ONLINE OR BLENDED – COMPARING ONLINE AND BLENDED COURSES

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Abstract

As broadband internet access and LMS technology are rapidly expanding, and ICT is becoming a part of the teacher education curriculum, online learning is growing in all parts of the world in order to open education to everyone. Online collaborative work can bring specialists to every class, connect between students in different countries and from different cultures and adapt learning to the flat world. This research compares blended and online models of teaching in two versions of the same course at a teacher college in Israel. Each learning activity in class in the blended model has become an online activity in the online course. What is the contribution of an online course to students as compared with the contribution of a blended version of the same course? An achievement test, questionnaires, course products, interviews and statistic tools assisted to measure, investigate and estimate the contribution of each model to the development of students' skills, and the advantages and disadvantages of each model. Results indicated that an online course, which uses state-of-the-art ICT and major pedagogical considerations in organizing its online learning activities, has the potential to create meaningful learning.

Introduction

As broadband Internet access and LMS (Learning Management Systems) technology are rapidly expanding, and ICT (Information and Communication Technologies) are becoming a part of the teacher education curriculum, online learning is growing in all parts of the world in order to open education to everyone. National programs are provided in the states and Europe (OECD, 2011) as well as in Israel. The rational is mainly the idea that integrating ICT into teaching and learning will prepare the students to the changing world (Resta & Carroll, 2010; UNESCO, 2009). Those programs promote the integration of technologies in schools on one hand and the training of teachers to integrate ICT in teaching on the other hand, preparing them to the 21st century. Teachers are required to adapt teaching to the changing world in relation to the pedagogical and technological aspects (Goldstein et al., 2012). As part of preparing teacher-students to 21st century skills, online courses are becoming part of the

curriculums. This research examined an online learning course in a teacher education college in Israel and its contribution to the students, as compared with its blended course equivalent.

Literature Review

Transition from the traditional teaching to novel teaching methods requires deep learning in order to develop new knowledge. Mishra and Koehler (2006) defined it as an intersection of content, pedagogical and technological knowledge (the TPaCK model), meaning that educators should acquire not only technological skills but, more important, they need to be familiarized with or invent new teaching methods to implement teaching technologies in their specific subject matters.

The Israel Ministry of Education has been implementing computerized learning in schools since the early 1990s as part of the "Science and Technology" Curriculum. Schools received computers, and new books with learning software were produced. However, the OECD report on PISA scores has previously placed Israeli students under the average score in most ICT skills tests (OECD, 2011). In response to the relatively poor achievement of the students in national scores, the Ministry of Education launched a new program in the 2010-2011 school years to adapt the education system to the 21st century through the use of innovative pedagogy that integrates ICT. This ongoing program aims to equip pupils with the relevant skills for optimum functioning in the 21st century ("21st century skills"). Teaching is adapted to suit the diversity of the students, to break down barriers between the school and the outside world, and to make maximum yet enlightened use of technology to promote the teaching processes at the pedagogical and management levels (Israeli MOE, 2011). This initiative focuses on preparing tomorrow teachers to develop pedagogical innovations and teaching skills and empower them to lead school staff in the future in effective ICT integration in education (Israeli MOE, 2011; Melamed et al., 2010). In addition, student-teachers are required to be trained in online learning because of the need to online teaching in the education system (NACOL, 2007).

Teacher colleges that are preparing teachers for the 21st century should develop pedagogical perceptions, 21st century skills and ICT oriented teaching methods. Teachers who are modelling online teaching and providing learning experiences could influence students' perceptions and attitudes (Cochran-Smith, 2003). Practice in online environments could lead teachers to include pedagogies based on those environments. This is important because of the natural environment in which children are living in today and the image of schools as non-relevant for future life. Nevertheless, online learning is not enough to make the real change in school but it might lead schools to be more relevant for pupils' life (Rotem & Peled, 2010). Using online collaborative work could bring specialists to every class, connect between students in different countries and from different cultures (Shonfeld, Hoter & Ganayem, 2013; Resta & Shonfeld, 2013) and adapt learning to the flat world.

Bonk (2009) describes the availability of education from anywhere at any time with computers and Internet access. New technology-based teaching methods and processes have been

developed and incorporated in active learning processes. Researchers agree that students taking online courses are required to possess self-learning abilities, maturity and high self-discipline, high motivation, the capability of expression and communication in writing, time organization skills, as well as the ability to manage an online learning environment (Trentin, 2002). Furthermore, Cavanaughs et al. (2008) review of the literature pointed to greater improvement in critical thinking, researching, use of computers, independent learning, problem solving, creative thinking, decision-making, and time management skills of online students compared to their counterparts in traditional classroom settings. Unsurprisingly, the online learning environment poses some challenges to student learning as well as numerous benefits. The information revolution effected significant change in life. Broad accessibility increase the use of online learning in various education systems. Online learning is not limited in time and place, enables flexibility and personalization in learning. Nevertheless, it is not easy to integrate it in school and prepare teachers to use ICT in their teaching (Even & Selvi, 2010).

In the past, distance learning used to be through mail, radio and television where all learning activities were asynchronous. Therefore, online learning seems to be asynchronous taking place in LMS systems such as MOODLE. Those serve as a space for managing the materials, the activities and the communication between the teacher and the students asynchronously (Moore & Kearsley, 2012). However, the latest technologies, accessibility to Internet and the wide broadband promote synchronous learning, integrating text, audio and video in online environments such as Skype, Elluminate or Hangout (Roseth, Akcaoglu & Zellner, 2013).

Integration of the different environments enables to suit technology, pedagogy and content to students needs and to the requirements of the teaching and learning settings (Mishra & Koehler, 2006). However, at the design level of the online course it is important to get the right decisions about the structure of the course relating to the desired pedagogy. For example online collaborative pedagogy requires the use of WEB2 tools and etc.

Research done in the last 20 years show no significant difference in achievement tests comparing students grades in online courses and traditional courses. Nevertheless, it is important to distinguish between success of different learners in different teaching methods and in the different styles of teaching and learning. More research is needed to understand the efficacy of online environment to different students (Moore & Kearsley, 2012). Thus, research on online courses and blended courses could contribute to the knowledge of designing online courses, building it and integrating it in the educational system.

Study Context and Subjects

This study compares two models of teaching in two versions of the course "Teaching and Learning in Computerized Environments" in a college of education in Israel. Two groups of undergraduate students participated in the study. They randomly registered to one of the courses according to their study program. In one course (N=18), the model of teaching was online with only one face-to-face meeting, while the rest was online (20 assignments). In the

second course (N=18), the model of teaching was blended, where most of the teaching took place in five face-to-face meetings accompanied with a course site (8 assignments). One of the researchers taught the courses and the other was a partner in planning the course and making decisions relating the strategy and assignments during the courses. Both versions of the course used The Moodle platform as the online environment. The online course was design while assuming a significant difference between the two models of teaching and learning. Each learning activity in the F2F class meeting of the blended model has become an online activity in the online course. For example, watching a movie in class and discussing it turned into an online assignment including online discussion. This strategy enabled the researchers to compare each learning activity that took place in class with its online equivalent.

Research Questions and Hypothesis

What is the contribution of the online course to education students versus the blended course?

Sub-questions:

1. What is the contribution of each model to the training of students to integrate ICT in teaching, as students and as teachers of the future?
2. What is the contribution of each model to the student's perception about the integration of ICT in teaching?
3. What is the contribution of each model to the achievements of the student?

The research hypothesis is that the online and blended models of teaching will have a different effect on the students regarding their achievements, attitudes, self-efficacy enhancement and overall learning experience. Therefore, it is interesting to compare the different models of teaching within the same population of students.

Study Type

This is a mixed-methods study. The research question was investigated using quantitative methods including questionnaires with closed and open questions and an achievement test. However, various qualitative research methods were also included to help understanding the differences between the students' learning models: interviews were conducted with five students from each course (each model). Preliminary findings helped to develop the interviews questionnaire. There was also a qualitative analysis of the products in the courses in order to estimate the contribution of each model to the development of students' skills, and the advantages and disadvantages of each model. Rights of the participants were ensured by anonymous questionnaires and interview data saving names. The data was collected at the end of the course and did not affect the assessment of students.

Procedure

During the course, at the end of each of the five study units, there were two reflection assignments: reflections of what the students thought was the most important thing they learned in that unit, and reflections of their thoughts and feelings toward the course. At the end of the course, the students took the exam and filled two questionnaires: One was an adaptation of the MOFET research network questionnaire (Goldshtein et al, 2012). The other was the standard feedback questionnaire that Kibbutzim College randomly distributes at the end of courses, relating all aspects of the course and the lecturer. In addition, there were interviews with five students from each course.

Preliminary Results

Six variables were defined in the questionnaire and were checked for variability: Teaching process, Contribution of the course to teaching and learning, Contribution of online tools, Self-learning, Satisfaction, Accomplishing learning tasks and Use of technology for teaching and learning. The reliability (Cronbach's Alpha) of the different items in each category in the questionnaire was very high, as presented in Table 1.

Table 1: The reliability of the different items in each category of the questionnaire

Cronbach's Alpha	Number of items in category	The Questionnaire category
0.84	11	Teaching process
0.82	5	Contribution of the course to teaching and learning
0.69	9	Contribution of online tools
0.90	15	Self-learning
0.77	8	Satisfaction
0.72	10	Accomplishing learning tasks
0.75	6	Use of technology for teaching and learning

The college feedback questionnaire showed that the students appreciated both courses and the scores were high in the two models of teaching. In the blended course the overall score was 9.20 (10 was the Max) while in the online course the overall score was a little bit higher, 9.34. In the category of student's contribution to the course, the score of the blended course (9.04) was higher than the score of the online course (8.42) while in relation to their peers' contribution the online score (9.26) was higher than the blended course scores (8.82). The online course students ranked the course organization higher (9.30) as compared to the score in the blended course (9.04).

