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E-Learning as a Socio-Cultural System

A Multidimensional Analysis



Vaiva Zuzevičiūtė, Edita Butrimė, Daiva Vitkutė-Adžgauskienė,
Vladislav Vladimirovich Fomin, and Kathy Kikis-Papadakis



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Chapter 2

E-Learning for Widening Participation in Higher Education

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ABSTRACT

The purpose of this chapter is to conceptualize e-learning as a socio-cultural ecological system and to explore the empirical evidences of the objective and subjective conditions for using this concept in practice for increasing the participation in higher education. The components of this new concept are a systemic-constructivist competence, pedagogical leadership, life- and workforce learning, and self-evaluation. The objective conditions for its implementation are the integration of informal knowledge of information and communication technologies, implementing pedagogical leadership in tandems for developing students' intrapreneurship, self-evaluation, and self-enhancement. The subjective conditions are personal involvement, supportive social climate, and eagerness for transforming challenges into new learning opportunities. E-learning as a socio-cultural ecological system fosters students' and faculty staff's participation, producing new knowledge and pedagogical solutions that create synergy between science, education, and politics. This enhances economical growth and sustainable development that benefits the whole ecological system in local, regional, national, European, and global socio-cultural contexts.

INTRODUCTION

Opening higher education (HE) to a larger public is an important and worldwide issue today. The main topical challenge in adult education is to increase the participation rate in adult learning.

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The *Education and Training 2020 (ET 2020)* programme (Council of the European Union, 2009) sets the benchmark for adult participation in lifelong learning to at least 15% (population aged 25-64). According to Eurostat data (2009), Latvia has achieved a 5.3% participation rate in

2009, whilst the EU average was 9.3%. A revised HE strategy foresees several activities for reducing the number of drop-outs in HE. The worldwide practice in HE doesn't adequately respond to the learning needs of the new generation (European Commission, 2010a). One of the obstacles preventing new generation learners from returning to education is the discrepancy between the offer provided by HE stakeholders and learners' educational demand, i.e. what they can really accept. This issue is significant in an international perspective. Non-participation in HE is socially constructed and it is a product of the institutions, systems and culture(s) that we create and sustain (Dwyer & Wyn, 1998; Smyth et al., 2000). The work of 'resistance theorists' (Munns & McFadden, 2000; Willis, 1977) is built on the premise that new generation learners react to the form rather than to the substance of education. Considering that the new generation learners (aged 18-24) will constitute the main labour force in 2020, and that knowledge society demands high qualifications for new kinds of jobs (European Commission, 2010a), young people who dropped out of education and training, as well as elder learners, need new opportunities that address their specific needs and help them to regain confidence in learning.

The rapid and continuous development of information and communication technologies (ICT) affects modern learning processes. Knowledge also develops, and turns to be more meaningful. Consequently, each person should be able not only to generate new knowledge, but also to apply previous knowledge in new contexts in an innovative and effective way. The *Europe 2020 strategy* (European Commission, 2010b) aims to secure a knowledge-based education and ICT innovations, increasing the share of the population aged 30-34 having completed tertiary education from 31% to at least 40%. Universities play an important role in the transition towards a knowledge-based society and economy.

In most Latvian universities (e.g., University of Latvia, Latvian University of Agriculture, Riga

Technical University) e-learning and distance learning opportunities are offered to adult learners in a large variety of non-formal and formal education programs. However, as a number of recent publications indicate, e-learning opportunities are not always actively used in HE institutions. There are objective and subjective factors for this relatively slow process.

The aim of this chapter is to analyze these factors, presenting a case study of one e-learning opportunity for students from different branches and different ages – the inter-university master program on educational treatment of diversity (ETD), offered at the University of Latvia since 2007. The purpose of the participating Universities was to follow the recommendation of the European ministers responsible for HE (2005), who issued the Communiqué "The European Higher Education Area (EHEA) – Achieving the Goals," after their meeting in Bergen, in May 19–20, 2005. The Communiqué states: "We (...) call upon all national authorities and other stakeholders to recognize joint degrees awarded in two or more countries in the EHEA" (European ministers responsible for HE, 2005, p. 3). These Universities offer the same study course but provide different study pathways.

As defined by the Statute of the study programs of the University of Latvia, the content of the inter-university master's program is structured in two parts: a compulsory part, including the research memory/master's thesis, and optional part. According to the evaluation made in 2012 by a commission of international experts, this program is an innovative and interesting e-learning opportunity provided to students who are employed and need innovative methods to allow them to study further ... it would be good to see it offered to other universities within the country" (Council of Higher Education, 2012, p. 9). The e-learning concept does not need expensive ICT resources, as it uses Moodle, chat rooms, Skype conferences, Google environment, easy on-line technology etc. Moreover, the learning provision

was described in detail for practical use by the Institution coordinating the project and it was evaluated as sustainable and assessed as best practice of e-learning provision in HE in Latvia (Council of Higher Education, 2012).

The purpose of the authors of this chapter was to achieve the following research objectives: (a) to conceptualize e-learning as a socio-cultural ecological system; and (b) to explore the empirical evidences of the objective and subjective conditions for using this e-learning concept in practice, increasing the participation in HE. To achieve these objectives, the researchers mapped the evaluative research made on the ETD program in 2008-2013. They also conducted a desk research built on available documents and sources, e.g., pertinent studies, publications and relevant documents produced by the institutions of the EU. A data base of inclusive survey of program's students, professors and managers was also used, and, in addition written data were collected from the Moodle platform of the master's program, using the function "reports." The software Microsoft Office Excel 2007 was used for primary data cleaning and for preparing the data analysis. Quantitative data were analyzed using SPSS 19, and qualitative data (participants' interviews and writing expressions) were analyzed with AQUAD 7 software, using descriptive statistic and linkages, data tables, true tables and analysis of implicants or systems of conditions.

