trainees' attention and keep them interested,
- ◆ online materials are professionally prepared as they reflect quality of the tutors' work,
- ◆ passage between pages is fluent,
- ◆ outside experts may take part in the course,
- ◆ testing should be relevant to the type of course, e.g.: giving short time for the answer,
- ◆ a tutor monitors how frequently and when a trainee uses a course.

Arthur W. Chickering and **Stephen C. Ehrmann** in "*Implementing the Seven Principles: Technology as Lever*," offer seven principles **Seven Principles of Good Practice** based on the research into good teaching and learning in colleges and universities.

1) Encourage Contact Between Students and the Faculty

Frequent student-faculty contact in and out of classes is the most important factor in student's motivation and involvement. Faculty concern helps students to get through rough times and keep on working. Knowing a few faculty members well enhances the students' intellectual commitment and encourages them to think about their own values and future plans.

2) Develop Reciprocity and Cooperation Among Students

Learning is enhanced when it is structured more like a team effort, rather than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions sharpens thinking and deepens understanding.

3) Encourage Active Learning

Learning is not a spectator sport. Students do not learn much by just sitting in classes, listening to the teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives.

225 A. Chmielewski, A.K. Stanisławska, *17 elementów dobrego kursu online*. <http://www.puw.pl>, Polski Uniwersytet Wirtualny, (02.12.2012)

4) Give Prompt Feedback

Knowing what you know and what you do not know give learning a focus. Students need appropriate feedback on performance to benefit from courses. When getting started, students need help to assessing their knowledge and competence.

5) Emphasize Time on Task

Time plus energy equals learning. There is no substitute for time on task. Learning to use one's time well is critical for students and professionals alike. Students need help in learning effective time management. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty.

6) Communicate High Expectations

Expect more and you will get more. High expectations are important for everyone - for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated. Expecting students to perform well become a self-fulfilling prophecy when teachers and institutions hold high expectations for themselves and make extra efforts.

7) Respect Diverse Talents and Ways of Learning

There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then, they can be pushed to learn in new ways that do not come so easily²²⁶.

R.M. Gagné numbers nine instructional events which are the external events that help learning occur, and are designed to achieve learning outcomes. **The Nine Events of Instruction**²²⁷ are as follows:

Gaining Attention – The first event of instruction is to gain the attention of students so they are alert for the reception of stimuli. An instructor can achieve this by introducing a rapid stimulus change either by gesturing or by suddenly changing the tone or volume of their voice. Another way of stimulating alertness is by visual or auditory stimuli related to the subject matter.

Informing Learners of the Objective – The second event of instruction is to inform the learner of the purpose and expected outcomes of the learning material. This will provide them with an expectancy that will persist during the time learning is taking place. Feedback at the end of the lesson will provide the learner with confirmation of learning.

Stimulating Recall of Prior Learning – The third event of instruction asks the instructor to recall skills or knowledge learners have previously learned. The best kind of recall should naturally relate to the subject matter being learned.

Presenting the Stimulus – The fourth event of instruction is presenting a stimulus that is related to the subject matter. The content of the stimulus should be specific to the learning outcome. For example, if the stimulus is verbal information, printed prose such as a chapter in a textbook or an audio tape will achieve the learning objective. If the stimulus is an intellectual skill, the instructor can display the object and/or symbols that require a concept or rule, or present the problem learners need to solve.

Providing Learning Guidance – The fifth event of instruction, providing learning guidance requires the instructor to make the stimulus as meaningful as possible. There are several ways to achieve this, depending upon the learning outcome expected. An instructor

²²⁶ Chickering, Arthur and Stephen C. Ehrmann (1996), "Implementing the Seven Principles: Technology as 227 Lever", AAHE Bulletin, October, pp. 3-6. <http://www.tltgroup.org/programs/seven.html> (4.12.2014).

http://www.icels-educators-for-learning.ca/index.php?option=com_content&view=article&id=54&Itemid=73 [4.12.2014].

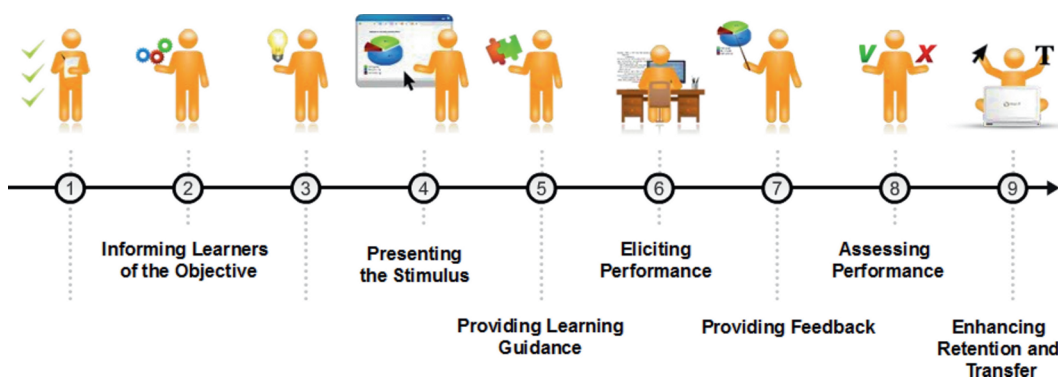
can enhance meaningfulness by using concrete examples of abstract terms and concepts, and elaborating ideas by relating them to others already in memory.

Eliciting Performance – The sixth instructional event eliciting performance asks a learner to demonstrate the newly learned capability. This may be verbal information, intellectual skills, cognitive strategy, attitude, or motor skill.

Providing Feedback – The seventh instructional event, providing feedback, asks the instructor to reinforce the newly acquired learning. An instructor can accomplish this through informative feedback where the instructor informs the learner of the degree of correctness or incorrectness of the performance. This feedback may be verbal or written.

Assessing Performance – The eighth instructional event, assessing performance, consists of assessments to verify that learning has occurred. In order to assure that learning is stable, an instructor will require additional instances of the performance.

Enhancing Retention and Transfer – The ninth instructional event, enhancing retention and transfer, refers to retaining the learned capability over a long period of time and transferring it into new situations outside of the learning environment. Practice ensures retention, especially with verbal information, intellectual skills, and motor skills.



Source: <http://interit.eu/e-learning/metodologia-wytwarzania-szkolen/>, [15.01.2013].

Fig. 51. The Nine Events of Instruction

Having analyzed the source materials and experience of professional designers it is worthwhile to mention **ten principles for a good course designer**²²⁸:

- ◆ prepare and present well selected, appealing stories, thematic areas, stimulate imagination, formulating findings, use case studies, roleplaying and films,
- ◆ teach and play; plays, competitions, forum, chat – all those eliminate monotony,
- ◆ let the students experiment and learn their lessons with simulations, experiments, use points not punishment,
- ◆ select pictures and multimedia elements well (consider standards and technical limitations),
- ◆ take care of a student, technical support, help with content and comfort of learning.
- ◆ Organize learning in a group by communication (tools), games and traditional training,
- ◆ Concentrate on important issues (limited message, hierarchical and multilayered content,
- ◆ Plan time for independent learning and thinking/research, encourage individual ideas and conclusions,
- ◆ Pass your passion to a student by interesting, lively and motivating communication forms,
- ◆ Encourage a student to continue, offer a future plan and professional support,

228 M. Hyla, *Przewodnik...*, cit., p.164-165.

The criteria for a good course were developed on the basis of teaching experience and research. There are a lot of types of courses, a lot of disciplines as a theme of the course and a lot of opinions on how to transfer knowledge online well. However, it seems that there are universal guidelines for designing almost every course²²⁹.

The most popular model for designing traditional as well as e-courses is ADDIE model which divides the whole designing process into five stages:

- ◆ Analyze,
- ◆ Design,
- ◆ Development,
- ◆ Implementation,
- ◆ Evaluation.

Building course with this model is a continuous process. After evaluation there comes another stage of analysis which marks the beginning of a new cycle. The materials in their form cannot be directly converted into a course form. The contents should be first:

- ◆ described with metadata,
- ◆ divided by the meaning, function and character,
- ◆ free of redundant information,
- ◆ atomized,
- ◆ provided with planned multimedia and interactive elements,
- ◆ ensuring proper use of extra materials²³⁰.

Generally, the form of e-learning course is determined by its purpose. In this area there are the following models:

- ◆ *life-long learning* model – enhancing qualification,
- ◆ *just-in-time learning, just enough learning, on the job training* models – acquiring simple skills and information,
- ◆ *just for me learning* model – *adapting teaching process to the individual needs*,
- ◆ *interactive* model – cooperation is a stimulus and enhances effectiveness.

E-learning course is composed of many elements connected together in an attractive, interesting content. The basic components are:

- ◆ text – this is the simplest and the cheapest solution.
- ◆ Graphic elements – enrich the course contents,
- ◆ Animation, - files are small and scalable,
- ◆ Sound track – possibility to replay the course,
- ◆ Films – a rather problematic element as they are difficult to adapt and transfer online,
- ◆ Tests and exercises – a key element with a motivation function,
- ◆ Other elements, e.g.: hyperlinks, helplines, and lexicons.

Preparing effective, standardized e-learning course is both, time and labor consuming. It needs well qualified and experienced personnel with appropriate attitudes, resources and tools which support them. Standards and principles of effectiveness, motivation and general conduct may be adapted to meet expectations of future users.

229 A. Chmielewski, A. K. Stanisławska, *17 elementów...*, cit.

230 M. Hyla, *Przewodnik...*, cit., p.168.

9.3. Benefits and limitations of e-learning courses

Nowadays, free access to the Internet and computers ensure that e-learning courses provide knowledge and foster development. The most important benefits effecting from adoption of the e-learning methods are²³¹:

- ◆ central coordination and management of courses, full availability now possible at the level of designing, distributing, accounting and controlling,
- ◆ standardization of knowledge and information resources, faster transferring of new knowledge in any place with immediate correction or information tailored to the needs,
- ◆ learning at any time - prepared materials can be provided at any time at the student's convenience,
- ◆ learning at any place – teaching materials can be downloaded at any place with no limits of the number of the course participants,
- ◆ courses remain topical and relevant – teaching materials can be easily up-dated,
- ◆ extension, completion and checking of the knowledge acquired through traditional means, building up new skills easily by applying *blended learning* method,
- ◆ high level of effectiveness thanks to the testing tools, certificates and free contact with experts,
- ◆ discreet and stress-free training process provided to a student at any time and place,
- ◆ reduced cost of preparation teaching materials for individual courses
- ◆ financial benefits thanks to reduced business trip expenses, elimination of travelling and accommodation costs,
- ◆ better use of technical and academic capacity of universities and scientific institutes (scientific works, analysis, researches, studies including multimedia and presentations).

Apart from advantages there are also limitations in adopting e-learning

- ◆ required access to the infrastructure (computer, network) and basic computing skills including good writing skills to solve tests and participate in fora
- ◆ high initial costs of preparation of the infrastructure and the teaching materials
- ◆ independent training needs, higher motivation and better time management than in case of traditional training
- ◆ at present, while introducing e-learning methods the emphasis is put first on the series of organizational (and technical) activities, like building and implementing a platform, and then, on quality of the contents.

9.4. Areas of implementation – an example of courses (case study)

Designing the teaching materials takes usually a few days or weeks, depending on the topic, discipline, experience and knowledge of an expert and **instructional system designer**. Other important elements are:

- ◆ Human resources – a team of competent people: course designers responsible for quality of the course,
- ◆ Adequate software – to optimize the speed and quality of the whole designing process,
- ◆ Equipment – to collect visual elements and design the course. The most important of course, is a computer.

After analyzing demands and needs of trainees, the educational goals of individual modules are defined.

231 J. Kuck *Nowoczesne technologie w logistyce*, AON, Warszawa 2013, p. 168-169

E-learning in organizations, institutions and companies facilitates training (teaching), by fast and effective transfer of knowledge from the provider (an instructor, teacher) to the recipient (a trainee), using this knowledge at any time and place. Such solution involves application of modern technologies, to create and distribute knowledge (data, information) and enhance the level of education in many different fields. E-learning is cheaper than traditional courses, as the costs are incurred at the beginning of the course and spread out among all participants. Everyone having a computer and a modem can register to the course on the Internet and gain knowledge this way. This form of teaching is convenient as it may be organized almost everywhere. It helps to integrate the training policy at particular organizational levels, responsible for security of the management processes within given institutions and organizations. It is also possible to identify what every worker, with given responsibilities, should know and which training programs he should take. Also the scale of the economical and organizational effects in the future dramatically changes, when time and costs necessary for training one thousand people, and then the whole institution or organization, with traditional and e-learning methods are counted and compared. E-learning is more effective and appealing to trainees as the course is tailored to suit individual preferences and expectations, provides information for self-teaching or introduces the “knowledge refreshing” or revising mechanism after completing a traditional course. This is why e-learning can be that effective at working places associated with logistics. It helps to solve every day problems effectively and independently, without time wasted when looking for an expert. The answers to questions are in the computer and everyone will choose the time and form of learning out of many available. This is just one of numerous advantages of such solution. Only part of the demanded knowledge is acquired in a formal way, i.e.: courses, training programs, workshops, etc. An individual learns mainly while asking his coworkers or finding the solution on his own. For years this knowledge “retired” together with employees.

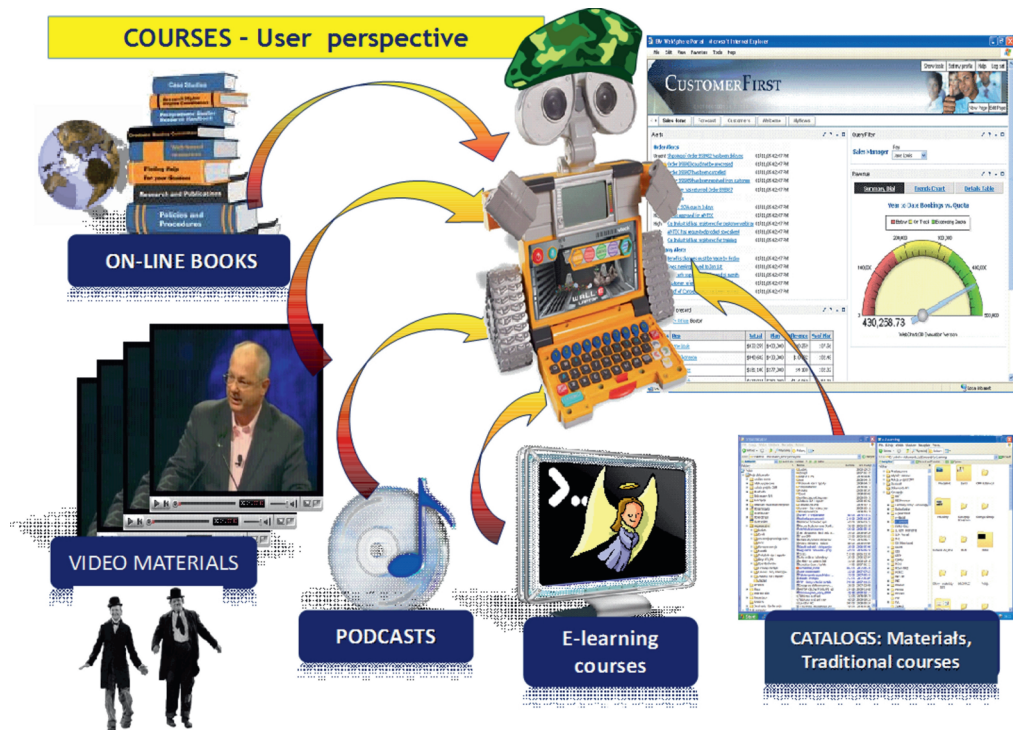
Experienced workers and experts prepare the training programs for their colleagues and successors using the latest applications. New ideas are fed into the system and there everyone trains and develops the skills. It prevents a “leak” of expertise from logistic institutions and make sure it is stored in the place where it was created.

