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## **E-learning and Student Mobility in Higher Education**

BEST Symposium on Education, Gothenburg  
2<sup>nd</sup> June – 10<sup>th</sup> June; 2007

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## Abstract - Summary

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A BEST Symposium on Education is a public event of the Board of European Students of Technology. This event creates a forum in which students from all over Europe can meet for one week, and state their opinions on topics related to educational issues during round-table discussions. The outcomes of the symposiums will be brought to the decision-makers, so that they will have the possibility to see students' point of view before changing the concept of education.

The Educational Committee of BEST (EduCo) and Local BEST Group Gothenburg organized a Symposium on Education on the topic "E-learning and Student Mobility in Higher Education". The event aimed to exchange views about new possibilities, challenges and development of e-learning tools and mobility programs in higher education together with students and teachers from all over Europe. This was managed through the presentations, discussion sessions and practical workshops. The symposium was divided into three main topics: "E-learning tools for distance learning", "E-learning and student mobility" and "Teaching and learning through virtual environments".

The outcomes of the symposium reveal that the e-learning tools are considered to be useful and important to complement the current Educational system, but can be more challenging to be used in distance learning. According to the students, the main challenges for implementing the e-learning tools are related to technical issues such as, lack of time and motivation from teachers' side, financing and problems with language skills among students if the courses are international.

Participants agreed that online-based teaching requires different methods for evaluating learning outcomes, when compared to traditional classroom teaching. The implementation of e-learning in Education requires a change in mentality of both students and teachers. Teachers, for instance, should establish rules to avoid misunderstandings, to explain in detail the content at the beginning of the course, to improve their communication skills and to develop dynamic feedback process. As for students, higher self-discipline is required, as it is easier to get distracted. Additionally, since cultural differences can affect the e-learning process, it could be useful to establish working standards for different cultural backgrounds.

The main advantages of real mobility versus virtual mobility were considered to be the rich cultural and social experiences of the mobile students, as well as the opportunity to learn and practice foreign languages. On the other hand, the main advantages of virtual mobility versus real mobility are the flexibility of the schedule of e-learning study programmes, which allows students to manage their time more efficiently. In general, it was pointed out that people very often go for physical mobility programs, e.g. Erasmus program, in order to learn languages and explore the culture rather than learn something specific from the other university. Virtual mobility programs however are chosen based mainly on the educational aspects.

Finally, the participants considered that enriching the traditional educational system with real and virtual mobility programmes would be beneficial for the students. Furthermore, complementing real mobility with virtual mobility can lead to more efficient implementation of the real mobility programmes.

# 1. Outline of the symposium

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## 1.1 Background

One of the goals of the Bologna Process, an ongoing educational reform in Europe, is to increase the mobility of students, teachers and researchers. There are different kinds of mobility programmes in Higher Education in Europe which give students an opportunity to study and live abroad, experience different cultures and gain international experience. Moreover the continuous development of e-learning tools is increasing the possibilities for mobility even more. By means of the technological progress, mobility has an evolution in itself. With the assistance of video-conferences, web based applications and digital learning environments, courses and programmes can be taken virtually without leaving the home university.

In order to benefit from digital learning environments and increase the impact and efficiency of student mobility, continuous development and improvement should take place. Furthermore, when analysing the new possibilities, challenges and development of e-learning tools and mobility programmes in Higher Education, it is essential that both students and teachers are involved in the discussion. In order to provide the opportunity to the students to get involved the Educational committee of BEST and local BEST group in Gothenburg organised a Symposium on Education with topic: "E-learning and Student Mobility in Higher Education". A BEST Symposium on Education is an educational BEST event, where students take part in discussions and have the opportunity to express their own ideas on educational matters. This one week event gathered students and teachers from all over Europe.

BEST Educational Committee aims to give regular students an opportunity to share their ideas and visions on Higher Education and to have their voice heard on a higher level. This is done by the involvement in different projects and programmes organised by the European Union and other Associations and which are directly related with the improvement of the quality and value of engineering education in Europe.