For the analysis of the key factors of a good e-learning practice, the understanding of e-learning practice as a 'complex subject that is made of various cultural components' (Federighi & Torlone, 2010) in a socio-cultural constructivist system (Maslo, I., 2006; Maslo, I. & Fernate, 2010; Tiija, 2003) was used. Based on the mapped research on the ETD master's program and on new generation learners who dropped out from HE, evidences were selected from the following empirical studies: (a) study on e-learning quality (Birzina, 2012; Birzina, Fernate, Luka, Maslo, I., & Surikova, 2012;

Birzina, Kalnina, Janevica, & Cernova, 2009); (b) study on students' generic, basic and specific competences in e-learning (Fernate, Surikova, Kalnina, & Sanchez Romero, 2010; Maslo, I. & Fernate, 2010; Surikova, Pigozne, & Maslo, I., 2013); (c) study on workforce learning (Maslo, E., Leví Orta, Persevica, Nikolaeva, & Fernández González, 2012); (d) study on educational leadership (Fernández González & Vostrikovs, 2012; Maslo, I. & Fernández González, 2012), etc.

These studies are based in the quantitative and qualitative analysis of the written participation of 8 university teachers and 36 master's students in the compulsory and optional activity forums of the master's program on ETD, implemented by the University of Latvia, during five years (2008-2012). The 18 modules of this master's program were analyzed: 2,752 students' posts and 1,023 teachers' posts. Students' intrapreneurship was measured analyzing their contribution to the improvement of the e-learning study process: how they communicate with other students, made positive criticism and suggestions for enhancing the learning success etc.

The authors of this chapter used a collaborative research strategy (Maslo, I. & Huber, 2008): findings were analyzed, evidences were discussed and interpreted, conclusions and recommendations were defined collaboratively by researchers of Institute of Pedagogical Sciences of the Faculty of Education, Psychology and Art of the University of Latvia through face-to-face activities and using phone, email, Skype and other communication tools. This collaborative strategy enriched the research process with various authors' perspectives. The results of the research mapping and desk analysis represent new knowledge on human capability and learning quality. This new knowledge should help entrepreneurs, educators and policy makers to work out and to implement programmes for human development that promote motivation, stimulate employees of different branches to involve in life- and workforce

learning and enhance sustainable development in Latvia and in other local, regional, national, and European contexts

BACKGROUND

The ETD program is based on the concept of e-learning as a socio-cultural ecological system. The theoretical bases of this concept are to be found in trans-disciplinary studies on human capability. As a result of the synergy between the newest theoretical findings in biology, pedagogy, educational management and economic sciences, applied to the field of quality of learning, new knowledge and innovative understanding of human capability was produced: the sustainable development of life and workforce happens in physical, virtual, and spiritual spaces (Malloch, Cairns, Evans, & O'Connor, 2011) in local, regional, national, international, and global socio-cultural contexts of transformative learning.

The idea of human capacity, which was initially *conceptualized* in the economic sciences as a resource for the economic growth, is also looked upon in biology as life science, pedagogy and educational management. *From a biological viewpoint*, based in neuroscience, human capability is closely linked to quality of learning, understood as a biochemical and biophysical process that involves the whole human's biological system, including the limbic system (Roth, 1997). Human learning is also understood as an intra-individual, inter-individual and introspective process (Maslo, I., 2006):

- Learning as an intra-individual process combines cognitive, emotional and volitional acts that depend on individual's learning ability and meta-ability (Maslo, E., 2003) and on his/her socio-cultural experience (Tijja, 2003);
- Learning as an inter-individual process implies social interaction that depends on

individual's real and virtual relationships and on his/her capability to act together with others, in dialog with different cultures; and

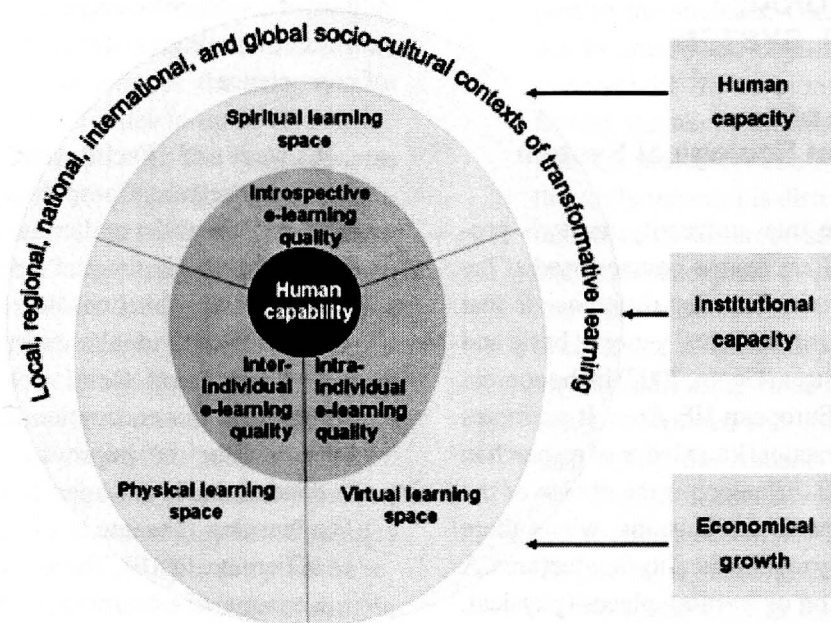
- Learning as an introspective process means that socio-cultural contexts (institutions, projects, social networks and teams at local, regional, national, international and global level) provide and widen opportunities for transformative learning (Vygotsky, 1978; Wells, 1999). They point at the role of inter-personal communication and collaboration with others as substantive elements of intra-personal learning.