It is difficult to imagine the introduction of e-learning in organizations and big institutions or companies without an advanced IT system, supporting many functions. Such functions include: defining needs, planning the training offer, creating teaching materials, holding courses and testing, managing the content, distributing courses, managing educational process, submission and approval system, monitoring progress, registration of courses, analyzing the assessment process, transfer data about acquired qualifications to the workers’ files and central HR database.

Learning with distance learning methods requires getting familiar with the available functions, reading lectures, exercises and concentrating from the learner. Sometimes it appears that learning the material on the platform, following instructions, doing homework, tests or catching up with others, takes definitely more time than originally scheduled. There is a function of electronic reminder of deadlines. The possibility to be able to decide about the length and time of the course is more and more appreciated. The course user can read materials, presentations or print extracts, necessary to solve tasks, several times. This user can also contact a teacher or other users by e-mail or chat. Contact with other students, solving the same problems and easy contact with a teacher makes e-learning closer to traditional methods about which so many are still affectionate. The users can analyze the evaluation (grades, marks) and get satisfaction after completing the more difficult tasks that follow. They accomplish their goal – gain knowledge, make new friends (contrary to fears)

and, not in person though, keep in touch electronically even after the completion of the course. The range of e-learning activities may be discussed in three dimensions: **people, knowledge and communication**²³². Each of them is within the scope of IT solutions, built up for single needs and expectations of an individual client. Generally, the teaching materials provided in e-learning are in form consistent with the course. The course contents have precisely defined the structure and enriched it with different interactive and multimedia elements to enhance the quality of training. This system includes various solutions for analysis and full control of the training process.

Proper design of the e-learning course is one of the key factors determining successful introduction of e-learning in an organization or institution. It demands a lot of work but the effects achieved may even surprise the authors themselves. The leading world organizations and institutions are demanding recipients and companies completing contracts – professional e-learning providers. A big number of recipients and highly professional skills, territorial dispersion and strictly defined qualifications of the workers determine the quality of e-learning. Figure 52. presents the exemplary e-learning platform for organizations, institutions and companies in the defense and security.



Source: the author's elaboration.

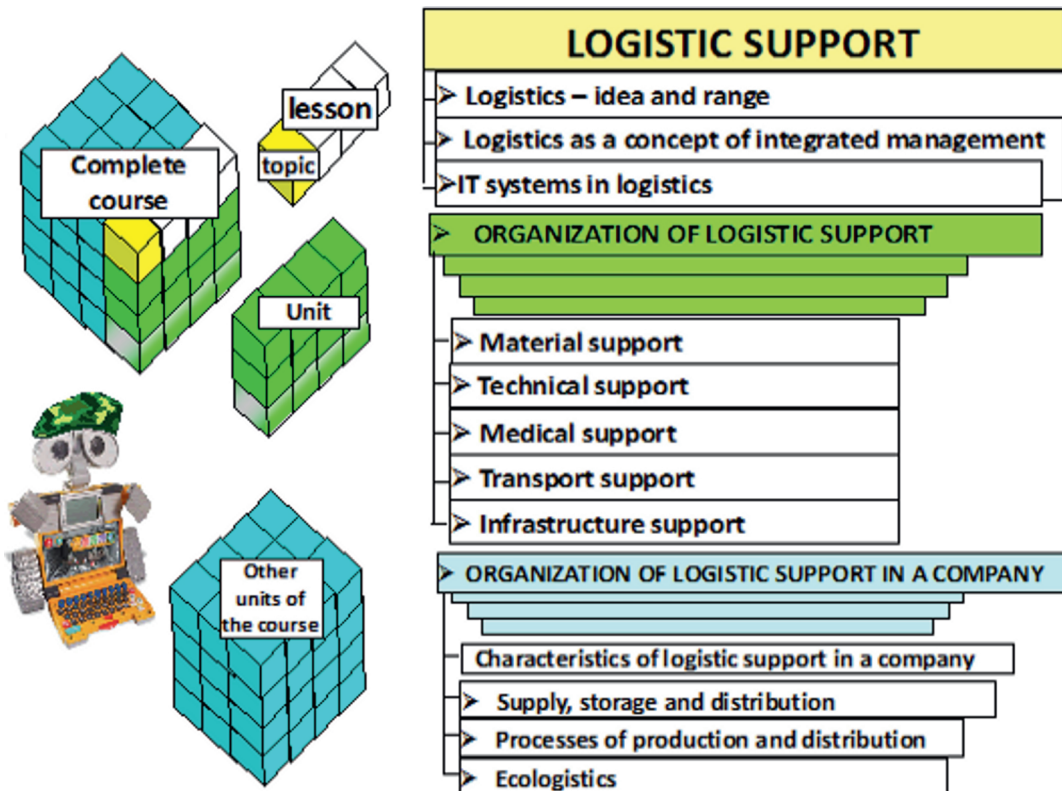
Fig. 52. E-learning platform (example)

To rise to the new challenges of the 21st century, organizations and institutions should employ well trained and prepared staff, some of which are expected to develop their qualifications continually. Limited financial means create the need to adopt the most effective schemes of gaining knowledge.

232 Potęga możliwości, e-learning w codziennej praktyce liderów. Materiały z III Międzynarodowej konferencji e-learningowej. Warszawa 2008.

This short characterization of e-learning courses shows that it is possible and even more necessary. The reason does not need to be financial, yet in the countrywide scale of Poland it can bring considerable savings. E-learning may be implemented in many fields (organizations, institutions or companies) to facilitate trainings or self-teaching, etc. It can range over single organizational levels (e.g.: in the national and international security system – strategic, operational and tactical levels), single services and branches (logistics, HR, finances, etc.). E-learning courses to train the personnel will create new quality of future actions. Well prepared professionals will act more effectively in difficult situations, which can often save lives of many victims and in companies and organizations, bring notable organizational and economic benefits.

Preparation of ready-made thematic blocks (Graph 2) for the management board should standardize training. Multimedia database of means and resources will inform the workers about modern equipment. This base can serve as online thematic base for basic and supplementary trainings, self-teaching and preparation for different tasks at a given post. The characteristic feature of e-learning courses is the possibility to present the teaching material hierarchically. The course materials and testing elements are depicted in the form of a tree. This way of organizing and grouping knowledge serves as contents, which make navigation and search for necessary materials easier.



Source: J. Kuck, *Nowoczesne technologie...*, cit., p. 160.

Fig. 53. Course structure – logistic support

9.5. E-learning Platforms

The most popular of all platforms available on the market are those featuring the required functions. It is definitely cheaper and easier to use the already designed functions rather than to build them. Moreover, if this solution is tested and commonly used we can rely on the experience of others and gain support of the software suppliers. Other selection criteria for choosing the right platform are: the product (software) should be long-established on the market, reliable and there should be possibility to exchange experience.

E-learning platforms can be divided into open source and commercial ones²³³. **Open source platforms** strongly influence the development of e-learning – this solution is adopted, mainly for economic reasons, by the academic circles. The most popular are Moodle, Illias, and Clariline platforms.

In practice MOODLE (*Modular Object Oriented Distance Learning Environment*) meets all the mentioned criteria. Adapted in many civil universities, it can also prove successful in logistic organizations or companies. This platform is a modular, dynamic, object-oriented teaching environment designed to create and hold the training programs via the Internet. MOODLE is an interactive and modern platform that may support traditional methods and at the same time boost their effectiveness. Such solution ensures flexible courses with discussion groups, registers, surveys, materials, task and projects, provided online. The platform is available in many languages, has simple interface and requires basic computing skills to use the web browsers. It can be used for comprehensive online courses as well as supplement of the traditional ones.. This platform has been applied at more than 36,000 universities and educational institutions in 196 countries (2009). In Poland most universities implement this platform to support their educational processes (Fig. 54).