The symposium "E-learning and Student Mobility in Higher Education" was organized in the framework of a project called, "SPUTNIC" ("Seminars Promoting the Use of Technologies for Networking and International Collaboration" [1]) which is a one-year project supported by the European Commission under the Socrates, Accompanying Measures Programme and coordinated by the association "EuroPACE", a European non-profit association of universities, educational organizations and their networks. The goal of the project is to raise awareness about beneficial impact of the implementation of new educational technologies that enhance international networking and collaboration for an institution, its staff and students. The outcomes of this symposium will provide an input to the report with policy guidelines to be disseminated over Europe and presented to the European Commission.

## 1.2 Aim of the event

The main objectives of the BEST Symposium on Education in Gothenburg were to:

- Exchange views with students and experts on how e-learning technologies can/should be applied in Higher Education and how digital learning environments can increase student mobility.
- Discuss the potential differences per country and the participants' recommendations for enhancing the application of e-learning tools.
- Give students a possibility to discuss on educational issues and getting their feedback and ideas.

## 1.3 Overview of the academic schedule

The academic schedule of the symposium of "E-learning and Student Mobility in Higher Education" consisted of topic presentations, practical workshops and discussion sessions. The topic introduction presentations were given by professors or other professionals working closely with the discussed theme. During the discussions, each topic was handled from various aspects in order to bring up the different views of the participants. For the discussion session all participants were divided into three groups. The outcomes from these discussion sessions are presented in this report.

The symposium covered three main topics, which were:

- E-learning tools for distance learning.
- E-learning and student mobility.
- Teaching and learning through virtual environments.

The first topic "E-learning tools for distance learning" provided the students an insight for different e-learning tools that can be used during distance learning and also in conjunction with face-to-face learning. Two different presentations were given: "Introduction to digital learning environments" (by Katrin Bijinens, Johannes De Gryter, Ilse Op de Beeck from K.U. Leuven); "How to use videoconferencing in distance learning" (by Lena Dalgård, Chalmers/IT-University). The students had also an opportunity to participate in a workshop, where different e-learning technologies were introduced and explored in reality. The outcomes and experiences from this practical session were further discussed during the session, where students shared their ideas of using different e-learning tools and how these tools could be applied in Higher Education.

In addition, the students had a possibility to experience a real video conference with the students from the Catholic University of Leuven (Katholieke Universiteit Leuven). A presentation about "Virtual Mobility" was given through the videoconference tool by Helena Bijinens (K.U. Leuven) that was part of the second main symposium topic "E-learning and student mobility". In addition, under the topic "Experiences from videoconferencing lectures within Erasmus Mundus Master Programme Nanoscience and Nanotechnology" was presented by Per Rudquist (Chalmers). The presentations were followed by a discussion session where students shared their opinions about how digital learning environments can increase student mobility in Higher Education.

Under the last theme of the symposium "Teaching and learning through virtual environments" the pedagogical aspects of e-learning were first

discussed in the presentations of “Pedagogical aspects of e-learning and Information Communication Technology (ICT)” (by Elisabeth Saalman, NSHU/Chalmers); “Teaching virtually for international students (Mathias Klang, Chalmers) and “Using digital media for laboratory work and practical assignments” (by Per Lundgren, Chalmers). In addition, web based learning and pedagogical use of Information Technology was presented in “Swedish Agency for Networks and Cooperation in Higher Education (NSHU) and Swedish Net University” (by Elisabeth Saalman, NSHU/Chalmers). In the discussion session, the different aspects of teaching and learning through virtual environments were analysed.

Besides the topic introduction presentations and discussion sessions there were also two other practical sessions included in the schedule. The first practical session, “Learning Café”, was a way of initiating a discussion, where the discussion leaders are students themselves. These discussions do not aim to find the answers to the questions but to initiate new ideas and brainstorm over certain topics. The dynamic conversation was mapped by the host in the group, which was then presented to everyone afterwards. The topics included to this practical sessions were about virtual learning environments and virtual mobility.

