

# ICT as a Tool for Building Social Capital in Higher Education

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## Abstract

The critical organizational form in the information age is networking. This new organizational principle is manifested through the processes of internationalization and global academic cooperation which have become inevitable strategies for every higher education institution in order to be competitive in a global education market. The effective use of information and communication technologies (ICT) such as synchronous and asynchronous methods of distance learning enables higher education institutions to reach out students, teachers and researchers in foreign countries without physically moving them. Besides improving communication and exchange of information followed by opportunities for cross-cultural learning, effective ICT implementation enables expansion of social and economic networks and strengthens institutional and academic ties by thus building social capital.

The following study investigates the role of ICT in building social capital and human capacity in terms of knowledge sharing, targeted training and developing education initiatives in higher education institutions. The focus of this paper is on such positive practices implemented at Zagreb School of Economics and Management (ZSEM). Since its foundation in 2002, a systematic use of new technologies in education has been encouraged which in turn provided the basis for major advances in development. Today ZSEM has around 1400 students and about 150 courses with integrated e-learning system while currently 7% of students take part in various types of international exchange.

## 1. Introduction

A common understanding among social scientists is that social capital is a relational resource composed of a variety of elements, most notably social networks, social norms, values, trust and shared physical resources. [1, 2] In recent years, social capital has become one of the relevant notions for measuring the impacts of ICT on communities. [3] The study focuses on how educational use of ICT plays a role in strengthening the academic social capital in terms of knowledge sharing, targeted training and ensuring education quality standards. Using the case study as a main source of information, the article investigates how ICT may be employed to build social and human capital in higher education.

Zagreb School of Economics and Management is a higher education institution founded in 2002 to provide a quality business education comparable with similar schools around the world. Since its foundation, ZSEM started integrating new communication technologies in its educational activities. Various educational programs offered at ZSEM have been actively using ICT in order to reach both students and international faculty beyond national boundaries. From the very beginning, ZSEM uses so-called hybrid model of education which combines classroom teaching with intensive e-learning. Since e-learning aspect is a mandatory part of the program, today's 150 courses have all integrated e-learning system in their curricula. Also, ZSEM's mission directly reflects the nature of business education in a global network society by thus supporting the implementation of ICT as an internationalization tool: „The mission of ZSEM is to transfer values, knowledge, and skills that students need for long-term success in a globalized business world undergoing constant technological and market transformations.“

Besides the instructional delivery and administration, ZSEM utilizes ICT in its international activities. Those activities include mobility of programs, faculty and students, offering courses in languages other than Croatian, accepting more international students and enlarging the partner institutions base. ZSEM therefore uses ICT in order to support and coordinate its international activities, develop curricula in accordance to European and global standards such as Bologna process and AACSB accreditation and stimulate mobility of both students and faculty.

## 2. Building Social Capital at ZSEM

### 2.1 Education Quality Standards for Institutional and System Internationalization

In order to achieve its mission and provide high-caliber teaching and quality of curricula, one of the ZSEM's strategic goals is implementation of internationally accredited programs. The adoption of quality international standards such as AACSB (The Association to Advance Collegiate Schools of Business) [4] and EQUIS (The European Quality Improvement System) [5], represents a form of building social capital. According to van der Wende [6], unlike student mobility which is only a narrow conceptualisation of internationalisation, the adoption of quality international standards such as AACSB, represents a form of institutional and system internationalization.

ZSEM is the first Croatian higher institution that became an AACSB member. AACSB is an international nonprofit association founded in 1916 with the goal of accrediting educational programs of schools and universities in business education. AACSB certificate represents the highest standards achievable by business schools worldwide. Institutions accredited by AACSB confirm their commitment to quality and continuous improvement through a rigorous and comprehensive peer review. International accreditation assures quality and promotes excellence and continuous improvement in undergraduate and graduate education for business administration and accounting. [7] ZSEM started the demanding process of adoption of AACSB International accreditation standards in 2008. It is expected that ZSEM will get the AACSB accreditation by the end of 2012 or beginning of 2013. EQUIS accreditation can be launched only after 10 years from school's foundation.

Resulting in certification and equivalence in programs and degrees, adoption of quality standards includes significant steps towards globalization of academic credentials. In order to pass a strict set of standards that insure quality, schools are involved in the process of rigorous self-evaluation and peer-review elements. Promoting standards and interaction among business schools worldwide, AACSB encourages schools to develop mutual cooperation towards excellent business education. By being committed to building education networks and maintaining a long-standing academic partnerships, schools not only improve their own academic capacity and provide greater research opportunities, but also attract higher quality students and allow for global recognition. For this reason, international accreditation represents not only a hallmark of excellence in business education, but is also an important form for building social capital. This is clearly reflected in continuous growth of academic cooperation with partner institutions.

The following table reflects increasing number of international higher education institutions with which ZSEM has signed a cooperation contract.

Table 1: The growing number of ZSEM's international partner institutions

<i>Academic. year</i>	<i>02/03</i>	<i>03/04</i>	<i>04/05</i>	<i>05/06</i>	<i>06/07</i>	<i>07/08</i>	<i>08/09</i>	<i>09/10</i>	<i>10/11</i>
Number of higher education institutions	0	4	9	13	27	45	55	78	86

Established in 2004, the International Office activities have brought a more significant growth of the partner base [8]. Currently, ZSEM is cooperating with 86 partner institutions from 39 countries around the world.

## 2.2 Targeted Academic Cooperation: Student and Professor Mobility

Student mobility is a very important part of Bologna Process as well as AACSB accreditation. This trend has no tradition in Croatia. As a transition country, it was not until the Bologna Process implementation a couple years ago when Croatian universities started supporting student mobility. Currently, only 0.3% students in Croatia take part in an international student exchange. [9]

Student mobility includes attending summer schools/semesters, but also visits to partner universities for a semester or more. Since student mobility in Croatia is a recent phenomenon, it was necessary to place a lot of effort in order to stimulate students to take part in international exchange. Table 2 shows student mobility across all four undergraduate academic levels. Compared to Croatian average percentage of 0.3%, ZSEM's student mobility is currently 4.5%. However, ZSEM is continuously taking needed steps to stimulate even larger numbers of students to participate in various forms of student exchange.

Table 2: Distribution of international exchange students at ZSEM

School year	Exchange program %	Summer school %	Total %
2002/2003		10.4	10.4
2003/2004		4.1	4.1
2004/2005		12.6	12.6
2005/2006		3.3	3.3
2006/2007	1	3.49	4.49
2007/2008	1.4	3.82	5.22
2008/2009	2.1	1.29	3.39
2009/2010	2.03	1.63	3.66
2010/2011	4.46	*	*

\*The lack of information for the coming summer school in academic year 2010/2011

So far 3.86% ZSEM's students have been at least one semester in some of the partner higher education institutions worldwide while 8.68 % attended some international summer school.

In order to ensure that foreign students have a wider choice of course selection, an increasing number of ZSEM courses are offered in English language. During the academic year 2010/11, 22.7% of mandatory courses and 42.9% of elective courses in ZSEM's undergraduate program had a student group in English language. In ZSEM graduate education, some programs such as Marketing are entirely done in English.

In terms of professor mobility, currently 18.4% ZSEM faculty are foreign teachers, primarily participating in ZSEM's MBA programs. Foreign teachers partly teach in Zagreb classrooms, but most of their course activities are done through LMS (Learning Management System) WebCT and long distance options. Some of the courses such as the elective course "Software Project Management" have been organized as a long distance course. A professor from Mälardalen University in Sweden had a weekly videoconference lecture for the students in Zagreb. [10] Thanks to WebCT and Skype, and usage of the new technologies, ZSEM students were able to collaboratively work on different cases and in different projects with their Swedish colleagues. Those ZSEM students who had successfully passed the course, received a Swedish diploma for completing the course which makes a great reference for the students.

### 3. Research Results

New digital technology has affected the process of education, transfer of information and knowledge creation in a global networked society. ICT enables higher education institutions to reach out students, teachers, and researchers in foreign countries without physically moving them. Besides directly lessening the costs of global academic cooperation, ICT increases possibilities of academic interaction and cooperation. The following text examines ICT implementation at ZSEM and analyzes how ICT use impacts targeted training, student interaction and knowledge sharing because all these aspects represent education targeted ICT use which enables global academic cooperation and by thus help building social capital.

#### 3.1 Management Information System Course: An Example of Borderless Student Interaction

The case analysis is focused on the Management Information System (MIS) - one of the two courses that gained maximum of 100 points in the last school's official course evaluation [11]. Very elaborate e-learning system enables ZSEM students who are taking part of an international exchange program and cannot take this course in their new academic environment, to follow the course through distance learning (DL) model. In academic year 2010/11 27 students of the seventh semester have been in international exchange program in 8 different countries in 14 higher education institutions. They have followed the entire course in DL form although the course was filled with interaction and teamwork.

Besides lectures in Power Point form, all the lectures were recorded for DL students. Several elements important for DL will be singled out.

**Assignment** - Students are typically getting their exercises, cases or assignments through the module entitled „Assignment“. Usually they have a week to complete each assignment. In case of not following the deadline, students loose some points. Besides the grades, students receive feedback on their work.

**Online quizzes** - Besides test simulation and a real test, WebCT online quizzes are used as a form of testing the knowledge. Student is logged on WebCT in previously arranged time, answer the questions and immediately after the test may view their results along with feedback about each answer. During the semester, MIS course students have 2 tests. Each test has 15 questions and makes up 13% of the total grade. Each question offers 5 possible answers and only 1 is correct. The correct answer brings 5 points, while question not correctly answered makes - 1 point. [12]

**Projects** - The ERP (Enterprise Resource Planning) team project makes up to 30% of the total grade. In groups of 4 or 5 students work on the system implementation in a fictive firm. Two DL students have worked on a project with other students that took the course at ZSEM, while the others were divided in 5 groups. Within discussion groups students may work on the projects together, submit weekly reports, presentation and documentation relevant to the project. [13]

Thanks to technology, students had no obstacles finishing quality projects although they were in different parts of the world.

### 3.2 DL students online activities

Table 3 shows distribution of online activities of students in international exchange programs who followed MIS course through DL. [14]

Table 3: Online activities

<i>Online element</i>	<i>Average</i>	<i>%</i>
Homepage	130.54	15.4
Organizer Page	61	7.2
Assignment	11.27	1.3
Online quizzes	21.24	2.5
Calendar	26.35	3.1
Mail	7.62	0.9
Other	92.89	11.0
Discussions		
Passive discussions	486.35	57.5
Active discussions	8.84	1.0
Original	0.38	
<b>Total</b>	<b>846.49</b>	

On the average, each DL student has visited course website 846.49 times. Out of that number, most frequent visits were made to discussions - almost 60%. Mostly discussions were so-called passive – student reads post, gets informed, but does not respond to it. [15,16] 15% refers to the homepage from which there are links to other pages, 7.2% are different pages which are further divided such as pages with lecture presentations, recorded presentations and similar content. 1.3% count for the assignments, 2.5% for online quizzes, 3.1% for online calendar in which there are all important dates and news, and only 0.9% for e-mail because most of the communication flows through the discussion forum. 11% goes for all other pages.

## 4. Statistical research

Students that take part in an international exchange programs are generally more open in accepting new challenges such as the use of new technologies. The assumption is that those students that participate an international exchange program have better technical knowledge than those students that study in only one place. Student results from Information and Communication Technologies (ICT) course [17] offered in the first semester were taken into account as a base for students' technological competence. Calculation of correlation is based on the sample of 178 students (out of which 27 participated in exchange programs in their 7<sup>th</sup> semester while 10 students participated in exchange programs in other semesters during their undergraduate education).

Table 4: Correlation between student grades and participation in exchange programs

<b>Correlations</b>			
		Student grade	International Exchange
Student grade	Pearson Correlation	1	,272**
	Sig. (2-tailed)		,000
	N	178	178
International Exchange	Pearson Correlation	,272**	1
	Sig. (2-tailed)	,000	
	N	178	178

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Pearson's correlation coefficient is statistically significant here since there is a slight correlation between students' grade and their participation in student exchange programs.

Out of 37 students that have a grade in Information and Communication Technologies (ICT) grade and participated in international student exchange program, 26 students have an above the average grade (70.27%). Out of 141 students that have a grade in ICT and did not participate in student exchange program, 50 students have a grade higher than the average (35.46%).

Table 5: The relationship between the students' above the average grade depending on their participation in an international exchange program

<i>Students</i>	<i>Number of students</i>	Number of students which have a grade higher than the average	<i>Average grade</i>
ALL	178	76	3.4045
Exchange	37	26	4.0541
No-exchange	141	50	3.2340

Table 6: Grade frequency of no-exchange students

<i>Grade</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>
1	1	0.5	0.7
2	31	14.8	22.0
3	59	28.2	41.8
4	34	16.3	24.1
5	16	7.7	11.3
Total	141	67.5	100.0

The most frequent grade of no-exchange students is good or 3 (41.8%), while excellent or 5 is rare (11.3%).

Table 7: Grade frequency of international exchange students

<i>Grade</i>	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>
3	11	5.3	29.7
4	13	6.2	35.1
5	13	6.2	35.1
Total	37	17.7	100.0

The most frequent grades of international exchange students are 4 and 5 (35.1%, with total of 70.2%), and a more rare grade is (29.7%).

Table 8: MIS students's grades: descriptive statistics

<b>Descriptive Statistics</b>							
	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Students outside international exchange	141	1.00	5.00	456.00	3.2340	,94596	,895
Students on international exchange	37	3.00	5.00	150.00	4.0541	,81466	,664

Table 9: MIS students' WebCT activities: descriptive statistics

<b>Descriptive Statistics</b>							
	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance
Students outside international exchange	172	2860,00	,00	2860,00	801,5988	541,61539	293347,236
Students on international exchange	37	2047,00	228,00	2275,00	846,4865	479,81742	230224,757

Standard deviation and variance are big, meaning that there is big deviation from the average results.

Table 10: The relationship between the students' WebCT activity depending on their participation in an international exchange program

<i>Students</i>	<i>Number of students</i>	<i>Number of students who were more active on WebCT than the average</i>	<i>Average (number of clicks)</i>
ALL	209	69	809.5455
exchange	37	15	846.4865
No-exchange	172	54	801.5988

Average WebCT activity of all students in analyzed MIS course is 809.55 clicks. Average WebCT activity of no-exchange students is below the class average (801.60), while the

average WebCT activity of exchange students is above the average (846.49). Evidence suggests that 40.45% of exchange students were more active than the average compared with 31.40% of no-exchange students. Since communities are dynamic and their development is affected by wider social, political and economic environment, ICT use influences communities but is also influenced by the community. In other words, international academic collaboration and educational exchange changes the way the individuals interact because the concept of community exists both within and outside of geographic boundaries. This influences the uptake and application of ICT expanding the concept of community to groups not bounded by geography and by thus building the social capital.

## 5. Conclusion

Implementation of new technologies in education process is closely linked with globalization of education markets and student and professor mobility. This study shows positive practices from Zagreb School of Economics and Management which is a leading higher education institution in terms of e-learning and mobility of students which is more than 10 times higher than the country average. For this reason, ZSEM students are more open towards accepting new technologies and taking part in different exchange programs. ICT acceptance is important because it facilitates cooperation on multiple levels and helps connecting networks and information beyond their immediate environment. As growing ZSEM's international cooperation and academic partner base show, ICT strengthens the academic social capital in terms of facilitating knowledge sharing, targeted training and ensuring education quality. Different examples of ICT use at ZSEM such as DL or videoconferencing show that ICT not only contributes to support quality assurance in an international market for higher education, but also increases communication capabilities by reinforcing existing relationships and forming and extending new ones, and by thus represents valuable tool for building a social capital in higher education.

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