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Blended Learning: Promising Strategic Alternative in Higher Education

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Abstract

Problem Statement:
Contemporary higher education faces numerous improvements worthwhile challenges, such as unfavorable demography, problematic quality management, lack of skilled resources, aging population or unconsolidated delivery of related study programs.

Purpose of the Study:
System of higher education is under permanent development. Although it has succeeded in implementations of local or partial changes, perspective global solutions are still missing. To improve this situation, we want to propose a viable strategy for educational managers and decision makers, capable to motivate people, minimize internal tensions and stabilize this sector.

Research Methods:
Initially we summarized the most evident bottlenecks of contemporary higher education and formulated the desired target arrangements. Findings from literature review were categorized, summarized and represented with mind map. Knowledge and data from previous experiments was used for design of system diagram, characterizing external and internal factors of proposed model, as well as single subsystems and their relations.

Findings:
We believe that innovative educational platform, based on practices of blended learning, can shift the traditionally rigid educational system towards more flexible networking structures. According to our experience, properly trained and institutionally supported teachers, equipped with heterogeneous teaching artefacts can address more students with lower expenses and higher quality. Moreover, such courses can be easily sheared, combined or reused.

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Conclusions:
Systematic, domain wide introduction of semi virtually delivered blended courses to higher education can solve many problems, existing in this sector. This approach is based on mobility and extensive exchange of teachers, their specialization and individual work with group of students. Due to structural flexibility, blended courses can be tailored for any audience. Explicitly existing educational processes can be straightforwardly quantified, managed and improved.

Keywords: Blended learning, distant education

1. Introduction

Higher education, as well as other areas of life, nowadays, is influenced by four complex and interrelated processes: globalization, internationalization, virtualization and industrialization. Consequently, universities are faced with an increasing need for sharing resources, using virtual networks, cooperating on educational programmes design and striving to suit the needs of various industrial sectors. Coping with such challenging conditions requires a fundamental shift from the traditional concept of self-contained universities to a new updated system where universities could cooperate in a flexible mode to promote faster exchange and implementation of innovative ideas, serve a broader spectrum of students from different cultural backgrounds, wider age groups and with varying educational needs. Last but not least, such cooperation would reduce expenses and bring substantial savings to the participating universities.

In our article we first review the present problems and issues that higher education is forced to tackle and reflect on the possible solutions with help of available sources. Based on our previous experience and research we propose creation of a cross-university model of mutual cooperation based on educational infrastructure bringing about changes in organizational and managerial arrangements, institutional structures and services provided while improving the quality. The core concept of our model is semi-virtual education using professionally prepared blended learning courses designed in cooperation among universities. The flexibility of the courses would allow their application across more universities while saving both material and human resources.

2. Problem Statement

Contemporary higher education is faced with a number of challenges requesting attention, such as unfavourable demography, aging population, problematic quality management, lack of skilled resources, or unconsolidated delivery of related study programs.

2.1. Demographic Development

As an example of adverse demographic development we can check out the situation in the Czech Republic where the statistical figures indicate a starting decline in the higher education age group. The demographic trends reflecting quantitative development of universities have gone through significant changes and turnovers in the last few decades. In the period of 2002 – 2005, the size of the age group remained almost unchanged and stabilized at about 135 thousand people. The demographic turning point at Czech universities characterised by a sharp decline of the relevant age group has already started in 2013. The course of this demographic decline is characterized by its steepness, which in a few years will decrease the size of university age group to only a little over 90 thousand people. Compared to the years of 2002 – 2005, the university age group size will have dropped by one-third. It is believed that this low level of the relevant age group will continue for approximately ten years followed by a short-term population increase. However, the assumption is that the numbers will fail to reach the original level, although the traditional university age group will be complemented by students of distant form of studies from
higher age groups. Students of combined and distant forms of studies in particular could benefit from blended learning courses (CSU, 2014).

2.2. Quality Management

Another issue in the sphere of higher education, which is related not only to the Czech Republic, is quality management. Since the nineties of the last century quality management systems in higher education sector have been gradually introduced as described by Srikanthan & Dalrymple (2003), Haug (2003), Materu (2007), Brookes & Becket (2007). The implementation of quality management systems in higher education sector has taken place mainly in the USA and Europe. It is true that other countries and parts of the globe, such as the Middle and Near East, Africa, China, Australia and New Zealand, have endeavoured not to be left behind. The implementation of quality management systems has led to debates within organizations and among academics about the importance of higher education. One part of the debating was concerned about the restrictions of academic freedom and the proliferation of administrative controls. The other side points to the effectiveness of change management, higher academic standards, increased number of staff and student satisfaction. Discussion concerning the issue can be found in works by the following authors: Harvey & Green (1993), Lomas (2001), Srikanthan & Dalrymple (2002), Vidovich (2002), Hodson & Thomas (2003), Cruikshank (2003), Chua (2004), Vidovich, (2004), Hoecht (2006), Mizikaci (2009), Williams (2009).

