Computer-based Model for Developing Business Students’ Skills

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Abstract: Computers are playing a major role within the business education nowadays, thus it is reasonable to use them for delivering educational services. The aim of this study is to reveal recent research focused on the use of computers in business education. The paper discloses a computer-based model for developing the critical and creative thinking skills of business students. The findings reported in this study may be helpful for future research in the area of using computers in business education in order to produce new attractive ways of learning, teaching, creating new knowledge and to develop higher education e-strategies.

Key words: business, education, computer-based model, students’ skills, multi-session approach.

1. Introduction
Within the knowledge-based society, developing business students’ skills is a must. Since knowledge is assessed throughout people’s life (lifelong learning), people’s awareness of the need for knowledge should be developed (educated), as well as their skills for the knowledge-based society. Given that information and communication technology plays a major role within the knowledge-based society, it is reasonable to use it for delivering educational services. If students are educated to apply knowledge to knowledge in the process of learning as well as in day-to-day life, then this process will became habitual, and their permanent need for knowledge will be encouraged and developed. In this respect, we have briefly described a proposed and applied computer-based model for developing the critical and creative thinking skills of students, which reflects the interrelation between knowledge, people and networks. This study is the result of some years of authors’ personal experience in teaching Management for Romanian students and using computers in order to develop the skills that students need for their future professional economic and/or managerial activities within the knowledge-based society and economy.

2. Developing students’ skills for the knowledge-based society
Living, learning and working within the knowledge-based society requires specific skills, emphasising on creativity and innovation, as well as on communication and collaboration. Students should be able to demonstrate creative thinking, to construct knowledge as a means of individual or group expression, to use models and simulations to explore complex systems and issues, to interact and collaborate using a variety of digital environments and media in order to support individual learning and contribute to the learning of others [1]. Technologies that support teacher-student and student-student interaction, whether real time or asynchronous, promote and support collaboration and discussion [2]. People have now more diverse and frequent interaction opportunities than they have ever experienced before, due to the development of the Internet and its communication possibilities such as Email, chat, Web discussion forums, etc. [3]. This fact could lead to a better teaching-learning process and also to the creation of new and attractive methods for teaching and learning. Educational process could be improved with communication tools that provide synchronous and asynchronous opportunities for interaction and collaboration. Blogs, podcasts, real time interaction, and virtual worlds could be incorporated in education to create a learning environment that strengthens teaching and motivates learners [2] so as to gain the skills needed within the knowledge-based society.

In the last few years, there has been a growing understanding of the important role of information and communication technologies in education. Various new models of education are evolving in response to the new opportunities [4] that are becoming available by integrating new technologies and computer applications into the
process of teaching and learning. The new educational model is characterized by the interdependence of communicative interaction, new technologies, the development of computer applications, the design of computer-based tasks and focused activity for learners to become critical thinkers and creators of knowledge [5].

Recent educational research from a socio-cognitive perspective has validated students’ collaborative engagement with new technologies and heightened understanding of influential factors shaping the effectiveness of peer interactions, learning contexts and computer interfaces for enhancing learning [5]. All these changes pose considerable challenges for the educators and business trainers who wish to promote literacy skills [6].

One significant pedagogical approach gaining credence through research and classroom practice is students’ collaborative engagement with problem-solving, computer-based tasks for more effective learning [5]. There are some characteristics of the computer applications that contribute to the engagement of the students in the process of learning, such as rules, goals, interaction, outcomes and feedback, problem solving, etc. [6]. Teachers should focus their efforts to ensure that students are given opportunities to work collaboratively with electronic knowledge-creation tools in their learning process to enhance their learning. When students are encouraged to externalise their mental schemas and clearly communicate their understanding of the interconnectedness of ideas verbally and graphically, then student-designers are effectively engaged in productive, reflective, creative practices [5].

Learners growing up and working within the knowledge-based society are far more experienced and able to process information rapidly than were their predecessors within the industrial society. Therefore, they may be bored and lose interest for continuous knowledge (learning) if their capacities are not exploited and properly stimulated in school, in the process of teaching and learning [7]. However, it has been noted [8] that to some extent curricula still tend to contain theoretical knowledge, which dominates practical learning and thus changes the educational practices. In this context, applying a learning-oriented approach is a must. Furthermore, the learning-oriented approach has to consider the cognitive style of the learners within the knowledge-based society. They are intensely using new technologies such as computers, internet, cell phones, simulations and computer games [9]. Moreover, the generation of students within the knowledge-based society find modern technology very useful when they search for things of their own interest [10]. As a result, the traditional teaching methods no longer match the current student’s needs and behaviour. As teachers cannot change students, the best way is to adjust their pedagogical approach to the students and to create new learning environments supported by information and communication technologies [11].