From a pedagogical viewpoint, human capacity implies the competent identification, creation and implementation of opportunities (*innovation and creativity*) for a successful life and work. Pedagogical science creates models, theories, programmes which improve learning success and promote human capability; and educational management deals with the implementation of these new pedagogical solutions in education systems at stakeholders' and policy makers' level. In the new trans-disciplinary paradigm, learning success is the condition for quality of life and work, and therefore for economical growth.

Human capacity is a spiritual value for the economic development of the knowledge society. In higher education establishments, inclusive environments for the participation of everybody should be organised on scientific bases. But it is difficult to reach such a situation in a traditional schooling system, because the values set by the society are not just learned but they are also created by individuals and institutions with a limited human capability.

E-learning as a socio-cultural ecological learning system (see Figure 1 created by the authors of this chapter) is a new form of learning organisation in the 21st century (Seok, 2008) that creates a transformative learning environment (Twigg, 2001), which provides flexible learning opportu-

Figure 1. E-learning as a socio-cultural ecological system



nities and is suitable for every student's life and work needs (Birzina, 2012; Birzina et al., 2012; Birzina et al., 2009). It refers to the e-learning quality indicators defined by B. Fetaji and M. Fetaji (2009).

On one hand, it helps students to create and to use new knowledge competently, and to develop skills and competences for life and work activities. E-learning has a significant potential to alter the nature of the teaching and learning transaction. The current approaches in HE, based on a passive transfer of information, contrast with the interactive and constructive potential of e-learning (Garrison, 2007; Garrison & Anderson, 2003; Garrison & Cleveland-Innes, 2005). *On the other hand*, the teaching and learning focus must change: the educational process should facilitate the development of self-directedness (Gibbons & Phillips, 1984). Computer-mediated communication, which supports greater accessibility and adaptability, cognitive engagement and interaction, and the

collaborative work of educators and students, is the basis for interactive self-organised learning as a complex process (Boekaerts, 1997; Long, 1990). These wide opportunities in the new e-learning environment involve challenges for students and teachers, so that the learner becomes a teacher and the teacher becomes a learner (Derrick, Ponton, & Carr, 2005). The following ideas and approaches were integrated and developed in the concept of e-learning as a socio-cultural ecological system: Mason's (2004) idea to shift from a student-centred approach to a dialogical approach – the student and the educator learning together; Fulton's (1998) approach to e-communication as information processing; and the systemic-constructivist approach to learning as communication and collaboration (Maslo, I., 2006; Reich, 2005; Tiija, 2003), which assumes that in an e-community learning occurs through the interaction of all core-components in a systemic way.

E-LEARNING AS A SOCIO-CULTURAL ECOLOGICAL SYSTEM

Components of a Socio-Cultural Ecological System

E-learning in the inter-university master's program on ETD differs from e-courses used at the University of Latvia. The first difference is that it is oriented towards students' generic, basic and specific competences (Gento, 2007) in the context of the common European HE Area. It promotes theoretical and practical knowledge of research in ETD. The second difference is the choice of the model of self-organised e-learning, where there are no compulsory regular face-to-face lectures. A mixed combination of learning places (physical, virtual and spiritual) is used instead of regular lecturing. The e-learning content is organised in modules (18 compulsory and 4 optional), whose structure and organization allow students to use them in an independent, self-organised way, with a social presence of students, professors and tutors in the e-environment. The main focus in tutoring is on clarifying students' needs, helping them to solve their problems, and to obtain the necessary learning outcomes for deep learning and peer-learning. The following opportunities facilitate students' discussions and exchanges of experience: compulsory forums; course forums that include the description of the study course, the materials, discussions, chats and activities; forums on specific issues (e.g., the forum on the use of computers and the e-platform); group forums; online or face-to-face sessions; Skype videoconferences etc.

A more detailed multidimensional analysis of the ETD program will help to reach a better understanding of e-learning as a socio-cultural ecological system. The socio-cultural components of this system are: (a) a culture of facilitation of systemic-constructivist competence; (b) a culture

of pedagogical leadership *versus* teaching; (c) a culture of social presence; (d) a culture of life- and workforce learning; and (e) a culture of evaluation of competence.

- **Culture of Facilitation of Systemic-Constructivist Competence:** The systemic-constructivist understanding of learning respects the individual's perception of reality, taking into consideration three categories: individual's experience, sense of well-being and social recognition (Reich, 2005). In our conception, it is the best approach for the improvement of students' generic, basic and specific competences in e-learning (Fernate et al., 2010; Maslo, I. & Fernate, 2010). Therefore, creating such a system of e-learning spaces becomes an especially significant task, which provides learning benefits and respond to diverse social and cultural needs in the ecological system.
- **Culture of Pedagogical Leadership vs. Teaching:** The new understanding of the culture of pedagogical leadership of faculty staff was based on an in-depth study of educational leadership theory (Bush, 2010; Day, 2009; Farr, 2010; Ismi, 2011; Leimbach 2005; Oord, 2013; Rhodes & Brundrett, 2010), re-thinking the 'leadership styles' and developing them in practice in this programme. Visionary leaders contextualize contents and give sense to the study process; strategic leaders create learning communities encouraging communication, and foresee problems and possible solutions; catalyser leaders create synergies between students and foster students' reflection; the doer leader is good at decision-making and takes personal initiative. To keep process going through changes, the manager and the pedagogical staff of the programme worked in tan-

dem (staff tandem). As C. Rivera states, "leadership occurs essentially in changing processes, and values and role models are fundamental factors for the development of leadership attitudes in times of change" (Rivera, 2010, p. 10). The staff tandems are called to be a role model for their students, showing them their own "learning attitudes," appearing as teachers who learn (Schleicher, 2012). This programme addresses the relation between the educational leadership of university teachers and the development of students' intrapreneurship attitudes during their master's studies. Based in the definition of a leader proposed by Gento (2000), educational leadership is understood as the ability to provoke the release, from inside, of the energy existing in students who, voluntarily, make the effort to attain the learning outcomes they have decided to reach. In its turn, students' intrapreneurship is defined as students' activity within an existing learning organisation for enhancing the quality of study process and creating innovations not only inside the institution (Antonicic & Hisrich, 2003) but also at different levels: local, regional, etc. Pedagogical leadership is implemented at e-platform (web-based Moodle www.pzi.lu.lv) as follows: at the beginning of the studies, in a preliminary adaptation session, two staff members lead students, tutors and professors in the use of ICT, using the experience and materials of previous years. During their studies students face unknown challenging situations: during the first two modules they have to work in the unknown Moodle environment (log in, joining social forums, initiate discussions, exchanging experiences, etc.). They also learn to work in the course forum, to consult the study material and to participate in the activities (each module has five activities that have a life- and workforce

orientation). Staff tandems provide support to the students. Peer and team working in small, self-organised groups helps to cope with the tasks in an effective way. During the next two modules students, tutors and professors continue collaborating: the study material is distributed among the members of different self-created groups and students explain to each other the contents they have to master. They participate in chats and in obligatory and self-initiated forums, start using video material and learn how to download and upload materials. In such a way the students' collaboration is promoted. Students have also the opportunity to use three languages during the studies (the third language is often a new one for most students). In this period students are expected to use knowledge and skills they previously acquired in real life and/or work situations in order to become more competent peer-, deep- and team learners. When forums became a too narrow learning space for them, they set up a Google group at <http://docs.google.com> to work with the same document simultaneously and edit it as a team. During the next 10 modules students are involved in the self-organisation of interactive e-learning, solving together the problems that arose, using flexibly virtual, spiritual and physical transformative learning spaces and making free use of the experience of the staff tandems as one resource among others. The last 6 modules are self-organised. The staff tandems seek to develop students' intrapreneurship through the participation in different individual and group activities. This participation is clearly traceable: students' and staff members' written activity in forums can be accessed at any time in the Moodle platform. Some of the students of this master's program are already involved in professional life, where they

use not only the new knowledge and skills acquired during their studies, but also the attitudes and values that they encountered in e-learning environment.

- **Culture of Social Presence:** Social presence is defined as the ability of participants in a community of inquiry to project themselves socially and emotionally, as 'real' people (i.e. their full personality), through the communication channel they use. An educational community of inquiry is a group of individuals who collaboratively engage in purposeful critical discourse and reflection to construct personal meaning and confirm mutual understanding. The theoretical framework of the community of inquiry represents a process of creating a deep and meaningful (collaborative-constructivist) learning experience through the culture of social presence (Birzina, 2012). A community of learners is a construct that has attracted considerable attention in HE (Garrison, 2007; Garrison & Anderson, 2003; Garrison, Anderson & Archer, 1999). Garrison et al. (1999) based their research on three categories of indicators of social presence, which are in line with the research interests of the authors of this chapter. These categories are: (a) *emotional expression*: the capacity to express emotions. It is reduced or suppressed when communication is text-based and takes place at distance. In our system, emotional expression is the ability and confidence to express feelings related to the life and work experience; (b) *open communication*: the mutual awareness and recognition of contributions of others. Mutual awareness builds group cohesiveness and helps to shape each participant's learning activities; (c) *group cohesion*: the collaborative communication that builds participation and empathy. Critical inquiry and the quality of the discourse are optimised when students

perceive themselves as a part of a group rather than as individuals. Building cohesion and a sense of belonging through activities that demand group commitment are important for sharing personal meaning.

- **Culture of Life- and Workforce Learning:** Developing students' entrepreneurship attitudes is one of the major issues in HE. This is true not only for students studying economics, but also for those involved in social sciences and hard sciences. This problem is especially acute in Latvia (Ministry of Economy, 2009). Recently, the professional activity of master's students after graduation and the impact of university studies in the economic life of Latvia has been studied (Krumins, 2007), proving that developing students' entrepreneurial skills remains still a priority. The ETD master's studies provide students and staff the opportunity of improving their competences in life- and workforce (Maslo, E. et al., 2012). By using modern resources such as more than two languages, e-tools etc., students are enabled to act independently and responsively and to create their own enterprises. When students are involved in their e-learning process in a proactive way (intrapreneurship), they develop attitudes that are the basis of entrepreneurship development (Fernández González & Vostrikovs, 2012). Students who participated actively in the e-learning forums probably will continue to be proactive in professional and economical life after the master's studies. E-learning as a socio-cultural ecological system offers innovative solutions for raising interconnected human capability in institutions and in society as a whole.
- **Culture of Evaluation of Competence:** The valorisation of students' professional paths is one of the main strengths of this master's program: students often reflect on the impact of the contents and meth-

ods used in the master's program on their professional activity. Students and staff are involved in evaluation processes. Working with self-assessment of competences helps students to develop their evaluation skills and enhance their self-efficacy. External observation of students' attitudes during their studies helps to reveal potential leaders and entrepreneurs. There are also students with a low participation in the study process (learning forums and discussions), who need a special attention from pedagogical staff. The categories for the self-assessment and external assessment of students' entrepreneurship attitudes were taken from the description of entrepreneur qualities of the "Online guide for starting a business" elaborated by the members of the CReBUS project (CReBUS, 2012).

E-learning as a socio-cultural ecological system presents a number of evidences for developing human capability through the facilitation of the learning quality.

Evidences of Advantages of E-Learning as a Socio-Cultural Ecological System for Developing Human' Capability and Learning Quality

The objective conditions have to be secured for a practical use of the e-learning as a socio-cultural ecological system.