Gregory (1996) proposes four dimensions of leadership in his model of distributed leadership for managing changes in higher education organizations: symbolic, political, managerial and academic dimensions. On the symbolic level the role of the leader is to represent the whole institution, to persuade others to fulfil the organizational goals and to demonstrate the corporate image to the world. The political role includes gaining support and resolving conflicts for the benefit of the institution. The role of the leader as a good manager consists in dealing with costs, budgets, information flow, employee relations but also in setting goals, structuring, staffing and communicating. The academic role lies in the skills of a leading professional who supports and develops quality and promotes change.

Michael et al. (1997) recommends that the key to Total Quality Management (TQM) is top leadership as the driving force behind success and failure. Effective and meaningful communication, good training, benchmarking and research in the field of TQM can increase the success rate.

Owlia & Aspinwall (1996) explained the quality in higher education using dimension identification frameworks defining mainly the quality of the product features (Garvin, 1987) and service features (Parasuraman, Zeithaml & Berry, 1985; 1988). Chua (2004) classifies the quality attributes of education more comprehensively in the Input–Process–Output (IPO) framework in which ‘Input’ refers to the entry requirements, ‘Process’ refers to the teaching and learning process, and ‘Output’ refers to the employability and academic standings (as shown in Figure 1 below). This classification of quality attributes reflects the operation system of converting the inputs into outputs via the process in any organizations including educational ones.

![Figure 1 - The Input-Process-Output framework of quality classification](Source: Chua, 2004)

The issue of quality management has also been discussed and handled in the Czech Republic within the Bologna Process. The Bologna Declaration deals with the issue of quality in higher education as this area has been of priority
since the beginnings of the Bologna Process. In 2000 the European Network for Quality Assurance in Higher Education was established to promote European co-operation in the field of quality assurance. In 2004 the Network was transformed into the European Association for Quality Assurance in Higher Education (ENQA). EQUA joins together 40 quality assurance organisations as members from 23 countries within the European Higher Education Area (EHEA) (including the Accreditation Commission of the Czech Republic) and 49 quality assurance organisations as affiliates from 28 countries worldwide. (NTBE Czech Republic, 2013)

In 2013, the National Team of Bologna Experts of the Czech Republic issued a statement on quality management regarding the establishment of standards for systematic external evaluation of educational and research activities of universities. The accreditation commission warned that clearly formalized standards cannot be created and quality assessment of higher education cannot consist in mechanical comparisons, whether the university meets the formally defined standard or not. (NTBE Czech Republic, 2013)

In 2008 the European Parliament and Council adopted the Recommendation on the establishment of the European Qualifications Framework for lifelong learning (EQF). The EQF aims to establish a common reference framework as a translation device between different qualification systems and their levels. The EQF applies to all types of education and training from general to vocational and higher. Unlike the traditional approaches which emphasize learning inputs (e.g. the length of study), EQF is based on the outputs of the learning process characterized via knowledge, skills and competence descriptors. Implementation of EQF should improve transparency, comparability and portability of students’ and workers’ qualifications (EQAVET, 2008). The quality of higher education is defined in levels 6 to 8 of EQF.

The Czech Republic, as a member of the European Union, fulfils its obligations by adopting the national qualifications framework. The creation and implementation of the EQF is to ensure greater transparency, excellence and quality of education at Czech universities and colleges (Q-RAM, 2012).

2.3. Aging Population

Other issues pertaining to higher education in the Czech Republic include a shortage of skilled human resources and aging population. With the increasing average age of the adult population and also the retirement age, the numbers of people in their fifties or sixties who need to proceed with their education are growing as well. These people seek educational opportunities, which leads to the advancement of institutions providing courses and training to older people, e.g. University of the Third Age. Blended learning courses could be a suitable and beneficial solution for these people. Nevertheless many opponents of the method argue that the aging population does not have the appropriate technical training to be able to effectively use educational methods based on ICT. However, the opposite appears to be true. Even people from higher age groups strive to adapt to the contemporary social environment requiring from everybody who wants to be successful to use ICT in everyday life and at work. A questionnaire survey carried out in 2010 and 2011 examined the willingness to learn and computer literacy of adults in the Czech Republic. Results of the survey clearly show that older people want to be educated in technical fields and in modern technologies to keep pace with younger generations (Vojackova, 2011, 2012).

2.4. Unconsolidated Provision of Similar Programs

The last problem to be mentioned here is the unconsolidated provision of similar programs of study. Various universities offer programs that often differ in only a few subjects, yet every university prepares its own courses. Such a waste of resources could be eliminated by a more economical and efficient system where interdisciplinary teams of experts would create blended learning courses applicable at more universities. The quality of the courses would be guaranteed by experts in the field, professional course designers and teachers.

3. Purpose of the Study

As we have indicated above the system of higher education is under permanent development while being confronted with a range of issues which need to be addressed. Although implementations of some local or partial
changes have been successful, perspective global solutions are still missing. To improve this situation, we want to propose a viable strategy for educational managers and decision makers, capable to motivate people, minimize internal tensions and stabilize this sector.

Students at colleges and universities, who are familiar with all kinds of technologies, which they use in everyday life for communication, searching and sharing information, naturally expect the use of such technologies also in educational process. This expectation is fulfilled by the offer of e-learning courses.

In its beginnings e-learning was considered as technologically based approach allowing elimination of the teacher from the educational process (Mason & Rennie, 2006). This conception of e-learning emphasizing implementation of technologies into the processes of teaching and learning, while at the same time neglecting the fundamental role of communication and cooperation among people via computer networks, has been gradually abandoned (Andrews & Haythornthwaite, 2007). With respect to our own experience and knowledge we believe that e-learning cannot be limited only to sole application of technologies, which corresponds well with the following definition by Zounek (2009, pp. 37-38) “e-learning covers both theory and research as well as any real educational process (with variable degree of intentionality) which, in accordance with ethical principles, includes the use of ICT working with electronic data. The method of ICT application and availability of materials depend primarily on educational aims and content, educational environment character, needs and capabilities of all participants in the educational process.”

The broad-spectrum potential of e-learning predetermines its use in a wide range of courses in different branches in distance learning where all the instruction, materials, tasks, experiments, exercises or tutorials take place via technologies without any face-to-face contact with the teacher or other students. Modern ICT however are also effectively used in traditional full-time or part-time courses. This combination of traditional instruction with e-learning is commonly called blended learning. Together with Smith et al. (2001), Koen (2002) and Dexter & Gurwitz (2002), we consider the active involvement of the teacher in blended learning courses to be a significant advantage over the “traditional” e-learning.

Blended learning can promote effective learning by meeting the needs of the digital generation, as contemporary young people are often designated. These needs are different from those fifty or more years ago because the knowledge and skills required from people to succeed in modern world have changed. The “21st century skills” is a term used to determine the skills to be developed in people of the 21st century related to the areas of communication, creativity, cooperation, critical thinking and technological literacy. All these areas can be supported by properly designed and applied blended courses.

Taking into account the fact that digital technologies are widely used in higher education at present, academic staff are acquainted with their use (although to a very different extent) and that the application of ICT has a beneficial potential for students in higher education, we propose blended learning as the basic concept for the creation of a new educational framework.

4. Research Question

The challenging issues discussed in the preceding paragraphs put forward a crucial question: is it possible to establish a common platform, simultaneously overcoming the existing limitations of higher education? We believe that it is possible although the steps necessary for implementation of new approaches will also require from academics, managers and responsible decision makers to be open to new ideas and points of view.

It is true, that in the last few decades the academic world has witnessed enormous changes in teaching practices and techniques applied in higher education resulting from the introduction of ICT, e-learning and blended learning into the educational process. In our opinion the potential of e-learning, or more specifically blended learning, is much broader than the implementation of single ICT-based courses prepared and applied by individual universities. In this article we would like to present our ideas on how blended learning could become a central part of an innovative educational framework with efficient internal structure contributing to the increase in quality and simultaneously to the reduction of expenses.
5. Research Method

We suggest, update and generalize data and findings from previously conducted experiments which will finally allow us to articulate and summarize conclusions and to propose searched model of feasible semi-virtual cross-university education.

In our search for relevant resources allowing us to support our proposal we decided to focus on papers (Voracek, J. & Kontro-Vesivalo N., 2002; Voracek, J., Kontro-Vesivalo, N. & Luukko, A., 2002; Alaoutinen, S., Kontro-Vesivalo, N., Uteshev, A. & Voracek, J., 2003; Alaoutinen, S. & Voracek, J., 2003a; Alaoutinen, S. & Voracek, J., 2003b; Alaoutinen, S. & Voracek, J., 2004) dedicated to projects of cross-border university using semi-virtual courses. The authors of the papers present their experience with the International Masters’ Programme in Information Technology (IMPIT) and the foundation of Cross Border University (CBU) in Finland.

IMPIT project is based on active cooperation among three Finnish and seven Russian and two Czech universities forming the international IMPIT collaboration network. The program consists of courses in computer science and telecommunications and the studies are two years long. The first year consists in intensive studies of the relevant field while in the second year student works on an individual project and master’s thesis while working in a Finnish ICT company if possible. The programme was started in 1999 and the first students graduated in 2000. IMPIT programme is still successfully running at the University of Eastern Finland.

Conclusions drawn by the authors of the IMPIT project can be summarized in the following points:

- Appearance of courses depends on individual teachers.
- Editing of packages can be a sensitive issue from a legal point of view.
- Active participation and proper motivation of teachers is an essential precondition for the ultimate success.
- The teacher should be completely isolated from the technical aspects which should be administered by experts.
- All educational data must be archived in an appropriate format.
- Courses globally enhance the learning process at universities.
- Positive discussions, close cooperation and sharing of experience help to develop a generally appropriate infrastructure for virtual learning.
- Collaborative learning is an efficient technique for virtual education.
- After thorough experimenting with different delivery techniques, the final model of a semi-virtual course includes audiovisual lectures and exercises, quizzes, homework, classes given by teacher, project and its presentation and exam.
- Virtual learning improves the quality of teaching and minimizes the workload of teachers.
- Replacement of students’ mobility by traveling teachers, which is cheaper and overcomes a number of legal and administrative constraints.
- In case of cooperation between universities from more than one country it is necessary to take into account also cultural specificities and differences.
- The system of shorter but more intense events is motivating, emphasizes quality over quantity and minimizes cultural shocks or brain drain.
- An important role in virtual education is played by academic honesty. Academic dishonesty may negatively affect the creation of long-term educational partnerships and student exchanges at the international level.

The authors of IMPIT project succeeded to move from conventionally taught courses to the prototype of a semi-virtual course accepted and positively evaluated by hundreds of students and recognized by academic authorities in two participating countries.

The CBU was established with view to the developments, experience and achievements of IMPIT to enhance the model and limit possible problems. The CBU is an educational institution with good basis for common research and industrial projects consequently supporting regional development. As well as in the case of IMPIT, CBU’s operation is still continuing.

Administrative and institutional arrangements need to be properly designed to facilitate smooth running of any project conducted in cooperation among more institutions. The administrative structure of CBU could serve as
a feasible example for our purposes. The structure is composed of three levels with clearly defined responsibilities (see Table 1):

Table 1. Administrative levels of the CBU.

<table>
<thead>
<tr>
<th>Level</th>
<th>Structure and Tasks</th>
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<tbody>
<tr>
<td>Institutional (network)</td>
<td>Decision-making board established from representatives of the partner institutions:</td>
</tr>
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<td></td>
<td>• Global planning and strategic decision making;</td>
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<td></td>
<td>• Distribution of finances.</td>
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<tr>
<td>Executive unit:</td>
<td>• Internal development and quality control;</td>
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<td></td>
<td>• Contacts with industry;</td>
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<td></td>
<td>• Extension of the network;</td>
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<td></td>
<td>• Practical coordination of partners;</td>
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<tr>
<td></td>
<td>• Exchange of information.</td>
</tr>
<tr>
<td>Management of partner</td>
<td>Local coordination unit:</td>
</tr>
<tr>
<td>universities</td>
<td>1. Integration of CBU-level processes into existing local structures. This, for</td>
</tr>
<tr>
<td></td>
<td>example, requires new services or advanced guidance for foreign staff and students.</td>
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<tr>
<td></td>
<td>Establishment of working groups:</td>
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<tr>
<td></td>
<td>2. Tackles the tasks of bilateral interest, such as the legal aspects of mutual</td>
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<td></td>
<td>cooperation, the recognition of credits, theses, double master’s and doctoral</td>
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<td></td>
<td>degrees or the implementation of the Bologna structure.</td>
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<td></td>
<td>The centre for the support of virtual education:</td>
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<tr>
<td></td>
<td>3. Provides services, standards and technical arrangements related to virtual or</td>
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<tr>
<td></td>
<td>semi-virtual education.</td>
</tr>
<tr>
<td>Departments of partner</td>
<td>Teaching and development of single courses. Academic supervision of CBU students.</td>
</tr>
<tr>
<td>universities</td>
<td>Realisation of CBU research and industrial projects.</td>
</tr>
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Educational stages such as enrolment or graduation in CBU are too closely related to the particular conditions of concrete study programme to be generalized, but it is obviously necessary to define the content of each stage clearly with all the participating universities.