The second practical workshop was dedicated to a group work by using Open Space Technology method. It is a new method for organising and managing group work, which aims to increase the efficiency of the team work. Ideas about topics related to the symposium were discussed and developed.

At the end of the symposium the students prepared their presentations with the outcomes of the academic even, which were then presented in the final session.

## **1.4 People involved**

The symposium gathered people from different areas of interest. The symposium was organised by BEST Educational Committee and local BEST Group Gothenburg, and was done in the framework of “SPUTNIC” project. The academics and experts group that was invited to the event consisted of people who are involved with education locally at Chalmers University of Technology, and experts who are involved in the “SPUTNIC” project.

There were 18 participants from different technical universities of Europe, who took part in the symposium.

The list of people involved is following:

### **BEST Educational Committee:**

Mari-Liis Maripuu (*Chalmers University of Technology, Sweden*)  
Anna Fernandez (*Technical University of Catalonia, Spain*)  
Sara Nunez (*University of Valladolid; Spain*)  
Petros Kaklamanis (*Technical University of Crete; Greece*)  
Ömer Hantal (*Istanbul Technical University; Turkey*)

### **Academics and Experts:**

Katrin Bijnens (*Katholieke Universiteit Leuven, Belgium; "EuroPACE" Association*)  
Johannes De Gruyter (*Katholieke Universiteit Leuven, Belgium; "EuroPACE" Association*)  
Ilse Op de Beeck (*Katholieke Universiteit Leuven, Belgium; ; "EuroPACE" Association*)  
Anna-Kaarina Kairamo (*Helsinki University of Technology; Lifelong Learning Institute Dipoli; Finland*)  
Lena Dalgård (*IT-University/Gothenburg University; Sweden*)  
Elisabeth Saalman (*NSHU/ Chalmers University of Technology; Sweden*)  
Per Rudquist (*Chalmers University of Technology; Sweden*)  
Per Lundgren (*Chalmers University of Technology; Sweden*)  
Mathias Klang (*IT-University/Gothenburg University; Chalmers University of Technology; Sweden*)

### **Participants:**

Michelle Baeten (*Eindhoven University of Technology*)  
Olga Bjelotomic (*University of Zagreb; Croatia*)  
Darko Bogdanovic (*University of Novi Sad; Serbia*)  
Stefan Boyadzhiev (*Vienna University of Technology; Austria*)  
Lorenzo Di Ciaccio (*"Sapienza", University of Rome; Italy*)  
Dimitris Diamantis (*National Technical University of Athens; Greece*)  
Marjeta Kuralt (*University of Ljubljana; Slovenia*)  
David Liput (*Silesian University of Technology in Gliwice; Poland*)  
Paul Marcon (*National Polytechnic Institute of Grenoble, France*)  
Giannis Misiakos (*University of Patras; Greece*)  
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Lenka Raudenska (*Brno University of Technology; Czech Republic*)  
Tamara Tirják (*Budapest University of Technology and Economics; Hungary*)  
David J. Torralbo Gutiérrez (*Carlos III University of Madrid; Spain*)  
Tolga Tutar (*Politechnic of Milan; Italy*)  
Emilia Woinska (*Technical University of Lodz; Poland*)  
Ewa Wojtowicz (*Silesian University of Technology in Gliwice; Poland*)  
Paolo Riva (*Politechnic of Milan; Italy*)

## **2. Discussion topic 1: “Introduction to different e-learning environments”**

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### **2.1 Introduction**

Nowadays the distance learning is commonly based on e-learning. E-learning is a general term used to refer to computer-enhanced learning. Furthermore, e-learning is not just used for distance learning and flexible learning, but also in conjunction with face-to-face learning. For example, some educational institutions are integrating distance and on-campus students in university course.

There are many different technologies used for e-learning. These techniques include virtual learning environments, web-based teaching materials, web sites, e-mail, discussion boards, digital media tools, etc. [2]. The aim of this discussion session was to share the opinions about the use and application of different e-learning environments and how these technologies should be applied in higher education, including which are the benefits and challenges with the implementation.

Moreover, during the practical workshop of this symposium students had a chance to get to know of and work with several web-based e-learning tools, such as Flashmeeting, Weblogs, RSS (Netvibes) and social bookmarking. In the discussion session participants shared their opinions about the usage of these tools and their experiences with different e-learning tools in their educational programmes.

### **2.2 Outcomes from the discussion session**

#### ***Group 1***

The students participating in this discussion group had very little or no experience with the e-learning tools in their education. Few of the students mentioned about using internet platforms for downloading course materials and lecture notes from teacher. However, these platforms were not applied for more interactive communication. One student from Serbia had an experience where the teacher had created a group account at Yahoo for communicating and managing the course tasks with the students so that students did not need to go to the university to see the teacher.

In general, students felt very positive about the e-learning tools they had a chance to use in the practical session of the current symposium. According to students, tools that are very useful and easy to use would provide more flexibility to the learning process. This is especially when the students must do group work, since it could replace physical meetings for discussions. Also, a possibility to communicate with the teacher through virtual means would help many students who live far from the campus. The web-based conferencing tool was found to be very useful. However, good sound quality is very important in order to make the most out of it. Some technical problems occurred for many students during the practical session. Furthermore, it was pointed out that these tools are good and useful as part of the conventional learning, but they should not replace all the current learning methods. On the whole, students felt that teachers should start to apply more e-learning methods to the traditional learning process which

would also encourage students to learn and participate. So far the initiative has been only from the young teachers who are more open minded for the new technologies and methods. In some universities, the use of computer by elderly teachers is not so common at all (example given by a participant from Greece), which makes it even more difficult to promote the use of e-learning tools.

According to students, the main challenges for implementing the e-learning tools are problems with language skills among students, lack of time from teachers' side, technical issues, e.g. bad internet connection, and financing. The language problems could be solved by more frequent use of virtual learning environments. However, the participants think that financing can be much bigger issue for many of the countries, which influences the use of the IT-technology in general. The students hope for more initiative from both university and students' side.

### **Group 2**

The participants of the discussion group had experience with some of the e-learning tools (commercial versions of web-based conference) but they were not linked to their Education. One of them was studying in Germany, and explained how e-learning was introduced in his university, as the professors started to use internet in order to transmit information on some subjects.

The students felt really enthusiastic about the new e-learning tools they have just experienced. They pointed out the fact that, in general, the majority of the students do not have any clue about the existence of these tools, as well as their potential use in their Education. Under their point of view, these tools are user friendly and can save time, in order to have more productive face to face meetings. However, universities have to ensure the existence of the appropriate equipment as for example the good sound quality. The participants pointed the future applications for these tools in order to design their own study timetable to make it more interactive, and also for teachers and researchers, who are travelling and could use these tools to improve the quality of their work. The tools were thought as a complement to current Educational system.

The students stressed that different IT capabilities of the countries can make the deployment of e-learning tools difficult. Furthermore, teachers have to make an effort to learn how to use these tools in order to include them in their lectures and make them popular among the students. It is possible that the age and computer skills of teachers could impede their implementation.

### **Group 3**

The participants of this discussion group had very little experience with the usage of e-learning tools in their education. Only one of the students was familiar with e-learning tools due to the topic of his thesis and his field of studies. Some students attributed the lack of e-learning courses due to the age of teachers, as young teachers use advanced technology more often than old ones, and lack of personal contact by using e-learning tools.

After the first round of experiences, the discussion moved towards students' experiences from the practical session using different web 2.0 tools. In general, they described the experience as great opportunity for them, although some issues were identified in order to put those tools in practice.

The tool that was most appreciated by the students was the Flashmeeting, since they could see each other, and have more interaction, because it included real time communication. However, it is difficult to use it, because this software is copyrighted and not free of charge. As for the other technologies, students found them attractive for personal usage (research, thesis, etc.), especially RSS or social bookmarking. However, they did not find them useful for courses at the university. Although they can be a good support for some courses, students cannot imagine them as part of everyday university activities, when people still have the option to meet physically. For example, students discussed about the possibility of having a course organised in a web blog. In general, students commented the difficulty to follow up such a course, if they cannot constantly check its last updates, and how time-consuming it would be. Furthermore, they expressed concerns about the reliability of the online information.

Analysing the benefits (+) and challenges (-) of these tools, the outcomes were the following:

- Flashmeeting
  - (+) Time saving
  - (+) Eliminating distance
  - (+) Easy to use and understand
  - (+) Real time communication
  
  - (-) Need for facilitator
  - (-) Technical issues involved: internet, microphones, etc.
  
- Social Bookmarking
  - (+) Easy to use
  - (+) Ability to use other people's bookmarks
  - (+) Easy to find, high accessibility
  
  - (-) All co-workers must use the same site
  
- Web blogging
  - (+) Editable everywhere
  - (+) Great interactivity
  - (+) Useful for long term projects like thesis
  
  - (-) Can be offensive
  - (-) Not regularly updated
  - (-) Must encourage people to use it
  
- RSS
  - (+) Update information about given topic
  - (+) Organize one's life
  - (+) Time saving
  - (+) Deal with more information
  - (+) Automatic
  - (+) Less web browsing
  
  - (-) Fake information is not detected
  - (-) Not adapted if you want to study past events
  - (-) Need of a website to look for RSS feeds

## 2.3 Conclusions

The students participating in this symposium had very little or no previous experience with the e-learning tools in their education. In general, all students felt very positive about the e-learning tools and of the chance they had to use them in the practical session in the current symposium. The main advantages of these tools are that they are user friendly and can save time also when preparing to face-to-face meetings. Many students think that such technologies are useful in order to complement the current traditional methods of teaching, but not to substitute them.

According to students, the main challenges for implementing the e-learning tools are technical issues, e.g. bad Internet connection, lack of time and motivation from teachers' side, financing and problems with language skills among students if the courses are international.

## **3. Discussion topic 2: “E-learning and student mobility”**

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### **3.1 Introduction**

One of the goals of the Bologna Process, an ongoing educational reform in Europe is to increase the mobility of students, teachers and researchers. There are different mobility programs already available which give students a possibility to live and study abroad. The continuous development of e-learning tools increases these possibilities even more. Developing virtual mobility programs for university students is a growing trend inside European Higher Education area.

E-learning tools are not just used for enhancing virtual student mobility but also for complementing physical mobility programmes. It appears quite often that the students going abroad may need to take some courses at home university or/and need some support and supervision from the home university. By means of digital media and other e-learning tools this can be made possible.

This discussion session aimed to discuss about how digital learning environments can increase student mobility in Higher Education and how. Furthermore, the students gave ideas about how e-learning tools and student mobility can be best way combined. The advantages and disadvantages of both virtual and real mobility were analysed and possible challenges of e-learning tools were discussed.

### **3.2 Outcomes from the discussion session**

#### ***Group 1***

The students listed the positive and negative aspects of both real and virtual mobility. The positive aspects of virtual mobility are considered to be the time saving factor, flexibility, independence, possibility to take courses in several universities at the same time, no need to travel and therefore more people can be involved. However, when doing virtual mobility students will have no experience of living abroad, it requires too much work in front of computers that can lead to health problems, and it can be difficult to understand new methods of teaching. Real mobility provides more entertainment, opportunities to meet other cultures and practice other languages and get social contacts. As a negative aspect of real mobility the students pointed out the costs, limited availability (more possibilities for the students from EU-countries than from outside), limited co-operation between the universities, lack of language preparation. According to participants, people very often go for physical mobility programmes, e.g. Erasmus programme, in order to learn languages and explore the culture rather than learning something specific from the other university. Virtual mobility programs however are more frequently chosen based on the educational aspects.

The main challenges for virtual mobility programmes seem to be the coordination of people from different cultures and problems in language skills of both teachers and students. The participants think that students

need to have good language and technical skills when participating in virtual mobility programs. These challenges need to be dealt with in many universities. Furthermore, there should be an effective way for students to introduce themselves at the beginning of the programme, in order to make it more interactive from the start.

When discussing about how can e-learning tools complement real mobility students thought that one way is to attend physically a course in another country but also provide a possibility to attend courses at their home university by using virtual learning methods. These virtual learning methods can also assist students before and after Erasmus in order to make the most out of the experience. Preparation before going abroad can be very useful.

## **Group 2**

The main idea that came to the mind of the participants about e-learning was that it is just in the beginning of its development, because a great investment in computer equipment and a huge promotion of this new channel of communication are needed, so that it will become more popular in education.

The participants listed the positive and negative aspects of both real and virtual mobility. The positive ones about Virtual Mobility were the flexibility in time and place, the diversity of different universities, methods and topics, and the accessibility to content without physical transportation. However, virtual mobility requires an expensive implementation process, and takes time to be familiar with. Furthermore, it currently does not have the same appreciation level compared with the present ones. When discussing about the risks for the health, it was said that it requires too much time in front of the computer. On the other hand, Real Mobility was presented as an opportunity to travel, to have social interaction in an international environment, to experience other cultures, and to improve social and language skills. When discussing the disadvantages of real mobility, the participants stressed the high cost, the lack of intensity and continuity in the relations among the courses, and the possible problem to spend more time in the universities if the learning agreement is not fully correct.

Seventy per cent of the participants have had Erasmus grants, and in their own universities there are few or no opportunities to have e-learning tools available.

## **Group 3**

This group compared the two different types of mobility, real and virtual, and furthermore, they identified the challenges that virtual mobility has to deal with.

The most important advantages of real/physical mobility for a student that has such an experience are the social and cultural aspects of the experience itself, as well as the self development, and the expansion of his personal horizons that he/she earns. Furthermore, these students have the opportunity to improve their foreign languages skills. All the mentioned qualities are considered important by some companies.

The advantages of virtual mobility argue that virtual mobility is more cost-effective for students and for universities. E-learning curricula can enrich the currently existing ones, and were considered to be cheaper for the

universities and for the students. They can also fit easier with the different time schedules that vary from student to student, so they are more adaptive. This makes a very good teaching method for vocational training and training of adults.

In the meantime, e-learning is facing a number of challenges, such as those described by the participants of the discussion group. Some of them are technological challenges, like the insufficient internet access connections, or the low quality level of information and communication technology in some universities. Sometimes, students do not have access to the needed technology and facilities. At the same time, there are many universities that are actually reserved towards this learning method and do not invest in it.

Furthermore, cooperation among universities is not so frequent towards educational programmes; universities unfortunately tend to compete with each other, instead of working together, despite the existing differences in the educational programmes like exams, practical session and so on.

Eventually, the group agreed that virtual mobility is a useful and necessary enhancement for the existing physical mobility programmes, and that the universities should further work for their combined implementation. The universities should also cooperate more with each other for the development of efficient educational programmes, instead of competing to one another.

### **3.3 Conclusions**

This session gave the participants an opportunity to compare and evaluate the main features of the traditional student mobility programmes with the ones of e-learning.

The main advantages of real mobility versus virtual mobility are considered to be the rich cultural and social experiences for students, as well as the practice of foreign languages. On the other hand, the main advantages of virtual mobility versus real mobility are the flexibility of the schedule of e-learning study programmes, which allows students to manage their time more efficiently.

In general, it was pointed out that people very often go for physical mobility programs, e.g. Erasmus program, in order to learn languages and explore the culture rather than learn something specific from the other university. Virtual mobility programs however are chosen more based on the educational aspects.