Condition 1: *Using systemic-constructivist approach for transforming challenges into new learning opportunities that facilitate acquisition of generic, basic and specific competences in diversity contexts.* Evidence found out (Fernate et al., 2010; Maslo, E. et al., 2012; Surikova et al., 2013): In these studies it appeared that the same opportunities are considered as the most important

either by drop-out students in HE and by entrepreneurs: problem solving skills, leadership skills and communication skills (for all, Mode=4). Also they appreciate opportunities of practice-oriented learning (30% of theory and 70% of practice) and theoretical learning (2 hours per week), driven by experienced, open-minded people inside a successful and innovative learning community (N=86, 84%). The "*Identification and realization of opportunities*" is one of most important learning content for entrepreneurs (in a 5 point Likert scale, Mode=4). These main opportunities facilitate the development of students' generic and basic competencies (leadership, team-work, communication, etc), and also the specific competencies on ETD: using competencies in work and life situations in diverse socio-cultural contexts. The objective opportunities that influence positively the motivation for workplace learning are: (a) employees themselves generate ideas to improve work, including organisational innovations, and they receive support and exchange knowledge and experiences with other employees; (b) integrated formal, non-formal, and informal workplace-oriented learning opportunities. Workplace learning is one of the conditions for improving quality of life, and it demands a positive attitude for improving one's knowledge, skills and abilities and an interest about what is happening in their field in the world. In the ETD program students have opportunities to enrich their experience using multiple sources of information, new technologies and several languages to reach a subjective significant purpose. Diversity-related experiences, including student-student and student-academic staff interactions, should be provided in various unknown situations to promote students' competence.

Condition 2: Integration of students' and teachers' informal knowledge of ICT (social networks, Google, blogs, etc) in e-learning process. Evidence found out (Birzina et al., 2009; Birzina et al., 2012): ETD students and teachers are computer users, but they have experience only in using email and chats, not the virtual platforms, forums, and video conferences. There are no requirements related to ICT knowledge for entering the ETD master's program. The duration of the students' visit to the e-platform in the ETD master's program during the first term ranged from 271 to 1694 minutes (on average: 16.4 hours per student). Compared with other students from the University of Latvia, students from the ETD master's program take the second place, the first place being taken by the students from the Faculty of Computer Sciences (from 18.3 to 22.9 hours) (Faculty of Computing, University of Latvia, 2009).

Condition 3: Intrapreneurship for entrepreneurship should be developed in e-communication. Evidences found out (Fernández González & Vostrikovs, 2012): For the promotion 2010, 260 students' posts in the study forums were analyzed (median per student=28; min.=11; max.=100). 25 posts (10.8%) were the result of students' initiative. Students (N=7) were first grouped in two levels of intrapreneurship (high=over de median, N=3; low=the median and below, N=4). Then, based on the external

evaluation of students' entrepreneurship abilities ($M=5.48, SD=0.55$), students were regrouped in two levels of entrepreneurship (high=over the average, $N=4$; low=under the average, $N=3$). The distribution of the students in both groups was almost identical. In order to test the statistical significance of this 2×2 cross-tabulation, Phi was used as the appropriate measure of association (Morgan, 2007) ($r=0.750, p=0.047$). The results indicate that the degree of association of both variables is high. These results confirm the existence of a strong relation statistically significant between intrapreneurship and entrepreneurship level (see Table 1).

The same comparison of students' intrapreneurship and entrepreneurship level was done for the promotion 2011 (see Table 2).

A total of 479 posts were analyzed (median per student =40; min. =9; max. =94). 40 of these posts (8.4%) were the result of students' initiative to start discussions. Students ($N=10$) were grouped in three intrapreneurship level groups (high=60 or more posts, $N=4$; middle: between 59 and 20, $N=4$; and low=under 20, $N=2$). Then, based on the external evaluation of students' entrepreneurship ($M=5.63, SD=0.72$), students were regrouped in three levels (high=over 5.90, $N=4$; middle, between 5.40 and 5.89, $N=3$; and low=under 5.40, $N=3$). The membership of both groups was compared using cross tabulation, which showed an association of both variables.

Table 1. Comparison of students' intrapreneurship and entrepreneurship, promotion 2010. (Adapted from Fernández González & Vostrikovs, 2012, p. 91).

	Level Group	Student							
		A1	A2	A3	A4	A5	A6	A7	
Intrapreneurship (number of student's posts)	High	100	38	32					Median = 28
	Low				28	27	24	11	
Entrepreneurship (external evaluation score)	High	6.00	5.88	5.88				5.83	Mean =5.48
	Low				5.10	5.20	4.51		

Table 2. Comparison of students' intrapreneurship and entrepreneurship, promotion 2011. (Adapted from Fernández González & Vostrikovs, 2012, p. 92).

	Level Group	Student										
		B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	
Intrapreneurship (number of student's posts)	High	94	82	72	66							Median = 40
	Middle					43	37	31	30			
	Low									15	9	
Entrepreneurship (external evaluation score)	High	5.98		5.9	5.9	5.98						Mean = 5.63
	Middle						5.5	5.88	5.48			
	Low		5.13							5.38	5.23	

In order to test the statistical significance of this 3 × 3 cross-tabulation Cramer's V was used as the appropriate measure of association (Morgan, 2007) ($r=0.750, p=0.024$). The degree of association of the variables (levels) is high between both groups (except for one student B2). Finally, the overall association of level of students' intrapreneurship and entrepreneurship for both promotions (N=17) was calculated using Cramer's V (for a 3 × 3 cross-tabulation). Summarising the results of this study, a statistically significant positive relation ($r=0.763, p=.001$) between students' level of intrapreneurship activity and their level of development of entrepreneurship attitudes was found. Even if relation does not mean causality, in this study it was concluded that focusing on the development of students' intrapreneurship should help to improve their quality of life and wellbeing. For achieving this, team working of educational leaders is a major issue.