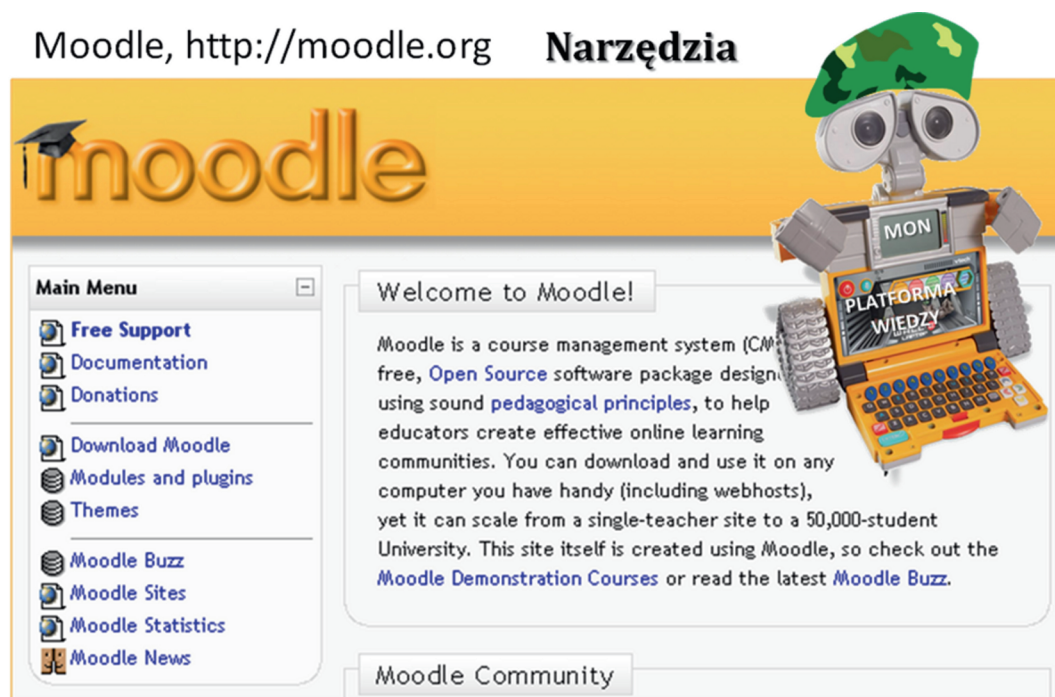
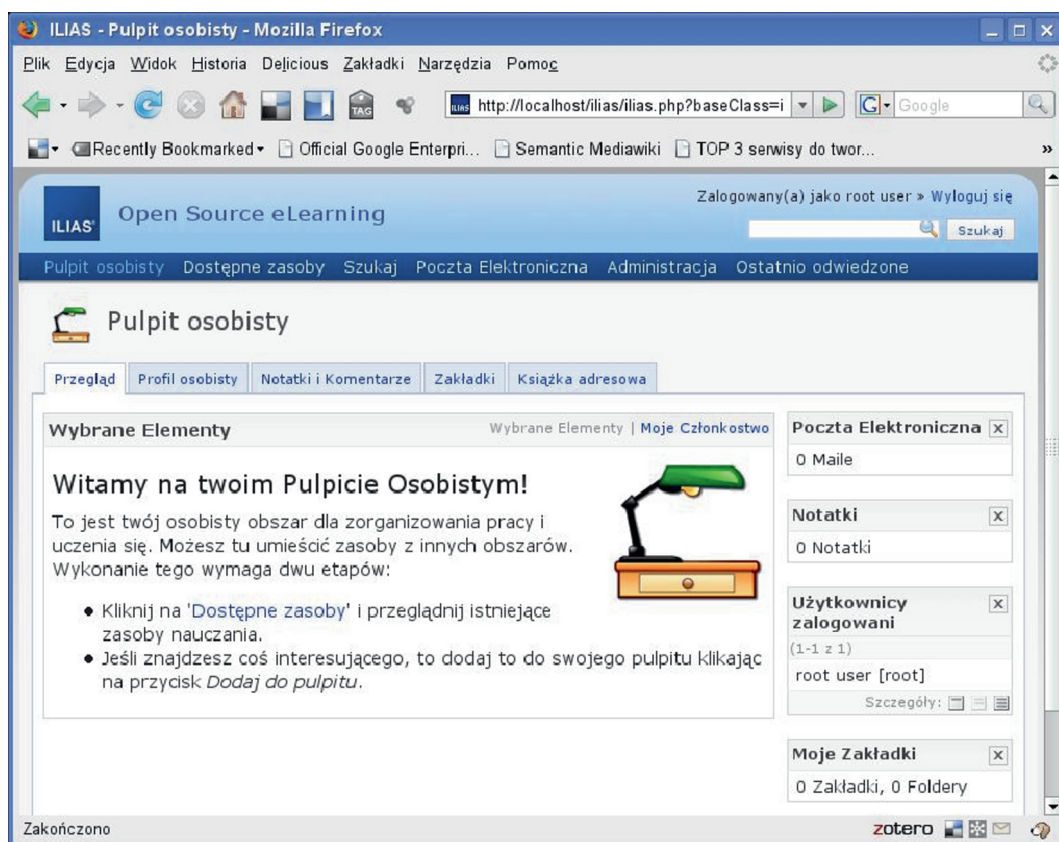


Fig. 54. MOODLE Platform in the defense and security

233 *Ibidem*, p.109.

The second most popular platform is **Ilias**, after German word for Iliad, translated as *Integriertes Learn Informations und Arbeitskooperationssystem* – **integrated information and cooperation system** for education via the Internet. It was created in 2000 as part of VIRTUS project at the University of Cologne. New versions of this platform have been designed since then on. At present, Ilias makes the project of several educational institutions, mainly in Germany, France and Switzerland and a few commercial partners. It is possible to design courses effectively while Ilias offers many attractive solutions, not available on different platforms. It includes standardized templates and materials indispensable for the course, such as integrated navigation and administration system. The advantage of the platform is also the mechanism to create XML²³⁴ language based modules. These comprise the teaching materials in a multimedia form. Every participant of Ilias course is equipped with his own desktop to handle the necessary resources e.g.: e-mails, notes, bookmark, Google maps, channel network, podcast management²³⁵. The platform tools allow for comprehensive management of the course, resources and the users. In Poland, the platform has been implemented by Gdynia Maritime University and National Defence University²³⁶.



Source: http://webhosting.pl/Stawiamy.biznes.e_learningowy.w.Sieci.Przegląd.platform?page=2 [15.01.2012].

Fig. 55. Ilias Platform

234 XML (**Extensible Markup Language**) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. <http://pl.wikipedia.org/wiki/XML> [15.01.2013].

236 A **podcast** is a type of digital media consisting of an episodic series of audio radio, video, PDF, or ePub files subscribed to and downloaded through web syndication or streamed online to a computer or mobile device, <http://pl.wikipedia.org/wiki/Podcasting>, [15.01.2013].

S. Szablowski, *E-learning dla nauczycieli*, Wydawnictwo Oświatowe FOSZE, Rzeszów 2009, s.113.

Claroline – another open source platform (translated into 35 languages, with access for users in 93 countries). Likewise two previously mentioned platforms it is also popular in academic and business circles. It can be adapted to individual needs. The course is designed on the basis of the path defining points, stages of moving through single elements. A course is module based (course description, calendar, notices, documents, exercises, tasks, homework, groups, users, chat). The user knowledge acquisition may be controlled by various kinds of tests, final works, statistics system²³⁷.