Finally, the participants considered that enriching the traditional educational system with real and virtual mobility programmes would be more beneficial for students. Furthermore, complementing real mobility with virtual mobility can lead to more efficient implementation of the real mobility programmes. One way how e-learning tools can complement real mobility is to provide the students a possibility to take on-line courses from their home university while they are abroad doing physical mobility program. It would be also useful if the virtual learning methods can assist students before and after the physical mobility program, e.g. Erasmus, in order to make the most out of the experience.

## **4. Discussion topic 3: “Pedagogical aspects of e-learning”**

### **4.1 Introduction**

The main advantages of e-learning are considered to be flexibility, convenience and the ability to work at any place where internet connection access is available. However, learning through virtual environments requires developing different methods for teaching than face-to-face learning in order to achieve the same quality. Since teachers may have no personal contact with students, they have to make sure that the students understand the course material, and provide them sufficient support and supervision. Moreover, different assessment methods must be adapted to e-learning in order to evaluate what students have really learned.

This discussion session aimed to discuss the different aspects of teaching and learning through virtual environments. First, the main pedagogical differences between face to face learning and e-learning were analysed, and opinions about the expectations/requirements from the teachers’ and from the students’ sides were provided. Furthermore, the challenges of e-learning were discussed, and some ideas were provided for the possible solutions on how the weak points could be improved. In the end of this discussion, different aspects of the quality of e-learning were discussed.

### **4.2 Outcomes from the discussion session**

#### ***Group 1***

The main difference between face-to-face and e-learning was considered to be the interaction between the teacher and the student. According to participants, e-learning can provide more interaction than face-to-face learning. Students are very often passive in the class room and it can be difficult for some students or they are even afraid to ask questions from the teacher during lectures. However, when learning through virtual environments, the participants expect higher availability from professors and encouragement of discussions from them. Moreover, it is agreed that the students themselves must be more active and independent.

The main factors that motivate students to use e-learning are the flexibility, the time saving factor and the possibility to make an individual study plan. The motivation could be further increased if the government and institutions would advertise the virtual learning possibilities and create a productive environment for e-learning. According to the participants, the main weak points of e-learning are costs, possible health problems due to computer usage, technical issues and difficulties to evaluate learning outcomes. Additionally, cultural differences can affect the e-learning process, since students from different countries tend to have different learning mentalities and sometimes difficulties may arise when working on projects together.

Participants agreed that online-based teaching requires different methods for evaluating learning outcomes, when compared to traditional classroom teaching. Regular written assignments were proposed by some participants. Furthermore, according to different opinions it can be difficult to assess the

quality of e-learning. The students were questioned how often they are currently asked to assess the work of their teachers. Some students have never done it, however some do it more than once a year. It is considered to be important for students that their input is taken into account.

## ***Group 2***

The group believe that the implementation of e-learning in Education needs a mentality change of either the students or the teachers, and that Universities and the State have to play an important role in it. However, it was pointed out that it cannot completely replace the face to face teaching, but complement it. The proper development of e-learning requires a minimum knowledge on computers usage, and the developers must try harder to make it attractive and keep the attention of the users.

The main features that attract students to e-learning are its flexibility and the possibility to complement their studies by taking courses that their own universities do not offer. Participants agreed that e-learning requires different methods and standards, and that not all subjects can be developed in virtual format. It was also discussed that as a virtual course is a multicultural environment, and the students have many different backgrounds and are used to different teaching methods, so the teachers have to change their way of teaching and adapt it to this new environment. The teachers, for example, should establish rules to avoid misunderstandings, to explain in detail the content at the beginning of the course, to improve their communication skills, to develop dynamic feedback process. Regarding students, it was said that higher self-discipline is needed, as it is easier to get distracted.

## ***Group 3***

The session started with discussion about pedagogical differences between face-to-face and e-learning teaching. Basically, students pointed out that the main differences are the interaction between professors and students, and among the students themselves. For the e-learning teaching environment, it is important to use the appropriate digital media, and have a friendly interface application, in order to make courses available and easy to use for all students, not only engineers accustomed to complicated interfaces.