In higher education institutions communication plays an important role in making the difference between them (considering the larger and larger market of the higher education institutions and the strong competition coming from the private universities) [12]. Some recently conducted studies have confirmed that it is very useful to simulate the activities of a company in order to develop students’ competences and skills that they need for their real-life activities [13]. Teachers could integrate into their teaching activity technological tools which promote interaction and critical thinking among students, and seem highly motivating and make learning enjoyable for students. In order to develop critical thinking skills among students it is essential that academic freedom (freedom to think) for students in the classroom to be ensured. The professor has the primary responsibility for maintaining a classroom environment in which students are comfortable giving expression to their views and for assisting students in the development of their critical thinking skills [14].

Using the computer in didactical activity leads to an increase in the learning productivity because the necessary information is faster and accurate obtained, process and sends, by eliminating unnecessary time delay. This way the student receives some information which is inaccessible otherwise: dynamic diagrams, moving images, sounds [15].

3. Computer-based model for developing students’ skills

Having said that, we will further emphasise how can practically be developed the students’ skills for the knowledge-based society by using computers. One multi-session approach we applied with students from the Faculty of Management from the Bucharest Academy of Economic Studies in order to develop their creative problem solving skills and also their critical thinking skills is presented in Table 1. Furthermore, the creative and critical skills teaching and learning model is highlighted in Figures 1 and 2.
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</table>

**SESSION 2: Developing critical thinking skills**

<table>
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<tr>
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<td>2.4</td>
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<td>Argument map</td>
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(Repetitions: SESSION n)

Table 1 Multi-session approach for developing students’ creative and critical thinking skills by using computers

The multi-session approach for developing students’ creative problem solving skills and critical thinking skills can be described as follows:

1. **SESSION 1:**
   1.1. **Problem formulation.** The teacher introduces the subject for discussion to the students, asking them to use their creativity in order to find solutions to the problem. The teacher also explains to the students that it is not important to think if their solutions and ideas are feasible or not, but the important thing is only to generate ideas and solutions. It is an invitation to dreaming, to imagining things, not to reasoning. The teacher gives the specific instructions to the students: first individually (for 2 minutes), then in 4-5 teams (for 5 minutes) they will think about creative solutions.

   1.2. **Problem solution:**

   ...
1.2.1. **Individual thinking.** Each student thinks about the problem and write-down his/her ideas.

1.2.2. **Group thinking.** The 4-5 groups (teams) share and write-down their ideas. In the mean time, the teacher supervises the groups and possibly gives supplementary explanations to help the students.

1.2.3. **Discussion.** The teacher asks the students to tell him/her their ideas for solving the problem and he/she introduces it into the computer. The teacher and the students communicate and cooperate in order to combine ideas in different ways. Also, they choose a single idea which they most like.

1.3. **Conclusions of the session 1.** The teacher will draw conclusions at the end of the activity (will provide feedback about the creativity of the students). This doesn’t mean that the teacher will say something like: “the right answer to this problem is …..”!

1.4. **Further research (homework).** The teacher will ask the students: (1) to consider the ideas generated together, to try to (re)combine them and to send their handouts to her/him by E-mail; (2) to try to find evidence related to the chosen idea; and (3) to share the evidence they found. The teacher will send to the students by E-mail the synthesis of the ideas generated into the classroom, reminding them the chosen idea for next discussion and will try to find evidence related to this idea (Was it discussed before? Are there experiments related to it made? etc.).

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**Fig. 1 Creative and critical skills teaching and learning model (session 1)**

2. **SESSION 2:**

2.1. **Problem formulation.** The teacher reminds to the students what the idea they chose in the previous session was and explains to the students that they will try to analyze it in order to improve their critical thinking skills. This means that they will identify the premises, the arguments and counter-arguments and together
will draw the argument map and will evaluate the logical strengths of arguments.

2.2. **Problem solution:**

2.2.1. **Group activity.** The groups think about the problem and write down their ideas. In the meantime, the teacher supervises the groups and possibly gives supplementary explanations to help the students.

2.2.2. **Discussion.** The teacher asks the students to tell her the premises, arguments and counter-arguments they found and she draws the argument map using for instance “Rationale” software tool. The teacher will discuss with the students about the relevance of the arguments and counter-arguments.

2.3. **Conclusions of the session 2.** The teacher will draw conclusions at the end of the activity (will provide feedback) and will send the argument map to the students by E-mail.

2.4. **Further research (homework).** Argument map refining both by teacher and students and further virtual collaboration for developing new ideas.

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**Fig. 2 Creative and critical skills teaching and learning model (session 2 to session n)**

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**4. Conclusions**

Education (and implicitly educational services) becomes extremely important in the context of the knowledge-based society. Consequently, we have briefly disclosed some of the trends in delivering services identified through research of literature, as well as based on our personal experience in providing educational services. If students are educated to apply knowledge to knowledge in the process of learning as well as in day-to-day life,
then this process will became habitual, and their permanent need for knowledge will be encouraged and developed. In this respect, we have described a computer-based model for developing the critical and creative thinking skills of business students, which reflects the interrelation between knowledge, people and networks. The listings are neither exclusive nor exhaustive and are drawn from our personal experience as teachers of Management. A successful classroom experience can only be attained if both teacher and students work together, and if the teacher acts as a facilitator for the students’ own development.

References: