

# Important role of asynchronous discussion in e-learning system

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**Abstract** — Important part of each e-learning system, especially asynchronous system, is on-line discussions. On-line discussions are used for student to communicate with professor, but also with another student. It enables students to see different opinions and communicate on their own in a simple way. At the end, research shows that on-line discussions are much more productive than in-class discussion. Good LMS systems are already designed and they can register and differentiate between active or passive participation in an on-line discussion. This paper will show a number of benefits of on-line discussions. We will especially analyze the impact of the on-line discussion on the quality of e-learning system and the quality of education. In this paper we will describe two different on-line discussions that are used in ICT course on the Zagreb School of Economics and Management. The paper will show how to motivate students to be more active and participate more in the on-line discussions.

**Index Terms** — Education, e-learning system, information and communication technologies, on-line discussions

## INTRODUCTION

Many researches on comparison between in-class and on-line discussions have been carried out [1]-[3]. During regular classes teacher is restricted by time he/she has at his/her disposal. In addition, he/she cannot dedicate himself/herself entirely to discussions with students. The important advantage of an on-line discussion is a time factor [4]. Asynchronous communication provides students with an insight into different opinions. In addition, students can respond to them in a clear and meaningful way [5]. Steimberg & etc. analysed in their research [6] three groups of participants in on-line discussions. These were participants who wrote a post (active), participants who read a post but did not respond to it (passive participants) and students who did not tend to follow on-line discussions at all. Better LMS (Learning Management System) systems have the possibility of registration of the passive following of discussions. However, in this paper we shall analyse only a group of active on-line students and the influence of discussion on the improvement of their overall class activity.

The Zagreb School of Economics and Management was founded in 2002. From the very beginning we were able to use a huge number of advantages considering new technologies in the process of education [7]-[10]. The school management played a key role in the implementation of a unique LMS system into the process of education [11]. ZSEM is today only Croatian HE institution which systematically uses WebCT in education [12]. This means that all courses are prepared in WebCT [13] and WebCT is obligatory for our students and lecturers. Up to now 65 courses have been prepared in WebCT, 43 of which are mandatory and 22 optional. During the class Information and Communication Technologies (ICT) two kinds of on-line discussions have been used:

- **Open discussions** - they are not obligatory and can be initiated by professor or student. They are intended for various questions and discussions on: class material, lectures, exercises, exams, casual topics and fun.
- **Closed discussions** - they are initiated by teacher. They are intended for a discussion on some specific ICT topics. One can get some extra credits participating in closed discussions, as well in class.

## OPEN AND CLOSED DISCUSSION

Open discussions are intended for a constant communication between students and teachers, as well as for a discussion among students. They are an essential part of educational process, and therefore students who participate in open discussions do not get extra credits. Three kinds of discussions are distinguished:

- **Professor-Student Discussion** - Discussion is initiated by professor. Students comment on it or ask questions. Here we count comments on exercises, various announcements etc.
- **Student-Professor Discussion** - Discussion is initiated by student. He/she asks a question addressed to teacher. In this discussion appear good questions. From time to time appear some students who do not pay attention in classes and on WebCT and repeatedly ask for some information which can be already found on the Web.
- **Student-Student Discussion** - Discussions are initiated and commented by students. The major part of discussions is related to teaching material from ICT.

Closed discussions are initiated by teacher. They are intended for a more active student participation in the process of education. For students who attend regular classes at ZSEM class attendance and exercises are mandatory. Their in-class activity is awarded according to course Syllabus. Concerning the course Information and Communication Technologies class attendance is not awarded, since it is mandatory, but still active class participation is awarded. The goal during our 15 lectures is to achieve the higher percentage of highly motivated and active students. In spite of the fact that we motivate our students to give their best, still some of them are introverted and do not tend to be active when being in group. However, the very Internet has provided these students to be more active. Every ten days a new topic, which is commented by students, is opened. In this way we give a chance to more introverted students to become more active and to express their opinion.

Researchers show that there is a significant difference if the discussion is led by teacher or by student. According to Kremer & McGinness [14] there is a remote possibility that the imbalance between expert knowledge among discussion participants (teachers and students) will contribute to an open discussion. However, it is at the same time said that discussions led by students provide special atmosphere, in which students freely pose questions and oppose to some opinions. According to some observations during our work, a teacher initiated discussion and students were sending some posts including comments, questions and some students joined repeatedly in discussion on the same topic.

## RESULTS

### Open discussion

We shall analyze results we got from ICT subject during the school year 2006/2007. Altogether 25% of students participated in open and 25.9% in closed discussions. In the Figure 1, distribution of open discussion posts concerning the very kind of discussion is shown.

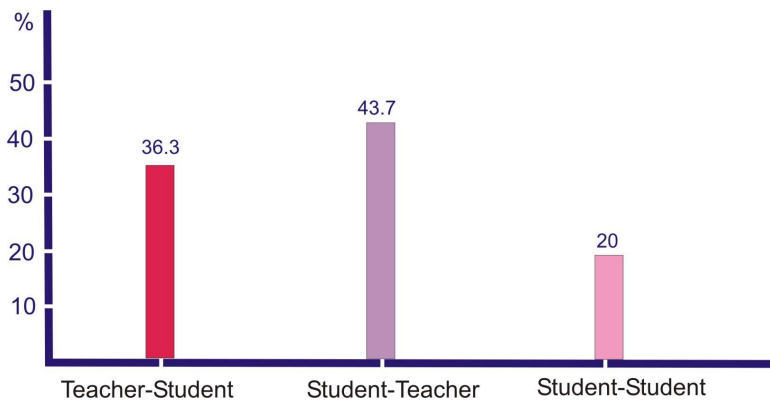


FIGURE 1  
DISTRIBUTION OF POSTS IN ACCORDANCE OF KINDS OF OPEN DISCUSSION

36.3% of posts belong to first group, that is to say, to communication between teacher and students. 43.7% of posts were addressed to teacher by students. Although teacher replies regularly to posts, it is interesting to notice that in 20% of these discussions some other students offering help to their fellow students, took part. 20% of posts are discussions initiated and discussed by students. In literature a special significance to student-student discussions is given [15]-[18], and in future we shall tend to motivate our students to participate more actively in closed student-student discussions.

Furthermore we shall pay much more attention to closed discussions.

### The quality of closed discussion

In our research students had participated in 8 topics given them by their teacher. Concerning one topic a student could have got for his/her active participation a grade ranging from 0.1 to 1. We had also introduced quantifiers measuring post quality:

- An explanation was given - student answered his/her question without a deeper interference in the problem and without raising some new questions
- Only the confirmation of the previously stated announcement - student only confirmed that he agreed to statement made by students during their previous discussions
- Posing a question and participation in a further discussion
- Post length
- Did student took part in alleged discussion once or more than once

According to this, in 8 held discussions the quality of sent posts is following:

Post grade	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
%	0	2.22	16.67	18.33	25.56	7.78	3.33	7.22	0.56	18.33

TABLE 1  
THE DISTRIBUTION OF THE QUALITY OF STUDENT PARTICIPATION IN CLOSED ON-LINE DISCUSSION

Analysis including single topic is interesting, that is to say, an on-line group of students attracted to a single topic is interesting (Table 2)

Topic	Number of posts	Quality of discussion	Number of dominant members
T1	40	18.3	10
T2	55	19.1	8
T3	40	15.5	5
T4	15	7.3	2
T5	29	12.7	1
T6	29	13	3
T7	15	7.4	2
T8	20	9.6	2

TABLE 2  
DISTRIBUTION ACCORDING TO TOPICS

Dixon & Kuhlhorst [19] claim that the presence of dominant members in a discussion leads to a better discussion. This is obvious in our research too. Each group contained one dominant member acting as a leader of discussion. Nevertheless, to the question “*Does competitive character provide proportionally a better quality of discussion?*” the answer is *no*. This was confirmed in our research. Topics with a big number of dominant members have better quality in general, but they do not depend proportionally on the very number of dominant members, who very often tend to compete among themselves in writing a better and longer post.

### The contribution of closed discussion to education quality

In Figure 2 a comparison of activity distribution in class and WebCT forum has been shown. 50% of students were at least once active class participants. More than one third goes on the students who tend to be active only once. 40% of students were two or three times. 16.3% students were active five or more times. Concerning closed forum 25.9% of all students were active at least once; from which 28% students were active only once, 33.3% two or three times, and 22.9% five or more times. Since regular class is restricted by time it is easier for students to discuss via asynchronous discussion under conditions which suit them. We can see that it was easier for students to be more active on forum. 22.9% of active students participated five or more times in forum.

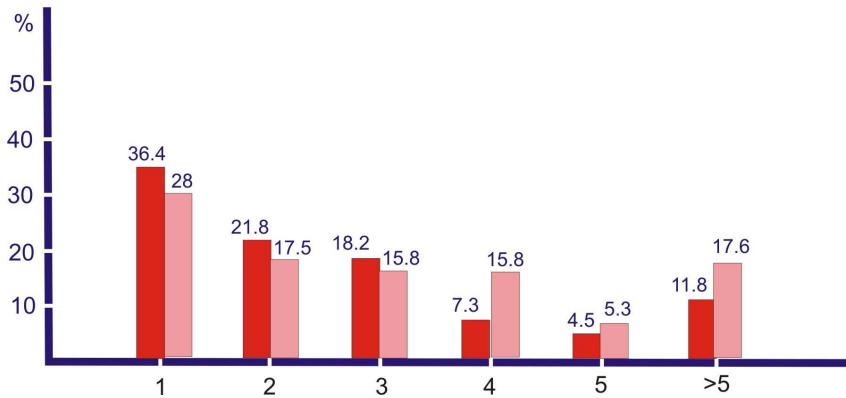


FIGURE 2  
DISTRIBUTION OF ACTIVITY IN REGULAR CLASS AND CLOSED DISCUSSION

It is interesting that 8.63% of all students were active in closed discussion and still none of them was active in class. Evidently, it is easier for them to work when they can choose their own working conditions (daytime, surroundings, etc). In this way we have improved the active participation of students in class. We have got the result that 58.36% of all students were at least once active in class.

### The influence of different factors on activity

Student cannot choose class conditions when attending regular classes. They are established in advance and student has to try to adjust himself/herself to them. When talking about asynchronous e-learning, student can choose conditions which suit him/her best (place, time, temperature, surroundings etc). It is clear that student becomes more productive when surrounded by conditions which suit him/her best. In the course of our research we made the analysis of posts according to two variables, that is to say, according to the time of post sending and its length.

As expected, the majority of posts were sent in the evening hours, during the period of time from 6 p.m. to 12 a.m. - 39.48% of all posts (Figure 3). Distribution concerning this interval happens to be quite equal. 33.69% of students sent their post during the period between 6 p.m. to 8 p.m., 30.44% during the period between 8 p.m. to 10 p.m., and 35.87% during the period between 10 p.m. to 12 a.m. This also serves as a confirmation that students tend to continue the process of education after the school time and regular class.

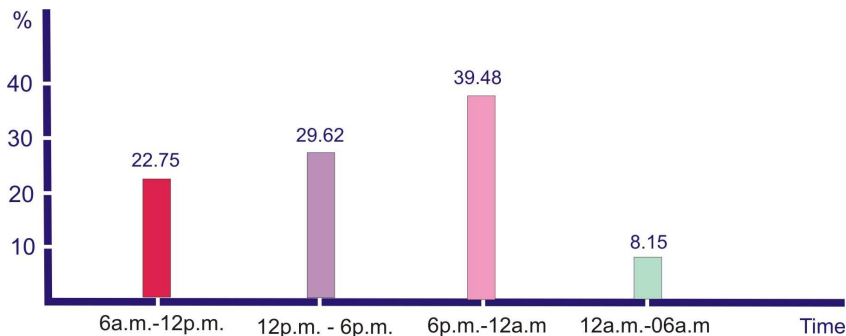


FIGURE 3  
TIME OF POST SENDING

### Post length

The majority of posts in closed discussions have approximate length of 500 characters. However, almost 10% of them have the length of 1000 characters. Although too long, posts tend to be very interesting and from time to time turn into real debates and essays. Interestingly, the longest post including 4573 characters was sent by student, inconspicuous in regular classes. He paid much attention to class material, but still, he never participated in class discussions voluntarily. Characteristical of these other posts is that 80% of them were sent during evening period, when students tend to relax and have more time and

inspiration for writing. Round 50% of long posts were sent by students who attended classes regularly, but still they were only passive observers.

## CONCLUSION

On-line discussions provide asynchronous communication between students and teachers, and among students themselves and they are an essential part of each e-learning system. In this paper open and closed discussion used in class Information and Communication Technologies has been described. We have shown how to motivate students to contribute to their more active class participation by participating in closed forum. Time of post and its length are important elements of every on-line discussion.

Next year we will try to motivate our students to become more active in regular classes and on forum. Concerning closed discussion, we shall introduce the possibility that students open up interesting topics. The student, whose topic entices the strongest debate shall be given extra credits. We shall make a top list according to quality and the number of posts. We shall count the points and award our students for their activity. Student participation in forum does not only serve to the possibility of student's activity via new medium, but also to equal competition among his/her mates.

## REFERENCES

- [1] Meyer, K., A., "Face-to-face versus threaded discussions: the role of time and higher-order thinking", *Journal of Asynchronous Learning Networks (JALN)*, Volume 7, Issue 3, September 2003.
- [2] Lee, S., "Electronic Spaces as an Alternative to Traditional Classroom Discussion and Writing in Secondary English Classrooms", *Journal of Asynchronous Learning Network (JALN)*, Volume 9, Issue 3, October 2005.
- [3] Johnson, D., W., Johnson, R., T., Smith, K., A., "Active Learning: Cooperation in the College Classroom", *Edina, MN: Interaction Book Company*, 1991.
- [4] Hammond, M., "A Review of Recent Papers on Online Discussion in Teaching and Learning in Higher Education", *Journal of Asynchronous Learning Networks (JALN)*, Volume 9, Issue 3, October 2005.
- [5] Rourke, L., Anderson, T., "Using Peer Teams to Lead Online Discussions", *Journal of Interactive Media in Education*, March 2002.
- [6] Steimberg, Y., Ram, J., Nachmia, R., Eshel, A., "An online discussion for supporting students in preparation for a test", *Journal of Asynchronous Learning Networks (JALN)*, Volume 10, Issue 4, December 2006.
- [7] Aleksic-Maslac, K., Njavro, D., Jerkovic, H., "E-Learning on Zagreb School of Economics and Management", Best Practice Showcase, *Online Educa Berlin 2004*, Dec. 1-3, 2004, Berlin (Germany).
- [8] Aleksic-Maslac, K., Njavro, D., Lipjin, I., "Advanced Solutions in Study Using ICT", *International Conference on Engineering Education 2004 (ICEE 2004)*, Gainesville (Florida, USA), Oct. 17-21, 2004.
- [9] Crnkovic, I., Aleksic-Maslac, K., Jerkovic, H., "Holistic Approach in Education – Filling the Gap between Different Disciplines", 28th Int. Conf. *Information Technology Interfaces*, Cavtat/Dubrovnik (Croatia), June 19-22, 2006.
- [10] Njavro, D., Karalic, K., Aleksic-Maslac, K., "Motivational Characteristics of E-students", *EDEN 2006 Annual Conference – E-Competences for life, employment and innovation*, 14-16 June 2006, Vienna University of Technology (Austria).
- [11] Njavro, D., Aleksic-Maslac, K., "The Role of Management in the Development of the E-Learning System", Case study, *GUIDE 2006 – Global Universities in Distance Education*, Rome (ITA), Feb 13-14 2006.
- [12] Aleksic-Maslac, K., Njavro, D., "Systematically Using WebCT at Zagreb School of Economics and Management", Showcase, *5<sup>th</sup> Annual WebCT European User Conference*, Edinburgh (Scotland), Feb 27 – Mar 01, 2006.
- [13] WebCT – <http://www.webct.com> .
- [14] Kremer, J., McGuinness, C., "Cutting the Cord: Student-Led Discussion Groups in Higher Education", *Education and Training*, 1998.
- [15] Morndal, M., Revay, P., "Student's activity on a discussion forum – attitudes and learning outcomes", *EDEN 2006 Annual Conference*, Vienna (AUT), June 14-17, 2006.
- [16] Oren, A., Mioduser, D., Nachmias, R., "The Development of Social Climate in Virtual Learning Discussion Groups", *International Review of Research in Open and Distance Learning*, Vol. 3, No. 1, April 2002.
- [17] Biesenbach-Lucas, S., "Asynchronous Discussion Groups in Teacher Training Classes: Perceptions of Native and Non-native Students", *Journal of Asynchronous Learning Networks (JALN)*, Volume 7, Issue 3, September 2003.
- [18] Allan, M., "A Peek into the Life of Online Learning Discussion Forums: Implications for Web-based distance learning", *International Review of Research in Open and Distance Learning*, Volume 5, Number 2, August 2004.
- [19] Dixon, M., Kuhlhorst, M., "Creating effective online discussions: optimal instructor and student roles", *Journal of Asynchronous Learning Networks (JALN)*, Volume 10, Issue 4, December 2006.