Olat is an open source platform written in Java²³⁸, offering all main standards also in Polish. OLAT platform (*Online Learning And Training*) is a software which can be applied as a tool for full online courses or as support of traditional teaching. Managing the materials and students with Olat is easy as the courses created are flexible and their monitoring dynamic. This facilitates distance learning and ensures smooth flow of information from a tutor to the students and from the students to their tutor. The courses come up to expectations of the recipients. With the built-in editor it is possible to prepare short seminars on a given topic as well as lectures, long and complex in structure²³⁹. The main characteristics of the program are the following:

- ◆ easy operating system, vivid user interface with system specification
- ◆ flexible system for course management and creating teaching materials
- ◆ archiving course contents and elements (import/export of courses)
- ◆ managing system and access to content in any search engine supporting technologies: XHTML, XSLT, CSS2, JavaScript 1.7, Java, frames, XML and JPG, GIF, PNG graphic formats,
- ◆ system with central access (LMS system installed in DataCenter, network access from any single place on the Internet and the user's intranet),
- ◆ modular structure and interoperability with other clients' IT systems
- ◆ modern technologies used to build this platform (Ajax, Web2.0, DHTML),
- ◆ scalability (working in cluster)
- ◆ conformity with current communication standards (SCORM, IMS, AICC),
- ◆ multilingual user interface (Polish, English, German, Spanish, Italian, French, Russian) with possibility to operate UTF-8 Multilanguage typeface
- ◆ managing users, groups and roles,
- ◆ possibility to create working groups,
- ◆ unlimited number of system users,
- ◆ possibility to create accounts without users (independent registration),
- ◆ sharing resources with other LMS platform users,
- ◆ possibility to customize page graphic.

Open source platforms offer a suitable alternative to school education. Proper application of IT tools and the teacher's creativity make a course substantially and methodologically valuable. The second group of educational platforms are **commercial platforms**, created by companies which sell them implemented in their own model or under license. They are very popular in big corporations and organizations and considered more reliable and trustworthy, as they are assigned by well-known brands. Moreover, the solution comes as a package along with professional training, including the operating instructions for the platform, thematic conferences, technical assistance in implementation as well as and after-sales service²⁴⁰.

237 M. Plebańska, *E-learning. Tajniki edukacji...*, cit., p. 127.

238 Java – one of computer programming languages

239 <http://www.e-mentor.edu.pl/artukul/index/numer/35/id/754> (15.01.2013).

240 K. Paprocki, Z. Łojewski, *Ewolucja e-learningu w świetle badań prowadzonych wśród grup studenckich*, 241 Scientific Bulletin of Chelms, nr 1, 2009.

Fronter is an education platform used by over 3500 European educational institutions. **It offers a package of about 90 tools selected by international experts.** Their cooperation results in new ideas, innovative concepts and technologies useful in education. After analysis they are embedded into new versions of the platform.

The idea to build this platform arose in Norway in 1998. Nowadays, the Fronter community has millions of users. The platform provides solutions in a simple, open and professional way. Its simple interface enables the users to work effectively after short training. Fronter aims at providing professional products and services. At the same time it promotes communication and cooperation, offering tools for development and methods for delivery and action. Professional trainers, responsible for developing the platform, with groups of experts create the application which meets the increasing demands of the society²⁴¹. Fronter, as a commercial product, is user-friendly and can be used intuitively. Its visual merits and ergonomic features make it compatible with modern Internet applications.

Blackboard – a commercial platform, created in New York, used by about 5 thousand institutions in 60 countries. It is an online educational system with a set of tools for creating and managing teaching content²⁴². Blackboard Learn™ Platform provides efficient tools to create attractive and effective online courses to meet the students' needs. The platform fosters cooperation of students creating lively communities beyond the classroom and facilitates managing and sharing valuable materials within the whole organization²⁴³. The main characteristics of the platform are²⁴⁴:

- ◆ teaching content is organized and adopted to the traditional system (lectures, workshops, seminars, timetable),
- ◆ system of monitoring progress and assessing is adjusted to the needs (marking after each class, at the end of the thematic block, or semester),
- ◆ the knowledge can be tested by online exams with time measured and results generated in points,
- ◆ there is also a “notice board” allocated to information (e.g.: about deadlines for final work).

Blackboard enables the users to join courses into one “educational path”. There is a wide variety of materials available (including texts, graphic, animation, video and audio recordings, presentations supported by Java language or Flash technique). This platform is also equipped with reporting systems tracking users' activity. One of them is an evaluation survey to assess the quality of training.

Lotus Learning Space 5.0 is designed to organize trainings of all kinds. It is a comprehensive, educational solution for creating and managing online courses and offers numerous possibilities: while using given method the course can be available to students, standard and individually designed courses can be integrated, assessment and management of the whole process is also possible. It supports manager's work providing sales departments with information about new products and effective ways of selling them. The system enables workers to familiarize themselves with latest binding regulations in the company. Lotus integrates attractive high quality content which is an indispensable component of the whole educational process. It is a central point integrating all resources of distance learning²⁴⁵.

242 http://www.wpa.ujk.edu.pl/kompetentny_nauczyciel/index.php?option=com_content&view=article&id=49&Itemid=90 (15.01.2013).

243 https://bb.wszia.edu.pl/webapps/portal/public/logowanie_do_blackboarda/#Co_to_jest_Blackboard (15.01.2013).