Condition 4: *The quality of pedagogical leadership has to be secured.* Evidences found out (Maslo, I. & Fernández González, 2012): In this study the pedagogical leadership of faculty staff and their team working was related with students' intrapreneurship abilities. For the analysis of pedagogical leadership of faculty staff, data about their activity were collected: total number of posts and proactivity (initiating discussions) (see Table 3).

Then students' and faculty staff' activity in each module was compared. Five modules had a high students' participation (numbers 6, 11, 12, 17 and 18), but there was not a direct correlation between students' participation (intrapreneurship) and the number of posts of teachers (see Table 4).

The results of this study confirm that it is not the number but the quality of the teachers' activity (posts) and their team working that foster students'

Table 3. Teachers' activity leading study modules. (Adapted from Maslo, I. & Fernández González, 2012, p. 170).

Teachers	A	B	C	D	E	F	G	H
Total posts	773	547	32	30	26	147	29	21
Total started discussions	344	129	17	19	5	38	8	1
Total courses	7	8	1	1	1	9	3	7
Post average per course	110	68	32	30	16	16	10	3

Table 4. Students' and teachers' activity in each module. (Adapted from Maslo, I. & Fernández González, 2012, p. 170).

Study module number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total
Number of students in module	36	33	33	29	36	28	26	22	28	20	26	18	13	22	12	11	5	13	23
Number of student's posts	218	139	145	106	175	228	106	96	121	78	648	137	77	137	68	63	68	112	2752
Post average per student	6.1	4.2	5.3	3.7	4.9	8.1	4.1	4.4	4.3	3.9	24.9	7.6	5.9	6.2	5.7	5.7	13.6	8.6	7.1
Number of teachers in module	3	2	2	2	2	2	2	2	2	2	2	3	22	2	2	3	2	2	
Number of teacher's posts	127	55	74	49	93	60	86	43	72	49	120	26	45	26	31	9	12	46	1023
Post average per teacher	42	28	37	25	47	30	43	22	36	25	60	9	23	13	16	3	6	23	27
Teachers collaborating in module	A C H	F D	F B	F	A H	G B	A E	G B	F B	A H	F B	F B H	A H	B H	A H	A F H	F G	F B	

intrapreneurship. Faculty staff members with more effective pedagogical leadership did not make a higher amount of posts.

Condition 5: *Pedagogical leadership has to be implemented in tandems.* Evidences found out (Maslo, I. & Fernández González, 2012): Summarizing the results of the study, it was found that educational leadership of staff members who are involved in the modules where students' intrapreneurship level is the highest, is based on their ability of team-working, combining in tandem different styles of educational leadership for creating a learning community (strategic leadership style) and fostering students' reflection (catalyser leadership style) (see Table 5).

Condition 6: *Students systematically self-evaluate their competences and plan their self-enhancement, receiving also internal (by tutors) and external (by professors) evaluation.* Evidences found out (Fernate et al., 2010), see Table 6:

The subjective conditions have to be secured for a practical use of the e-learning as a socio-cultural ecological system.

Condition 1: *It is important to be personally involved in activities that allow overcoming challenges and give satisfaction.* Evidences found out (Birzina et al., 2009; Birzina et al., 2012): The results of this study confirm that students' experience and personal satisfaction (code 'success experienced in learning') tightly correlates with their involvement in learning activities (code 'motivation') that is related to well-being ($rs = 0.64, p < .01$). There is no direct correlation between students' sense of projected well-being (code 'wishes') and their experience (code 'success experienced in learning').

Condition 2: *Setting aims clearly in a supportive social climate significantly widen the range of experiences acquired during the study process.* Evidences found out (Birzina et al., 2009; Birzina et al., 2012): One of the

Table 5. Frequencies of faculty staff leadership styles. (Adapted from Maslo, I. & Fernández González, 2012, p. 171).

Teacher	F	G	B	Total
Posts analysed	58	29	122	209
Number of expressions coded	85	43	203	331
Catalyser	23 (27%)	11 (26%)	57 (28%)	91 (27%)
Doer	20 (24%)	2 (5%)	32 (16%)	54 (16%)
Strategic	32 (38%)	27 (63%)	92 (45%)	151 (46%)
Visionary	10 (12%)	3 (7%)	22 (11%)	35 (11%)

Table 6. Students' self-evaluation of generic competences. (Adapted from Fernate et al., 2010, p. 10).

Students' Approaches Dealing with the Scientific Content of ETD Program				
Detailed explanations: what, how and why it had to be used	Explanations: what, how and why it had to be used	Sometimes used by students' initiative, when they had to take independent decisions and to plan what, how and why it had to be done	Often used by students' initiative, when they had to take independent decisions and to plan what, how and why it had to be done	Always used by students' initiative ...
<p>Student A1: <i>At the beginning of studies I really expected to get explanations: what and why was to be done.</i></p> <p>Student A2: <i>Different basic approaches to acquisition of scientific content... were explained in detail by the academic staff.</i></p>	<p>Student A1: <i>Starting from the 2-3 modules, I became aware of what the study process would be like and how to organize it in a better way.</i></p> <p>Student A2: <i>If required, I could get explanations about the basic approaches to the scientific content from mates.</i></p> <p>Student A3: <i>By exploring the study material</i></p> <p>Student A4: <i>when it was not clear how to work with them, I listened to the advice given at face-to-face meetings.</i></p>	<p>Student A1: <i>Starting already from Module 3, I began to plan my study process independently and to structure the contents of the module in order to acquire it easily.</i></p> <p>Student A2: <i>I acquired the scientific content by my own initiative and using different translation programmes. We also worked together with our course mates, thus acquiring the content in groups.</i></p>	<p>Student A1: <i>By my initiative I started to search for additional literature on the themes considered in the modules.</i></p> <p>Student A2: <i>I often structured the scientific content by using the basic approaches for acquiring the content, which were recommended both by the professor and my course mates.</i></p> <p>Student A3: <i>By implementing the course activities.</i></p> <p>Student A6: <i>By studying the study materials and additional literature, by answering the examination questions, as well as in chats and forums.</i></p> <p>Student A7: <i>I used the resources recommended in forums.</i></p>	<p>Student A1: <i>By my own initiative I used my previous experience from the pedagogical work with children with special needs and my knowledge of inclusive education.</i></p>