Like IMPIT, the CBU employs semi-virtual courses in the educational process. The authors of CBU concept (Alaoutinen, S. & Voracek, J., 2003b) specify the following requirements for the applicability of cross-border semi-virtual teaching which is also relevant for cross-university semi-virtual courses:

• A single lecturer must be able to deliver the same course, during the same period, to students in several locations;
• Close personal contacts between students and lecturers are necessary;
• The quality of semi-virtual education must be comparable with that delivered by traditional teaching methods;
• For developing and studying in courses, a standard, standalone personal computer is enough.
• Teachers regularly visit distant students.
• Content production is sub-contracted.
• The quality of course materials and teaching becomes a public issue.

The results achieved in the projects of IMPIT and CBU and conclusions drawn in the reviewed papers served as a platform for the design of our educational prototype.
6. Findings

We believe that innovative educational platform, based on practices of blended learning, can shift the traditionally rigid educational system towards more flexible networking structures. On the basis of the given findings, we designed a prototype of cross-university semi-virtual education. The essential part of the prototype are blended learning courses combining e-learning with the traditional face-to-face contact between teacher and students. The courses are prepared in cooperation between universities participating in the project using the resources and expertise of both affiliated and sub-contracted professionals. Due to structural flexibility, the courses can be tailored for any audience and modified, combined or reused according to instant needs of the educational institutions.

The face-to-face contact is ensured by mobility of the teacher rather than the students, thus reducing expenses and minimizing tensions in students arising from frequent commuting or prolonged stays at partner universities. Using e-learning techniques and mobility of teachers also decrease the numbers of staff demanded. The teacher is properly trained and institutionally supported, equipped with heterogeneous teaching tools to maintain and enhance the quality. At the same time, the teacher is not involved in the technical aspects which are administered by respective experts. The course materials are available to the public to enable feedback and promote relevant expert discussion contributing to the quality level.

The implementation of the courses must be unconditionally supported by all the partner institutions in the form of strategic planning, financing, appropriate legal background, the recognition of credits, technical equipment. Support of the Ministry of Education as the highest authority is necessary. However, realization of the presented concept will require creation of infrastructure enabling the proposed changes to be implemented. Further detailed work on the concept is vital.

Figure 2 - Mind Map
The mind map in Figure 2 presents our conception of blended learning as a core of our educational prototype. Blended learning and e-learning have some of the aspects shown in the mind map in common. As in any educational process, the fundamental participants of e-learning/blended learning are naturally students and teachers whose roles are however modified in accordance with the changes implied by the use of ICT in the process. Another inseparable element is the platform representing the technological equipment and background. The content of e-learning/blended learning course should have a clear internal structure in the classes. The organizational structure covers marketing, management and all kinds of necessary support. What distinguishes blended learning in our prototype are the relations with external partners. Ministry of education exercises the roles of a decision maker on accreditation matters, reviewer and quality control guarantor. Collaboration with other universities on the creation, implementation and evaluation of courses as well as the assessment of the results achieved is of utmost importance in the prototype. The success of the whole system depends to a large extent also on continuous cooperation with industrial and regional partners. The contacts and communication with companies and regional institutions will allow the system to react with flexibility to the needs of the labour market and to support regional development. All the relationships presented in the structure should be explicitly defined to minimize disturbances, bureaucracy and teachers’ and students’ workload.

7. Conclusions

The introduction of semi virtually delivered blended courses to higher education within the cross-university system can solve many problems existing in this sector. Despite the necessary initial workload of all the stakeholders involved and investments into the creation of functional infrastructure, the efforts expended will pay in the course of time.

Although we realize that the informative value of our findings based on papers dedicated to cross-border universities is to a certain extent limited by the fact that the projects concentrated on specific conditions, location and problems addressed, we believe that the conclusions derived from the findings are generally applicable and could well serve as the foundations for further research leading to the creation of a feasible cross-university system suitable for higher education.

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