In order to analyse more thoroughly the pedagogical aspects of e-learning, students and experts attending the discussion identified different advantages and disadvantages of e-learning teaching. Further, possible solutions to some disadvantages were proposed.

### ***Advantages of on-line teaching and learning***

- The participants can use their time more efficiently and even save time.
- Flexible schedule of e-learning teaching.
- It is easier for the participants of e-learning teaching to combine work and studies at the same time.
- Multicultural interaction can take place more easily, as distance is no more an important factor.
- A wider range of courses can be developed.
- Individual education can be richer.
- Less paper is needed, so e-learning is more environmentally friendly.
- English language of the participants can be improved.

- Personal motivation is guaranteed for the attendants.

### ***Disadvantages of on-line teaching and learning***

- Isolation (no team work)
- Lack of physical contact among the students and professors.
- Difficulties in communication can rise, for example due to the lack of intonation in e-mails.
- Problems of the equipment or computers can be critical.
- Information exchange can stop beyond academic time.
- Problems can rise that are related to the participants' different cultural backgrounds.
- Language related problems may occur among English and non-English speakers.
- Timing problems may take place, especially among people that reside in different time zones.

Possible solutions and improvements were discussed for some of the disadvantages presented above, as it is described in the next paragraphs.

Lack of physical contact was identified as a disadvantage. This lack of physical contact creates a barrier between students and professors and the communication gets more difficult in some cases. It was discussed that communication tends to be easier when there is first person contact. In order to solve this disadvantage of e-learning teaching, there was the idea of having a compulsory first physical contact when introducing the topic of the course. On that way, students and professor get a first contact, and even if it is an e-learning course, they would feel a friendlier atmosphere.

Virtual work and communication requires additional effort. They are more difficult to handle because the lack of physical contact can lead to misunderstandings due to the lack of intonation while working virtually (for example e-mails) or the lack of involvement in the course. To facilitate communication, it could be useful to have a forum with students and professors where they could exchange information. It would be useful to combine different collaboration tools in this forum, especially tools working in real time, with live communication, and not only e-mails.

Multicultural interaction is a positive experience in many aspects, but it is also difficult to handle, since people coming from different countries and with different cultural backgrounds act differently in certain circumstances. Working standards for different cultural backgrounds might be useful. Even if people are different, there are some common behavioural patterns, which depend on the region.

## **4.3 Conclusions**

This discussion topic shed light to the pedagogical differences between face-to-face and e-learning teaching methods. Similar to the previous topic, students indicated the key points of the two methods, especially the advantages and disadvantages. The main difference between face to face and e-learning was considered to be the interaction between the teacher and the student. According to some participants, e-learning can provide more interaction than face to face learning. However, lack of physical contact can also create a barrier between students and professors and the communication gets more difficult in some cases. In order to solve this, an idea of having a compulsory first physical contact when introducing the

topic of the course was introduced by some of the participants. Also, a forum for exchanging information between students and professors could be useful for facilitating communication.

The participants agreed that online-based teaching requires different methods for evaluating learning outcomes, when compared to traditional classroom teaching. The implementation of e-learning in Education would need a mentality change of either the students or the teachers. The teachers, for example, should establish rules to avoid misunderstandings, to explain in details the content at the beginning of the course, to improve their communication skills, to develop dynamic feedback process. From the students it is required higher self-discipline, as it is easier to get distracted. Additionally, as the cultural differences can affect the e-learning process, it could be useful to establish working standards for different cultural backgrounds.

The students had no concrete ideas about the evaluation of the quality of e-learning, as the participants had difficulties into perceiving this notion even for their regular studies.

## References

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- [1] SPUTNIC project: <http://sputnic.euopace.org>  
[2] E-learning: <http://en.wikipedia.org/wiki/E-learning>

## Credits

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