

Research and projects of the Centre for Development of Distance and Continuing Education (CREN) Warsaw School of Economics (SGH)

Beneath a detailed description of research and projects being carried out by CREN is provided. If you need further information, please do not hesitate to contact us directly.

1. Methodology of creating e-learning content

Backgrounds and scope: Practical knowledge of methodological backgrounds in the field of preparing e-learning content is one of the key requirements for those, who intend to implement e-learning solutions in everyday school practice. Necessity to fulfill this requirement is equally important when some elements of e-learning only support traditional learning processes as well as when one intends to introduce fully online courses.

CREN research and results: Methodology of creating online content has been one of the most important areas of CREN research from the very beginning of its activity. Actually it was the first subject of research carried out by the Centre starting from 2001. The results of a study have given the pedagogical backgrounds for internal e-learning standards at Warsaw School of Economics (SGH). They have also allowed to properly locate undertaken e-learning activities in educational context of tertiary education in Poland. Elaborated guidebook, extended and revised in the following years has been broadly used both by the university teachers involved in e-learning and by the academics from the other universities in Poland interested in implementing online activities in their centres. The results have also been published in e-mentor magazine (issued by SGH) and presented during national and international conferences and are often referred to as the best practices examples.

2. Methodology of online courses

Backgrounds and scope: Online classes differ significantly from the traditional lessons in a classroom or in a computer lab. They must also be more precisely planned and prepared. It applies particularly to all sorts of activities aimed at the learners, which must not only vary in their form and amount, but also should fulfill different needs of the individual learners as well as various learning conditions of educational processes.

CREN research and results: Methodology of online classes is one of the main fields in focus of research carried out by CREN SGH team. Therefore, one of the most important projects was aimed at elaboration of a range of possible teaching schemes in e-learning. The basic task in that research was then to find the answer to a following question: what is the most important difference between traditional and online classes and - in consequence – to what extent it is possible to implement best practices known from classroom lessons in virtual environment. For the purpose of that research several Polish universities were chosen and about 50 interviews have been made among the university teachers well known from their activity and mastery in on campus lectures or classes. The results of analysis of the collected data have lead to a set of recommendations concerning the way of preparing online courses at university level. Those results are also used by instructional designers at SGH in their everyday work on online lectures at the university. They have also been a good starting point for further research undertaken by CREN SGH team such as: application of RLO concept, personalization and new means of learning content delivery.

3. Means of learning content delivery in distance education

Backgrounds and scope: Indispensable condition of making much of the possibilities that e-learning brings to school or university is well designed learning content as well as various types of interactivity. But it is not enough. Equally important is also the form in which this content is delivered to the learners. Moreover, including various means of knowledge delivery like, for instance, audio or video recordings not only enriches the form but also helps to meet different learning styles and preferences. Diversity of means can also be supported by the use of graphics, photos, charts and tables or the animations. However, the proper balance between form and content must be kept not only to avoid distraction of the learners by unnecessary “additions” but also to increase their motivation and engagement in learning process.

CREN research and results: The aim of research carried out by CREN SGH on means used for content delivery in e-learning was to analyze the links between multimedia content delivery and the efficiency of learning processes. The research study concerned a group of students involved in learning at the university platform e-sgh.pl. The data has been collected by the use of a questionnaire put in the Internet. Although the questionnaire was not compulsory, all the students have been encouraged to take part in it. Those who participated in research study did it anonymously. Collected results have proven that the use of multimedia both for presenting the content and for learning activities makes the online learning more attractive and interesting and, therefore, their application in e-learning is widely accepted by the students. Although those results did not give the clear answer to what extent application of multimedia allows improving efficiency of learning, they have shown their importance to the learners as well as have helped to place them properly and define their involvement in e-learning content.

4. Efficiency and effectiveness of distance education

Backgrounds and scope: Efficiency of e-learning can be considered in many dimensions but methodological and financial aspects seem to be most important among them. The first one is usually measured by the grades that online students get at the end of a course or lecture. Final grades however do not indicate the extent to what means and methods applied in that process have influenced its real efficiency. Such information we can get only when the results of e-learning are compared with adequate content taught in traditional classroom.

Another important issue of e-learning is the amount of money that must be spent on this type of education by the university. Those, who are responsible for implementing e-learning solutions, must take into account not only the costs of providing necessary technical infrastructure but, first of all, the money spent on preparing e-learning content and on salaries for online teachers and instructors. Only the proper balance between these two values – methodological and financial efficiency can establish good conditions for development of e-learning at university level.

CREN research and results: Research on efficiency carried out by CREN SGH was aimed not only at assessing the results of e-learning activity of the university but also at identifying the main factors that determine efficiency of that activity. Huge number of participants of e-learning courses at SGH establishes proper conditions for such research. For instance, a research study led in academic year 2006/2007 involved more than 2000 students. Comparative analysis of the results gained by those students in traditional and online learning has shown that e-learning forms and methods applied at SGH have been appropriate and adequately used.

A complete system of compensation for preparing the content and tutoring online classes has also been elaborated at CREN SGH (there are currently 45 full online lectures at SGH). It is worth to be mentioned that such a complete solution was the first one implemented in Polish tertiary education institution. This system takes into account didactic

value of e-learning courses as well as the content they are based on and the number of students taking part in those classes.

As far as the cost effectiveness of e-learning is concerned in the research carried out by CREN SGH both financial and nonfinancial factors are taken into account. Among them ROI and ROE are the most important independent measures. As a complex measure a 4-level model elaborated by Kirckpatrick or its extended version known as 5-stage Philip's model can be applied. It must be stressed however, that all of them have been elaborated for traditional teaching and training. In e-learning the necessity of measuring its effectiveness leads either to modification of already existing instruments or to elaboration of completely new tools originating from those used in traditional forms of education.

5. Evaluation and e-learning

Backgrounds and scope: Evaluation should accompany almost every important project at its various steps although it plays different role in each of them. Evaluation ex ante, for instance, usually precedes already planned activities and may be combined with SWOT analysis or Delphi prediction method. Its role is to enable appropriate design of planned activities. Another step of evaluation - mid term – is also called formative and is usually used for improving the project during its flow while ex post evaluation is aimed at improving the next edition of the project. This type of evaluation can also be called summative.

CREN research and results: Evaluation of online activities constitutes a vital part of CREN SGH research for many years. The form and the scope of it is adjusted to the type of activities undergoing this process. At the introductory phase of e-learning at SGH it focused on checking the attitude of people involved in that process from both sides – the teachers and the students. Along with the maturity of e-learning at the university, the assessment approach has been changed and now it is oriented on many various aspects like: measuring satisfaction of online knowledge delivery and creation, effectiveness and efficiency of knowledge transfer as well as accuracy and usability of methods and techniques applied in this type of education.

6. Optimization of a didactic process in blended learning trainings – system theory approach

Backgrounds and scope: The choice of adequate teaching methods, both for academic and corporate e-learning depends on many factors. Some of them like: the objectives, scope, subject being taught or even the learning environment are quite obvious. But also motivation of the learners, size of group and last but not least – experience and skills of a tutor cannot be forgotten. Appropriate decisions should be based on the analysis of learning needs, which should be the first (although quite often disregarded) stage of the whole training process. All these factors mentioned above are equally important. However, as a result of more holistic research it is possible to distinguish some fundamental components of e-learning process (both in its fully online as well as in blended form) that guarantee its optimization i.e. identification how to ensure its efficiency and sustainability. Such question should be a key issue for every training company that intends to find its proper place on the professional trainings market.

CREN research and results: Definition of optimal shape and scope of blended-learning trainings was one of the main goals of research carried out by CREN SGH team in this field. Courses and trainings offered by the Centre based on the use of modern technologies enable a complex and exhaustive analysis of the whole process and a holistic approach to education in its global meaning. They allow to identify and document existing mechanisms of such processes and therefore to enrich their explanation and theoretical backgrounds. To ensure proper coexistence of all identified components of learning processes they must undergo regular analysis and different types of control. Among those components are also

forms and models of blended-learning. Analysis of various solutions created by the use of E-sgh-toolkit and applied by SGH academic staff in their lectures established a background for creating an overall model of blended learning at the university.

7. Online courses quality standards

Backgrounds and scope: As far as e-learning is concerned, two directions of standardization can be indicated. The first one refers to technological backgrounds of learning processes and the role of ICT as a means of knowledge delivery and the other one is linked to organizational and methodological issues of those processes. In the first context following factors must be considered: functionality of e-learning platform, a bandwidth of communication and transmission canals and interoperability of virtual learning environment. In this category such standardization bodies like: ADL initiative, LTSC IEEE or IMS Global Learning Consortium can be mentioned. Those previously competing organizations have finally joined their efforts, what resulted in recent years in common technical regulations based on SCORM specification.

Much more complex issue, however, is standardization of e-learning activities with regard to their organizational and pedagogical aspects. Educational processes are strongly context dependent and therefore must be assessed exactly in that context, with respect to local regulations as well as cultural and country specific learning conditions. Therefore, it is quite difficult to establish a common and universal set of e-learning standards that might be applied in every country. In an international context it is possible only to some extent – namely, some general specifications can be formulated and some sets of best practices can be recommended. European Quality Observatory introduced by EFQUEL foundation can serve as an example of such initiative.

CREN research and results: Representatives of CREN SGH team play active role in the work on quality assessment criteria for online courses. This work was started by the Association of Academic E-learning in a year 2006. The main goal of a project is to elaborate a tool aimed at measuring the quality of e-learning initiatives at Polish universities and other tertiary education institutions. At the first stage the criteria for quality of individual online courses have been prepared. It is foreseen that the work will be continued and extended to complex e-learning initiatives. Such criteria are also intended to play informative and educational role for those, who want to learn how to properly design and introduce e-learning courses at their universities. Therefore, representatives of CREN research team consistently participate in popularization of elaborated criteria preparing the conference presentations and workshops aimed at e-learning practitioners.

8. Personalization and individualization in e-learning

Backgrounds and scope: Personalization in e-learning is to some extent the immanent feature of this type of education as it by definition should enable obtaining new skills and knowledge at individually chosen time and place. It cannot be denied, however, that significant change in efficiency of such processes can be achieved solely when not only the learning conditions are adapted to one's individual needs but, first of all, the forms and methods of presenting learning content are applied and various types of activities and interactions are implemented. To achieve such goals quite often sophisticated solutions based on the use of artificial intelligence techniques are applied like in ITS (Intelligent Tutoring Systems) or in AHS (Adaptive Hypermedia Systems). Personal data that determine creating personalized learners' profiles used by such systems are usually demographical data like: age, gender or place of living or some sorts of activities performed by the learner and registered by the tools built into e-learning platform. On the other hand, such solutions usually do not take into account individual learning experience, learning habits and customs, which, in fact, determine the way we absorb new pieces of information and realize new tasks. One of the means that enable more accurate approach to personalization is based on learning styles theory. It is a commonly held belief that recognition of students' learning

styles may significantly increase teaching results both in traditional and online teaching and learning.

CREN research and results: CREN SGH research works on personalization can be characterized as a joined approach based on cognitive psychology on the one hand and on sophisticated artificial intelligence solutions on the other hand, which makes elaborated solution to extend the limitations of typical system of ITS or AHS class. Application of AI techniques enables more precise and automatic tracking of learning processes. At the same time the learners profile stored in a system and based on recognition of one's individual set of learning styles supplies the information already gathered, what, in consequence, supports better adjustment of automatically created personalized online courses. A KS-TIW questionnaire elaborated for that purpose is based on Howard's Gardner Multiple Intelligences Theory. It allows to recognize 7 different learning styles and brings the information about the extent to what each of measured learning styles is used by every individual learner. Collected data can be then used as the indicators for creating an individually tailored chain of learning objects that constitute highly personalized online course.

9. Reusable learning objects

Backgrounds and scope: As we already know, efficiency of e-learning is one of the key issues of that type of educational activity. No wonder then that it continuously remains in focus of attention of various groups of professionals including e-learning platforms providers, designers of e-learning standards and specifications and – first of all – course designers and the authors of learning content. Those interests have resulted also in creating the idea of RLO (Reusable Learning Objects) that stored in dedicated repositories would enable creating new courses from existing pieces of content. The main idea of such approach leads to enabling cheaper and faster creation of e-learning courses and in consequence to achieving more versatile or competitive palette of trainings without unnecessary expenditures. It is also worth to be mentioned that such approach supports personalization of online courses.

CREN research and results: Above mentioned feature of RLO is the main reason for involving it in CREN SGH research. Therefore, one of the projects undertaken by the team was to elaborate the concept of dividing the learning content into learning objects in a way that they can further be combined in various configurations corresponding to individual learning preferences. Important stage in this project refers to distinguishing the physical and logical components of the course depending on their function in online learning and their links to different learning styles. Such approach enables creating personalized online courses which have an appropriate logical structure and physical content.

10. A model of e-learning at the university

Backgrounds and scope: In recent years e-learning has gradually but systematically become an integral part of tertiary education. To some extent it is a natural consequence of Bologna Process and increasing mobility of students in particular. Another important factor is the systematically growing role of the concept of "learning on demand" combined with the idea of "just in time" and "just enough" learning. Additionally, in Poland one of the recent changes in this area is the first official regulation of Ministry of Science and Higher Education allowing introduction of some elements of e-learning in universities teaching practices. Such circumstances seem to create eventually the requirements for replacement of current, mostly individual and therefore dispersed, e-learning initiatives by carefully planned and possibly complete global strategies for the whole educational institutions. This is imposed not only by the scale of prospect organizational, financial and quality improvements but also by the necessity of ensuring a proper place of e-learning in contemporary university education.

CREN research and results: Establishing a fully functional and effective model of e-learning at the university is one of the important issues in research carried out by CREN SGH. Conceptual works in this field are aimed at defining the proper placement of that educational form in the whole university didactic process. This applies also to the scope of responsibility of different university units involved in e-learning with regard to adequate planning and conducting online courses. Another important issue concerns the financial aspects of e-learning, namely the system of compensation for preparing e-content and presenting online lectures. The results of research work in this field have also very practical dimension as they are directly applied to SGH e-learning policy. They have also been used as a background for a multidimensional matrix of e-learning applications in tertiary education. Widely published in various forms, have become known and used also by the other universities in Poland.

11. Legal and organizational conditions of e-learning

Backgrounds and scope: Legal regulations for university courses based on the use of Internet and distance learning methods facilitate development of Polish e-learning. The structure of Polish educational system imposes the requirement on all the schools – from primary to tertiary education level – to get the official allowance for introducing elements of e-learning. With regard to universities, for the first time such regulations appeared in a statement: “The law for higher education” issued in 2005. That document imposed the Ministry to introduce detailed regulations with respect to the scope and conditions on implementing e-learning at Polish universities. The proper regulation – issued in September 2007 after a long social debate – does not correspond both to the needs and expectations of e-learning professionals in Poland and, unfortunately, does not stimulate the growth of e-learning in the whole country.

CREN research and results: Representatives of CREN SGH team are actively involved in the works on regulations concerning e-learning in Poland. There are two main fields of activity with regard to those regulations. One can be defined as consultative and is mostly expressed by the experts’ opinions about the documents prepared by the Ministry of Science and Higher Education. The other form of activity concentrates on elaborating alternative versions of those documents on behalf of the community of e-learning practitioners in Poland.

12. Philosophical backgrounds of e-learning

Backgrounds and scope: With regard to philosophical context of e-learning, two groups of issues can be distinguished. The first group refers to philosophical backgrounds of this form of education. It covers issues like: the objectives and the value of e-learning in general, which refers to its axiological dimension and the type as well as the range of methods applied, which constitutes its methodological dimension.

The other group of issues is linked to the way and scope in which e-learning influences the academic community when it is applied. That refers both to institutional changes and to individual learner perception. Those issues create a sub discipline of metaphilosophy.

CREN research and results: Constructivist and in recent years also connectivist approach seem to be most commonly accepted paradigms of e-learning. CREN SGH research is also based on such model but with some a priori criticism. The aim of the research is to investigate not only advantages but also existing barriers of that paradigm, both in its axiological and methodological context. In its social dimension the aim of the research is to identify different types of potential limitations that originate in a traditional model based on Humboldt’s concept of the university confronted with global and horizontal concept of e-learning. That research is also part of a more general issue, which can be defined as computers and philosophy. More narrow aspect of research refers to educational consequences of implementing theory of games into e-learning.

13. New trends in e-learning

Backgrounds and scope: Active involvement of the learners not only in e-learning activities but also in creating the learning content has become a really significant feature of contemporary e-learning processes. Blogs and wikis, as well as other social networking technologies and services have changed a general concept of e-learning indicating the role of collaboration and team work and their influence on learning results. Although in some places introduction of such solution has just started, another important change seems to be approaching. It will highly likely be linked with the idea of semantic web and web 3.0 technologies.

It must be stressed, however, that not only technology does influence e-learning theory and practice. Another important changes concern the organizational concept and groups of possible participants of e-learning. The B2C model quite commonly applied by university vendors seem to tend towards a more versatile and dispersed offer, addressed also to non university clients.

CREN research and results: New trends in e-learning attract attention of CREN SGH researchers for a couple of years. As it is the ambition of the Centre to support introduction and popularization of new solutions, significant to the growth of e-learning, it is quite important to monitor such changes and to keep up to date reports on them. Rapid growth of popularity of web 2.0 technologies in recent years has led to new types of interaction among the internet users, and, in consequence, also among the online learners. An analysis of existing social networking tools and their implications to e-learning is one of the recent works of the team.

14. Methodology of teachers' training

Backgrounds and scope: Everyone interested in implementing e-learning solutions into university practice must take into account that such decision imposes the necessity of preparing the staff members to become e-tutors or e-moderators. Such approach not only constitutes an indispensable condition for efficiency of particular activities undertaken by individuals but also strongly influences the general attitude of the learners towards e-learning as a new form of teaching and learning. It is worth to be stressed that quite often such preparatory phase is limited only to getting familiar with functionalities of e-learning platform and the tools used for creating the learning content. While it cannot be denied that this part of preparations is essential, we cannot forget that methodological backgrounds of e-learning are even more important. Systematically growing scale of e-learning implementations at various types of schools, not only universities, clearly indicates that definition of key competences of e-teachers as well as national standards for teachers training in e-education are an important and urgent task for educational bodies nowadays.

CREN research and results: CREN SGH activity in the area of preparing the staff for e-learning varies in forms and scope. From individual advice and on the spot help served by the methodology consultants, through periodical seminars and meetings, oriented on particular tools or software solutions aimed at university staff, to popularization of e-learning methodology in conference papers and articles. Among them must also be mentioned the attempt to define a set of competences for school teachers that would like to introduce e-learning in their school practice. This work was based on the experience from various e-learning trainings aimed at the teachers and collected among their participants. One of those participants actively supported the work of the CREN researchers bringing in his practical knowledge of school conditions and educational environment at that level.

15. Lifelong learning concepts and the use of new technologies

Backgrounds and scope: Current social changes and systematically increasing role of information in many aspects of modern society imply the necessity of continuous learning and obtaining new qualifications. Ability to adapt to the new conditions – both in private and in professional aspect has become one of the key competences in modern society. That raises a demand for new skills, mainly based on the use of ICT. The idea of lifelong learning is one of the possible responses for such demand. Nowadays, it is understood as the whole system of various didactic activities aimed at a human being from the very beginning till the late end of their lives. In this meaning such term can be applied for every stage of education – child education, youth and adults. Modern educational system oriented on permanent development of individuals and the whole societies should take into account the rapid growth of information society and its technological transformations. It should also be flexible enough as to follow the changes in the society and to meet people's needs. This probably is not possible without the use of modern technologies.

CREN research and results: CREN SGH undertakes numerous projects supporting the idea of lifelong learning. Modern technologies play an important role in those activities. E-learning and blended learning methods are the commonly used solutions. Realized projects systematically undergo the evaluation processes which help to improve their quality and therefore ensure better results of learning. Analysis of data collected during evaluation phase of projects allows to identify specific needs of different learning communities and to adapt the teaching methods to those needs. The idea of permanent and lifelong education is also promoted by regularly organized CREN SGH seminars aimed at educational use of new technologies and e-learning.

16. Lifelong learning in the organization

Backgrounds and scope: Lifelong learning understood as continuous improvement and development of employees' has become a crucial feature of knowledge based economy. In modern organizations professional competences and individual experience of their staff are regarded as a crucial part of their capital. That is why systematical growth of a company highly depends on its ability to protect the intellectual capital and to stimulate its development.

CREN research and results: One of the ways of protecting company's intellectual capital refers to the concept of Talent Management (TM). Its main goal is to encourage talented employees to join the company and to improve their already possessed skills and knowledge. The subject of CREN research with regard to TM is an analysis of existing trends in this area and the ways how it influences creating the competitive advantage and increasing the corporate value.

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