challenges for the pedagogical staff in the ETD program is to help students to connect each new study activity with their previous experience, potential, motivation and expectations. In this study, the forum named 'The

problems of using computers' was researched as it contained questions related to the challenges of ICT usage. Based on linkages of data, it was found that students' description of their own experience (codes 'one's own

biography as a construction', 'wishes' and 'positive patterns') correlates with social recognition (the code 'search of one's ideals'). This means that students learnt from tutors' experience and from the construction of their own experience. Students were willing to share their ideas on everything they discovered in a supportive social climate ($r_s = 0.62, p < .01$).

Condition 3: *The effort to overcome challenges, personal motivation and interest in the subject area, and performing study-related tasks promote students' competences.* Evidences found out (Birzina et al., 2009; Birzina et al., 2012): Students who were able to cope with new tasks and problems spoke about the emergence of definite aims for their life, as this subjective experience motivated them for further activity. In order to succeed, students had to overcome the challenge of using several languages. A student admitted that she had a very limited capacity for using foreign languages and she expressed the wish of working in a team in order to master the course. She was convinced that such cooperation will widen her opportunities for learning and will ensure the development of her personality. The results show that students' constructed experience (code 'one's own biography as a construction') does not correlate directly with self-recognition (code 'search of one's ideals'). However, students' experience, as a mediator, moderately correlates with motivation ($r_s = 0.45, p < .05$).

These studies provided the empirical evidence of the main objective and subjective conditions for practical usage of e-learning as a socio-cultural ecological system conceptualised in this chapter. They also point to the reaffirmation of e-learning benefits for increasing the participation in HE.

Solutions and Recommendations

The evidences found out show important advantages in widening the participation in HE through e-learning. The following objective conditions for widening participation in HE have to be secured for an appropriate implementation of the e-learning as a socio-cultural ecological system, so that it has a positive impact at personal, institutional, higher education and society level.

1. The systemic-constructivist transformation of challenges into new learning opportunities impacts positively the acquisition of generic, basic and specific competences, and also benefits individuals, institutions, employers and employees, and society as a whole. The use of a wider e-learning concept and the construction of various unknown situations provide new opportunities to educate those students who have always been uncomfortable with traditional learning.
2. For participation in the e-learning as an ecological socio-cultural system there are no requirements related to ICT knowledge. However, the quality of pedagogical leadership has to be secured, working on pedagogical tandems. A strategic pedagogical leadership style in e-learning facilitates the transformation of the previous experience of students and faculty staff into new knowledge and contributes to increase students' motivation and intrapreneurship.
3. Students should self-evaluate their competences and plan their self-enhancement systematically, receiving also internal (by tutors) and external (by professors) evaluation. This objective condition is the most challenging for the faculty staff. Even if at university level this condition can be fulfilled in practice without major problems, the pedagogical thinking should change.

The following subjective conditions have to be secured for an appropriate implementation of e-learning as the socio-cultural ecological system.

1. The necessity of being personally involved in challenging activities that give satisfaction refers not only to students, but first of all to pedagogical staff. This should be taken into account in teachers' education and life-long learning, stressing the development of teachers' personal qualities, enthusiasm, will power, interest in students' and institutional development, etc. Without this premise, it will not be possible to implement adequately students' sustainable and quality e-learning. Setting aims clearly in a supportive social climate significantly widens the range of experiences that students acquire during the study process.
2. For promoting students' competence, teachers' effort to overcome challenges, their personal motivation and interest in the subject area are crucial issues. Teachers' desire of improving their teaching environment, transforming problems into new opportunities for life- and workforce learning, and improving their learning environment, is most important for helping students to acquire highly specialized knowledge of newest pedagogical solutions in their professional field.

FUTURE RESEARCH DIRECTIONS

The multidimensional analysis presented in this book reveals that widening participation of a new generation of non-traditional adult learners is one of the main future and emerging trends in higher education. From this perspective, the relevance of the socio-cultural ecological e-learning model appears clearly, as it integrates informal life- and workforce learning into formal education, and may contribute to explore new flexible learning pathways in future. The proposed model may also

help to shift from a learning instruction paradigm to the paradigm of the pedagogical leadership for enhancing quality of learning spaces.

Within this new paradigm, the viability of the model conceptualized in this chapter is supported by the successful implementation of the program on Educational Treatment of Diversity (ETD) at the University of Latvia. Taking into account the evidence-based objective and subjective conditions presented in this chapter, new programs based on this model may be implemented for developing new kinds of competence-oriented informal learning, integrating them in formal and non-formal educational programs at tertiary level. This is especially recommended for programs in social, human and education sciences, in order to strengthen the workforce capacity of the students in these fields.

This model also opens a new paradigm for trans-disciplinary and interdisciplinary research. Within this domain, the most important future research directions that the authors suggest to explore further are related with the impact of the socio-cultural ecological e-learning model:

- On increasing participation of non-traditional learners in higher education;
- On enhancing social cohesion at local, regional, national and international levels;
- On individual, organizational and social benefits.

CONCLUSION

1. Enhancing the multidirectional communication across the different levels of the ecological system becomes an effective educational treatment of students' learning diversity and contributes to the promotion of students' generic, basic and specific competences. The new transformative learning opportunities given to students foster the institutional, local and regional transformations.

2. Students' intrapreneurship leads them to overcome challenges through the collaboration in the e-learning community. Catalyser pedagogical leaders enhance students' capabilities, autonomy and responsibility. This strengthens the institutional capacity and therefore benefits the whole ecological system.
 3. A reorientation from the instructional teaching approach to the facilitation of students' learning should be done. In the evaluation of students' learning, a reorientation should also be done from the evaluation of the acquisition of contents to the formative and transformative evaluation for improving students' learning outcomes. This challenge shows the gaps in teachers' pre- and in-service learning and lifelong learning.
 4. The results of these studies show the importance of the social dimension for ensuring quality e-learning. E-learning will function correctly as an ecological socio-cultural system only if the relation between students and teachers is made of mutual respect and confidence, if students feel that they belong to a community of learning, if they realise that teachers, using strategic and catalyser leadership styles, really want with all their heart and all their forces to contribute to rise their social status in society and to help them to become autonomous and responsible persons at the different levels (micro, meso and macro) of their socio-cultural ecological system.
 5. The model of e-learning integrates creative thinking, research and practice in their learning experience, and they will be able to
 - a. Apply theory, methods and problem-solving skills independently and responsibly in research, performing highly qualified professional functions;
 - b. Deal with complex research problems independently and critically; make decisions and improve the professional field, integrating new knowledge and research, observing ethical issues with responsibility in professional context and society;
 - c. Explain clearly and discuss systemic aspects of their scientific field both with specialists and non-specialists; and
 - d. Enhance their own competences and specialization independently and responsibly, taking responsibility for the performance of the team, engaging in entrepreneurial activity, introducing pedagogical innovation and research in their professional field and implementing new approaches for learning in changing contexts.
- E-learning as a socio-cultural ecological system fosters students' and faculty staff' participation, producing new knowledge and pedagogical solutions that create synergy between intrapreneurship, entrepreneurship and pedagogical leadership in science, education and politics. This enhances economical growth and sustainable development that benefits the whole ecological system in local, regional, national, European and global socio-cultural contexts.

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KEY TERMS AND DEFINITIONS

E-Learning: Is understood as a socio-cultural ecological system whose core-components are: (a) a culture of facilitation of systemic-constructivist competence; (b) a culture of pedagogical leadership versus teaching; (c) a culture of social presence; (d) a culture of life- and workforce learning; and (e) a culture of evaluation of competence. All these core-components interact in a systematic way in an e-learning community, where students' self-organized e-learning is oriented towards the acquisition of knowledge, skills and competences. The e-learning community operates inside a mixed combination of learning spaces (physical, virtual and spiritual), where academic staff tandems as pedagogical leaders use e-tools actively.

Human Capability: Is an individual combination of human competences (generic, general/basic and specific), experience, motivation and values as human potential. Generic competences include thinking, analyzing, generalization etc. for creating and using new knowledge. General/basic competences, such as social responsible acting, communication and collaboration, etc., are necessary for all kinds of activities and not specifically related. And specific competencies are specifically related to job, occupation and diverse life situations.

Human Capacity: Is a dynamic system of human active acting and working, which includes motivation of participation/commitment (cognitive, emotional, social and volitional), intrapreneurship, leadership, and competent identification, creation and implementation of opportunities for development (innovation and creativity). Human capacity has a positive impact on life and work, and it benefits the different levels of social-cultural ecological system.

Intrapreneurship: Is the person's involvement in a proactive way in the organization and implementation of his/her own learning process. It

takes in consideration the opportunities that appear in the social, cultural and ecological context of the student, and it is the basis of entrepreneurship development in higher education.

Life- and Workforce Learning: Is a sustainable transformative learning system, whose objective is to enhance the quality of life and work in local, regional, national, international, and global socio-cultural contexts. This kind of learning is not content-oriented, but it is oriented to transformational improvement of the self as person, of organizations as qualitative life- and work places, and of society as a community of culture and practice.

Pedagogical Leadership: Is the ability to provoke the release, from inside, of the energy existing in students, who voluntarily make the effort to attain the learning outcomes they have decided to reach. Pedagogical leadership leads students to overcome challenges through the collaboration in the e-learning community. Pedagogical leaders enhance students' capability, autonomy and responsibility. This strengthens the institutional capacity and therefore benefits the whole ecological system.

Social Presence: Is the personal engagement of the members of an e-learning community in a personal relation with each other. In e-learning as a socio-cultural ecological system, social presence is not reduced to the participants' ability to project themselves as 'real' people with their full personality: teachers are willing with all their heart and all their forces to contribute to raise students' social status in society and to help them to become autonomous and responsible persons at different levels (micro, meso and macro) of their socio-cultural ecological system.

Systemic-Constructivist Competence: Is the competence of transformation of challenges into the new learning opportunities that impacts positively the benefits of individuals, institutions, employers and employees, and society as a whole.

E-Learning as a Socio-Cultural System

A Multidimensional Analysis

Information and communication technologies play a crucial role in a number of modern industries. Among these, education has perhaps seen the greatest increases in efficiency and availability through Internet-based technologies.

E-Learning as a Socio-Cultural System: A Multidimensional Analysis provides readers with a critical examination of the theories, models, and best practices in online education from a social perspective, evaluating blended, distance, and mobile learning systems with a focus on the interactions of their practitioners. Within the pages of this volume, teachers, students, administrators, policy makers, and IT professionals will all find valuable advice and enriching personal experiences in the field of online education.

Topics Covered:

- Continuous Education
- Digital Natives
- Distance Education
- E-Learning
- Learning Platforms
- Multicultural Education
- Organizational Culture
- Staff Development

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