244 <http://www.smarteducation.pl> (15.01.2013).

245 M. Plebańska, *E-learning Tajniki edukacji...*, wyd. cyt., str. 133.

A variety of e-learning solutions available shows that e-learning market is well developed, still growing and has been successfully established both, worldwide and in Polish conditions. A great advantage of different kinds of platforms is Polish interface making the work, learning and gaining of new skills much easier. In spite of the open source and commercial character, both methods offer numerous possibilities. Development of open source platforms equals the branded, commercial platforms.

E-learning has now been highly successful in many countries. The point is to be well prepared not only in the technical aspect, but first of all, mentally when adopting it. E-learning is sure to develop in the future and groups of users will show new areas for implementation and facilitated R&D projects. The need for special purpose training in the defense and security sectors is and will be very high. Access to distance learning will be easier and wider with the development of equipment, and advances in IT. This will make the life-long learning vision of the next century real.

Combining distance learning and traditional schemes may bring certain benefits. This combination is termed blended learning. This method facilitates learning by effective matching of different communication means, teaching methods and learning styles, based on clear communication among all course participants²⁴⁶. The materials are distributed, tasks solved, discussions led on a forum, references to other places and materials made in cyberspace. Traditional classes focus on practical skills (workshops, laboratory, lectures). The script of the lecture (for better memorizing and note taking) can be placed on e-learning platforms before the classes.

Satisfaction from e-learning courses depends on many factors. Positive experience from distance learning is typical for students who possess indispensable qualities to be successful e-learners. First of all, a person who takes up distance learning course should be mentally learning-oriented, concentrated on learning about the world, gaining new knowledge or skills for his own needs or for career development. The motivation of a student who decides about what, how, when, and where to learn, is a crucial behavioral determinant for the distance-learning process. To acquire new knowledge, not just a certificate, should be a goal without teacher's supervision. Students having a lot of freedom must be more responsible to learn independently and to decide how much and when.

The analysis proves that distance learning, popular among students and successful in many countries, is unavoidable. The point is to be well prepared. Distance learning is an educational issue, rather than a technical matter²⁴⁷. The defense and security services as well as universities interested in distance learning, should consider the aims of the offered virtual training programs and courses. The promising solution is the transfer of e-learning into clouds²⁴⁸ to reduce costs of the service and shorten the implementation time. Giving access to e-learning platform speeds up (within one week) the work on environment which supports the training stages within a company and provides training for bigger number of staff at lower costs as compared to traditional training. At present, e-learning platforms can be implemented on the clients' servers, which implies however even more work for the IT department. The cloud computing system is based on the servers of the service provider who is responsible for the trainings. It can generate significant savings. Costs reduction, provided service and hosting

246 http://www.puw.lodz.pl/downloads/docs/2_metodyka/2_narzedzia/informacje_o_ils.pdf [15.01.2013].

A. Heinze, C. Heinze, *Procter 2004 Reflections on the Use of Blended Learning. Education in a Changing Environment*, materiały z konferencji na Uniwersytecie Salford, Education Development Unit.

247 D. Oblinger, J. Kidwell, *Distance learning are we being realistic?*, „Educause Review” 2000, Vol. 35, Issue 3.

248 **Cloud computing** means storing and accessing data and programs over the Internet instead of having local servers or personal devices to handle applications. <http://www.pcmag.com/article2/0,2817,2372163,00.asp> [25.01.2013].

and fast implementation enhance popularity of cloud computing technology. IT corporations (Apple, Google, Microsoft) offer their services in a cloud. In spite of many advantages it is still a rare practice to place e-learning in clouds. Most probably, the fears concern data security. This appears unjustified as cloud computing reduces risks of viral infections while data is not written on the computer disks where it could be damaged or used by unauthorized persons. Cloud archives data cyclically, which reduces the risk of loss²⁴⁹.

Conditions for implementing new technologies bring another challenge. International experience, in particular that gained in the USA, the UK, Germany or Australia proves that e-learning may be successfully used to increase the level of education. E-learning can also be treated as a tool to supplement, extend and test the knowledge, acquired during traditional trainings. Nowadays, catching up with the upcoming changes is getting more difficult. Decision-making authorities wish to use their workers' intellectual potential better and face the problem of choosing a model for trainings and professional development. E-learning in logistics is applicable at all organizational levels, in all areas and single structural levels. In these institutions a trainee can use the Internet or intranet.

The recommended solutions for distance training meet such expectations and are not only a fad but urgent need. The problem is to be well prepared not only technically but, first of all, mentally.

The examples presented above are not all possible ways, disciplines, areas or places where e-learning would bring considerable benefits. Where to locate the personnel responsible for preparation, collection and distribution of the teaching materials is still an open question. One of the suggestions is to introduce this method of teaching quickly, using the academic and technical capacities. Research studies and the published contributions would ensure sufficient teaching materials in this case. Another possibility is to commission experts in logistics (through defined resorts from their own funds within the EU projects) to develop given topics (as a duty within the working hours or an extra task)²⁵⁰. Administering the system, depending on the scale of the venture, can be the responsibility of IT teams, universities or commercial organizations.



249 <http://www.blended-learning.pl/e-learning-w-chmurze/> [25.01.2013].

250 B. Gonczarek, J. Kuck, *E-learning – nauczanie...*, cit.