

New forms of electronic tools in the information and communication, used for creating the European higher education area and in e-learning development

Monika Krakowska

Jagiellonian University, Department of Management and Social Communication,
Institute of Scientific Information and Librarianship
Gronostajowa 7, 30-387 Krakow, Poland

ABSTRACT

The article is on the issues of using new ICT tools in the European educational area and carrying joint research works. The subject of the research were the forms of the traditional and electronic communication used within the virtual HERN organisation - Higher Education of Network Reforms – established by representatives of the academic circles as well as decision-makers. Special attention was paid to the e-forum. Also, the role of the moderator was analysed with reference to the e-forum. The author tried to determine the reason for low attendance during the e-argument. A method of analysis of documents and participating observation was applied. A technique of the questionnaire form and a method of case study were used to examine a group of HERN users. Results demonstrated that partners were becoming more involved in forms of face-to-face communication, such as conferences, than into forms of electronic communication. The most important barriers in the e-communication that have been determined included technical, linguistic and time-related problems.

Keywords: Higher Education, Communication Forms, Virtual Organisation, e-Forum, e-Learning

1. INTRODUCTION

The system of higher education in Europe goes back to the Middle Ages (first universities were established at the beginning of the 14th century) and developed based on the history and tradition of a given country, sanctioned norms and laws. When the European Union started to form, there aroused a need to standardise the existing educational systems because of their diversity and decentralisation. Every EU Member State implements its own educational policy, having individual objectives and directions of development. Due to the need to solve these problems, vice-chancellors of higher education institutions and decision-makers responsible for the shape of the educational policy provided for cyclical meetings and conferences. During these conferences, participants sign declarations containing the most important findings regarding the European policy of higher education and necessary reforms. In 1998 in Bologna, during one of such conferences, the Bologna Declaration was signed, which initiated a series of reforms and a process leading to the uniformity and compatibilities of the educational systems in Europe. The aim of Bologna process is to harmonise the educational systems in order to assure comparability of knowledge and abilities received on individual levels of education. Harmonisation of educational systems constitutes the basis for diploma recognition by majority academic centres. It also supports horizontal mobility - from one higher education institution to another, and vertical mobility that is enabling to reach individual, different levels of education.

The European Credit Transfer and Accumulation System for students as well as the system of permanent education are being introduced. As a result of signing the Bologna Declaration, a

number of programs and projects financed by the European Union are being established. All the activities undertaken are aimed at the harmonisation of higher education area. It is essential to control the rapid development of distance education, adapted to the modern model of education in the information society.

European education is based on the traditional model of teaching, i.e. a direct contact between the teacher and the student. This way of education differs from the educational systems in the United States, Australia or Canada, where the forms of distance education have long been developing now. This most frequently resulted from the low density of population on vast lands in these states. In Europe, universities were usually located in the centre of regions with huge population density.

Dissemination of new information and communication technologies resulted in the European countries attempting to develop their own approach towards new forms of organisation of education systems. Hence, e-learning is a novelty, finding its place in education in the European Union.

2. HERN PROJECT

The ongoing increase of the interest in the reforms implementation in higher education, in compliance with the guidelines of the Bologna Declaration, affected the establishment of HERN – Higher Education of Network Reforms.

The subject of research by HERN partners was the progress of education integration and harmonisation process in Europe. A group of specialists dealing with the university education participated in the project. It allowed for the intensification of the international experience exchange as well as free flow of information by means of applying, among others, electronic tools such as the e-mail, chat or e-conference.

In the European, the most frequently utilised forms of electronic communication in the educational area include e-universities, e-libraries, e-laboratories, chats, e-tests internet networks are considered new forms of electronic communication and information. For e-communication in The HERN network, only a few forms of e-communication were applied.

The HERN project lasted since November 2001 to October 2004. Realisation of its objectives depended on the cooperation of international group of participants from ten European countries - Austria, Bulgaria, the Czech Republic, Greece, the Netherlands, Lithuania, Latvia, Poland, Sweden and Great Britain. The number of users of the network wasn't fixed. Different participants, such as university teachers or decision-makers, were invited. Representatives of academic groups for disabled persons were also being involved in the accomplishment of the project's objectives as the project also analysed strategies of education and functioning of the labour market for this part of the information society. Main addressees of the project included representatives of the academic community, experts, decision-makers, and persons interested in general issues of higher education.

The objectives of the research within the HERN network research were:

- analysis of former and present social trends and structural changes related to higher education as well as ways of managing these changes together with the reaction to new proposals in education;
- identification of different systems underlying development of strategies and processes in higher education in the changing European society;
- examining the area where the social role and the responsibility of higher education in shaping the information society are recognised;
- analysis of mechanisms of joint political and social activities;
- identification of strategies of the education development which facilitate the increase in employment and the social and economic cohesion;
- dissemination of analysis results to decision-makers in order to broaden their understanding of the implications of the activities related to higher education in Europe.

HERN participants also analysed the influence of the educational policy and structures of higher education on:

- the society - in the connection with the development of European values in every country which was involved in the project;
- the policy of the state / government - in the connection with managing governmental institutions;
- teaching and learning - in connection with the development of a specific country;
- managing the changes - in the context of expanding the European Union [1].

HERN participants also paid attention to the development of social values in the context of the Europeanisation. The understanding of the term 'European integration' by citizens of the European Union was researched into (in connection with different cultural and social systems). The analysis regarded the meaning of life-long learning and the development of the so-called university of tomorrow.

During the research, experience resulting from a wide range of programs of the European Union related to higher education (e.g. TEMPUS, SOCRATES, LEONARDO, PHARE) was combined. Project coordinators planned to develop a report the objective whereof was to influence the policy of shaping the European educational area. The report provided for the most important conclusions regarding the area of higher education and the most important perspectives for university education.

Virtual organisation

HERN, which was also a platform to the skill-sharing and good practice application, can also be treated as a virtual organisation. Representatives of all kinds of institutions being responsible for the shape of higher education in Europe cooperated on the project. HERN's potential influence on the European educational policy regarded above all the role of the academic staff in shaping the educational area and conducting case study research. The author also used the term e-organisation to characterise the structure typical of the HERN project. A virtual organisation is a new type of organisation development whereof was enabled by the development of information technology, in particular operation of global information networks and huge databases. It is a structure that coordinates essential elements influencing the development of appropriate economic processes and management mechanisms within the organisation. The aim of the virtual

organisation is to fulfil the user's needs in the global, dynamic environment at the labour and education markets by rendering high quality services.[2]

A virtual organisation is also defined as the kind of organisation which is characterised by temporary or permanent geographical arrangement of individual participants, groups, departments or institutions. The aims of the e-organisation are accomplished via electronic communication. Flexibility, i.e. the ability to adopt to the changes in the compound external and internal surroundings is a characteristic feature of the virtual organisation. Nevertheless, it only constitutes a temporary form, a temporary configuration of organisational units, cooperating to accomplish the tasks established. In the world, there is a trend towards establishing small groups of constituting the virtual organisation, within which there cooperate several experts appointed to accomplish occasional, short-term assignments and objectives [3].

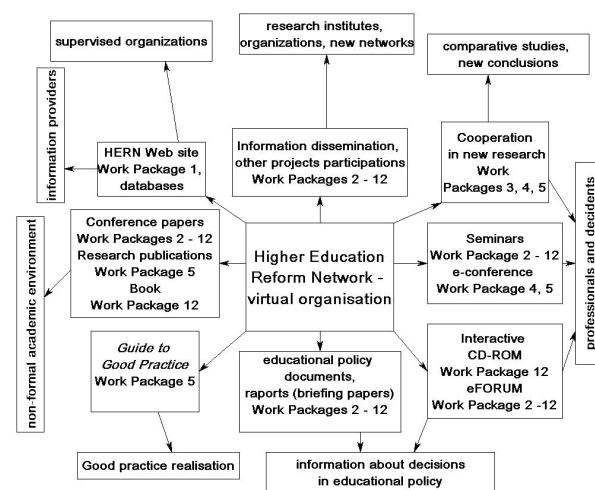


Figure 1. Structure of the HERN virtual organisation

In the virtual organisation, electronic mail as well as Internet or Intranet communication platforms are generally used for communication and coordination of works [4]. Similar solutions were applied within the HERN network.

3. FORMS OF THE COMMUNICATION WITHIN HERN

Participants in the HERN virtual organisation had to exchange information. To this end, they utilised forms of communication of both traditional nature as well as based on information and communication technologies.

Partners applied traditional as well as electronic tools. The traditional tools included seminars, based on direct contacts of participants, representatives of higher education institutions and governmental institutions, cooperating on the project. Traditional forms of communication are more popular with the higher education system in Europe. Thanks to these forms, it is possible to meet each other at conferences, seminars or workshops. By the reference to the nomenclature of specific traditional forms, electronic forms actually imitate the traditional communication and they transfer some aspects of direct contacts to the virtual environment.

Electronic forms of the communication

Electronic information and communication technologies used in HERN project included forms and tools based on Internet environment, such as the electronic mail, the Groove e-learning platform, e-forum, audio-conference, and chat. The subject of the author's research was the use of different forms of e-communication within the HERN network. A special subject of the research was the e-forum as a means of communication imitating direct meetings.

e-Mail and the interactive web page: electronic mail was the tool used by partners most often.

The habit of sending information by e-mail also became the reason for making it available at the interactive web page of the HERN project. All users, after logging on the Web side, could send notifications, documents, studies, etc. Still, not all the e-tools used within the network were uploaded to the website. HERN participants had to introduce the state of knowledge of and experience in reforming higher education and to indicate connections with different programs related to education. Creating an interactive page as well as a system of communication through electronic mail maximally strengthened the project potential and the exchange of knowledge between HERN users.

e-Learning platform: Groove e-learning platform, since 2005 belonging to Microsoft, is a software used particularly for business communication, especially within international concerns. It is very much extended and difficult to master without training and technical support. Groove is a program based on extended tools used to manage human resources, documents and projects in a virtual environment. Within the Groove space, e-fora and audio-conferences were held. Text communication in the form of the chat box was also possible. Groove, by using a series of different communications tools, enables and facilitates project management, cooperation on document development, multimedia file sending, etc. Still, participants in the HERN virtual organisation did not use the Groove software in an effective way. Due to the incompatibility with the servers at the European institutes, where HERN partners utilised it, application of the Groove software caused considerable technical problems. Unfavoured were distance discussions on this e-platform, more frequently used in the United States in the educational, governmental and military sectors. In addition, users of the project had to incur the costs of upgrading the available software so that could it correctly function with Groove software. There often also lacked authorisation by university systems administrators to install this program. All these problems were the cause of resignation from the purchase of Groove licence and change of software.

Audio-conference and chat: Problems related to the use of the Groove platform for e-communication contributed to the decision on the purchase of the licence for the Conference Room software. This program, developed by the Norwegian MediaLT company, is very easy to use and is based on the use of tools for audio-conferences and text conversations. The MediaLT company specialises in the development of new electronic tools allowing for the needs of disabled users. All its products helping the information exchange on the web in a very functional and easy way. Within the HERN project, the program was also used for hosting the e-forum. Nevertheless, the Conference Room program lacks tools to co-create documents and reports during electronic conferences. The communication was based exclusively on information exchange during the e-discussion.

4. RESEARCH ON e-COMMUNICATION

In January 2002, a Polish coordinator of the project enabled the author to carry out research on the HERN network and to analyse the use of new forms of electronic communication by all participants in the project. The invitation to participate in the undertaking, participation in seminars and electronic discussions integrated with them, allowed the author analysis above all to analyse the virtual structure and tools applied within it for electronic communication. The research was based on a case study analysis. Special attention was paid to analysing seminars and e-fora. Electronic fora were the continuation of direct meetings and regarded the same problems which were raised during seminars. Analysis regarded statements and documents which arose as a result of these two forms of communication between participants in the project due to mutual correlation between seminars and e-fora.

Traditional forms

The subject of the research were 9 seminars the topics whereof focused on the analysis of the advancement in the integration of higher education and the process of harmonisation thereof, pursuant to the guidelines of the Bologna Declaration. The subject of the analysis was the content of the documents created by the partners of the project. The author also co-edited reports on individual seminars.

The subject matter of the meetings was closely related to the research undertaken within the project and it regarded, among others, Governance among others challenges for different nation institutions in managing change, Legitimacy, quality and accountability for lifelong learning and higher education, Key features of teaching and learning in the university of tomorrow, whether Distance education and the use of technology for tomorrow's knowledge society.

They seminars were based on creative and methodological work aimed at collecting and integrating specific data. Moreover, the partners had to participate in innovative research as well as in discussions on the European educational policy in order to develop follow-up reports.

In the research on the seminar as a traditional form of communication, the author used the following methods:

- method of analysing documents – papers, reports, analyses, presentations prepared by the HERN network users,
- participating observation – the author took part in two seminars held in Krakow and Prague,
- the questionnaire method.

The results of the survey carried out in 2003 allowed for the verification of the general knowledge of the participants in the HERN network of the reforms implemented in one country as part of the realisation of the Bologna process, of the objectives and tasks of the HERN project, of the documents prepared and of the use of the Groove program to host e-fora. The respondents were supposed to answer questions related to the actions undertaken within the HERN and to the use of the Groove platform for e-communication.

Conclusions from the research indicated certain inconsistency of understanding the idea and the nature of works conducted within the virtual organisation by the participants therein.

e-Forum

An e-forum was the second form of communication analysed by the author. Electronic discussions were held with the help of the Groove program, and then the Conference Room. Analysis of copies of discussion that took place in 2002-2004 during 9 e-fora

was carried out. The observation was aimed at describing behaviours of the participants in the communication process. It took on the form of participating observation as the author participated in e-discussions and moderated one of e-meetings. A similar method was used by Tom Wilson in the 1970s. In his research, he observed the organisation from the inside as its direct user. [5] Analysis of the utterances and the frequency of participating in individual e-fora was the subject of the research conducted by the author.

The on-line forum is a tool relatively easy to use in comparison with different forms utilised in e-learning, such as e-laboratories, e-libraries, etc. Applying the Groove platform by the Polish group of users, exchange of experience and materials as well as managing the project demonstrated that it was an innovative form still providing different possibilities of applying to distance education, training, etc. The group surveyed unanimously agreed that the e-forum allowed for the development of information and communications abilities. It is also a tool developing the proficiency in using new technologies, a form supporting cooperation. Its use considerably reduces costs and time of participation in international projects.

The case study utilised in order to analyse the group of participants in the HERN network demonstrated that users more frequently became involved in forms of direct communication such as meetings, conferences or workshops, than in forms of electronic communication such as the e-forum. It is worth emphasising that all HERN partners were professionally active, they conducted courses at their parent institutions, and they attended many international and national conferences. Lack of involvement in the new form the communication may have resulted from the fact that all the partners used the software exclusively at the place of their employment in which they engaged in numerous different activities, besides duties, that were the result of cooperation on the HERN project. The participants in the project most frequently pointed at but lack of time to prepare themselves for e-discussion, being a result of overburdening with professional duties and the essential barrier limiting the use of the e-forum. Anderson and Hanuka obtained similar results of the research into the application of the e-forum by a group of specialists in permanent education. [6]

It may be supposed that technical capabilities of the participants in the project analysed by the author had also affected the use of the e-forum. The new and difficult to handle software required breaking the participants' habits related to taking advantage of new technologies. It should be emphasised that the users had utilised such a form of e-communication for the first time. They were more accustomed to active participating in traditional meetings than to having a discussion on an e-forum.

Problems with using the e-forum as a form of communication between the partners cooperating on the HERN project disclosed in the research findings do not however exclude the use of electronic discussions for scientific purposes. This form has successfully been utilised at American universities. The research findings obtained by the author as the case study results cannot be extrapolated to different groups of users.

Results obtained from the observation and the case study appeared rather surprising. Therefore, the author decided to distribute the questionnaire form the purpose whereof was to become acquainted with the opinions and expectations of the participants with reference to the e-forum.

The aim of the survey was to obtain the answer on the reasons for lack of participation in e-fora that had to support the realisation of the HERN project and to continue the analysis and develop-

ment of conclusions from all the nine seminars. The author attempted to determine the barriers to e-communication and to describe possible solutions regarding further e-meetings, not only under the project but also under different international and local undertakings.

The research findings indicate that 75% of the surveyed participants in the HERN network did not agree with the thesis that the use of the e-forum as a means of communication was more effective than face-to-face meetings. Up to 70% users pointed out that online communication between users was more difficult, and only 10% considered it to be easier and faster. 75% of survey recipients suggested that they perceived the e-forum as an important and valuable form utilised in distance education. The majority of the participants stated that thanks to the e-forum they could plan work and undertakings, prepare additional documents and reports, and maintain contacts in-between seminars. Amongst the most important factors affecting the effective use of the e-forum, the partners named self-discipline in using new tools, obligatory participation in e-discussions and e-conferences. Also, uploading appropriately developed materials to the e-learning space platform and specifying, already from the beginning of cooperation, the aim of electronic discussions was important as well. Similarly important is a suitable level of knowledge of computer techniques due to technologically advanced software for hosting the e-forum. Amongst HERN partners, as many as 25% considered themselves experts in this field and 45% considered their computer literacy to be satisfactory.

The questionnaire results imply that the e-forum may not be treated as a tool which will eliminate direct communication during seminars. E-forum was used as a tool of communication by the majority of the HERN participants and treated as a satisfying way of communication and distribution of the information. However, it was not regarded by the HERN participants as being a more effective communication tool than direct communication, typical of seminar.

Selection of traditional or electronic forms by the participants in the project was affected by a number of objective factors, such as the availability of tools, costs, and experience in using them. There are also other factors, like the relation to the situation of the exact user, lack of time or of computer abilities, resulting in the choice of tools. [7] The long-time tradition of applying traditional forms of communication additionally developed specific habits in the participants.

Moderating and the role of an e-forum moderator

With reference to the e-forum, the author also studied the role of the moderator of e-communication. Management of electronic meetings was one of the observed problems related to e-discussions. Reluctance towards and distrust in electronic means of communication were probably the primary barrier. It was very difficult to encourage all the participants in the HERN network to participate in e-fora. Partners did not join in e-discussions despite introduced changes both in terms of the software as well as the way of organising e-fora.

Analysis of the part of the e-forum moderator could be carried out thanks to the author's organising one of e-fora. This e-meeting was held in July 2004, thanks to the substantive help of the organisers of the seminar, the CHES centre - Centres for Higher Education Studies from Prague. Together with its staff, the author prepared a set of questions for discussion, and an appropriate set of documents and materials prepared following face-to-face seminars. She also received technical support from the side of the official moderator in the project.

The attempt to moderate the e-forum by the author demonstrated that the results were similar to the results of observation carried

out and they referred to the research on the e-forum. There occurred problems appeared similar to those previously experienced by the moderator from the HERN project.

Despite substantive preparation of the author with respect to carrying out courses on e-learning, application of different information-retrieval systems and databases for students of scientific information and librarianship as well as her technical experience, she was not capable of involving all the partners of the virtual organisation in e-discussion. Negative experience gained by the participants in the project during all the e-fora may have influenced the formation of an unwilling attitude towards e-fora and withdrawing from this form of communication. One of the main problems identified by the author, performing the role of the moderator, was but numerous partners' resignation from participating in the e-forum. Despite being informed and notified on the obligatory e-meeting, only a few persons participated in the last forum. The participants referred excess of work on the appointed date of e-forum. This confirmed the thesis that the user was becoming involved in activities outside his or her place of employment when they are taken away from the environment of their work and duties that the employer imposes on them.

The author became convinced that for correct moderating of electronic discussions good knowledge of the subject matter brought up and of the technology are essential. A person managing communication in the virtual environment is essential and unusually important. Correctly constructed space of electronic communication usually results in the formation of an exceptionally active group of specialists. The moderator can also induce different users to development by acquiring skills and knowledge.

Persons coordinating the process of electronic communication ought to know the mechanisms, dynamics and techniques of teamwork, and to use them in order to achieve the assumed objectives and foreseen results. On an e-forum maintained in the scientific community, discussion is directed. A competent moderator is able to, among others, be responsible for the topical side of the argument, to supervise the discussion, to sustain the level of activity and remarks of all participants, to organise and to structuralise the e-forum, to establish the results of the discussion held and, most importantly, to reduce technical problems. Correct development of the content, management of the e-discussion and efficient management of e-communication depend on these issues. Weak organisation and insufficient competence of the e-moderator can result in the absence of effective communication by means of different kinds software for to host fora. They may also affect improper modelling and group development. [8]

The author's observations also imply that it was very difficult to achieve the right level of activity amongst the participants in the project, influencing the effectiveness of the e-discussion. The author did not have much influence on the existing situation and certain habits acquired by the members of the virtual group. A well-prepared e-forum and right capabilities of the moderator are not sufficient to achieve success. User-related barriers should also be taken into consideration. Among them, It is possible to distinguish the lack of infrastructure and technical competence as well as information-related barriers. Amongst the participants in the HERN project who came from different European states, it is additionally possible to point out the language barrier. The English language used was not the mother tongue of most users. Experience from participation in all the e-fora, problems with the software, low capacity online connections may all have contributed to the formation of obstacles of psychological nature in the partners and generate reluctance to participate in e-fora.

5. CONCLUSIONS

HERN originators as well as the author herself expected, that effectiveness of electronic means of communication would be possible to be increased if they appeared in a certain complex, that is in connection with traditional forms of communication. Only then could electronic tools of communication be comprehensively used and facilitate research into different fields. The results of the observation, the case study and the questionnaire surveys were rather surprising due to the disclosure of the HERN partners' reluctant attitude towards new forms of electronic communication, in particular to the e-forum. The participants were more involved in direct contacts and for them participating in direct seminars became more important. The author analysed only one, symptomatic case, not taking the professional environment of the partners into consideration.

Inappropriate selection of the software affected the reluctance towards using the e-forum. The extended software, using a large number of tools inside the communications platform, made the barrier impossible to overcome. It ought also be noted that the application of the observation method to analyse the e-forum cannot be deemed sufficient. A researcher should fully participate in using the tool and use it to carry out additional undertakings. It was determined that the use of new forms of information should be preceded by the research verifying the level of the users' computer literacy and by appropriate training. In the explored environment, a fear of taking advantage of modern information technologies as well as the unevenness of the level of technical advancement were observed in the countries selected, which resulted in some partners being unable to fully participate in electronic discussions. Similar problems in utilising new means of communication are reflected in many European Union projects so it is necessary to strive to organise various undertakings presenting new forms of e-communication and developing the ability of effective application of these forms.

At European universities, more and more e-learning courses are being initiated, exploiting the experience of the persons participating in international undertakings. The EURIDICE project - European Recommended Materials for Distance Learning Courses for Educators, can be an example. The project offers to academic centres online courses, tools and materials with exceptional and often with unpublished content.

While using the e-learning platform offered by EURIDICE, user surveys were carried out. Higher education institutions from Austria, Belgium, Spain, Poland and Sweden participated. Analysis of this model of the virtual environment and of students' online behaviours demonstrated that computerisation of didactics with the help of interactive systems increases the effectiveness of learning and teaching. The research carried out confirmed that international cooperation as part of different projects requires significant involvement of all participants.

Development of new information and communications technologies and application of them to shaping the European area of higher education, or to the very distance education, should take into consideration the multifaceted research on new tools used by participants in the process of harmonisation of the educational system in Europe. Establishment and development of distance education means integration of new forms of e-communication into a new quality that will generate new possibilities with respect to the provision of knowledge and information. The academic communities are also calling for distance education curricula to provide for communicative skills and effective use of different forms of communication with the use of various electronic tools. [9]

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