Analysing the course products and activities showed no differences in activities pattern in individual assignments, while in the collaborative assignments, especially those requiring discussion, there were differences. Only few students participated in class discussions, while in the online course most of the students participated.

Students from the blended course emphasized the ICT tools they learned to use while students from the online course emphasized self-learning, peer teaching and various pedagogical strategies. As one of them wrote: "*It enabled me to take responsibility on learning, to get involved in learning and to put efforts in learning*".

Comparing the results of the seven variables Table 1 shows differences between the two groups. They were not significant, yet they were consistent. The online students scored higher in important parameters: (1) Contribution to learning including the knowledge to choose technology and use it in class for teaching and learning, and the ability to guide other teachers in integrating ICT in teaching. (2) Satisfaction from the methodology and communication in the course. (3) The overall process in the course including the online environment, the teaching method and the assignments in the course. Figure 1 presents the results:
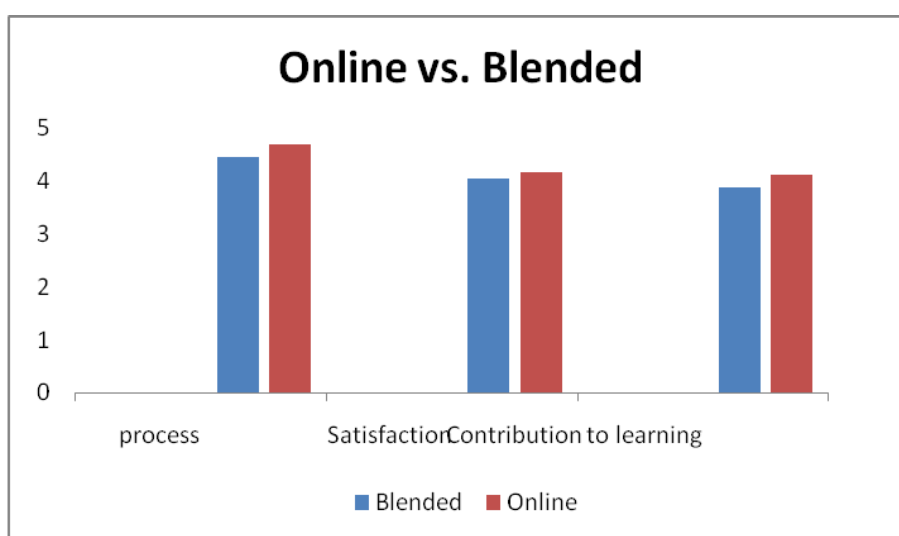

Figure 1. Differences between the scores of online and blended learners in evaluating the course

The open questions showed differences as well. Students from the online course emphasized the new ways to teach and learn. X. From the online course claimed: "*The course opens my mind to more ways to reach students*". Y. from the online course emphasized the self-learning skills and related them to his teaching experience: "*I think the course helped me by letting me experience self- learning in a way that I would like my students to experience too*". V. continued to explain the relevance to his teaching by saying: "*I think I got tools that will help me adjust my teaching to the students' different learning styles*".

Students from the blended course emphasized ICT and online tools: A. related to the tools and said: "*I was contributed by practical tools*". B. claimed that he changed his mind about e-learning as part of teaching but emphasized the tools as well: "*The course has contributed to my understanding that E-learning can and should be incorporated in teaching, and exposed me to online tools for such teaching*". C. explained to relevant to teaching but related as well to the different tools he would use, as he wrote: "*The use of computers (and smartphones) and whatever they offer have helped me and will help me teach in a more suitable way for youth, a way that will make them more involved in the process*". It seems that tools attracted the

students in the blended course more while the online students put more emphasize on the methodology of learning.

Discussion

Differences in students' feedback to the course revealed the capability of online courses to demonstrate various methods of organizing course materials. There were differences in students' perceptions of their contribution to the course. The online students ranked higher the contribution of peer teaching to the course. Peer teaching is one of the recommended methods in training students and teachers in order to expose them to the 21st century skills. Peer review and peer teaching is the second step for collaborative learning (Salmons, 2011) However, it was surprising to find that online course students ranked lower their contribution to the course than the blended course students although the students of the online course dealt with more assignments and worked as self-learners. This is in spite of the assumption that students taking online course can appreciate their self-learning abilities (Leasure, Davis & Thievon, 2000).

Online courses can use unique online tools that have the potential to change pedagogy as was found while comparing each class learning activity to its online equivalent. In class discussions, only few students participated, and all could hear each answer and relate to it, thus students that did not read the discussed article participated in the discussion. Online QA forums (require submitting an answer in order to see and to participate in the discussion) guided each student to post an original answer without seeing any other answers. Only after publishing the post, the student could read others posts and reply some of them. This is possible only in online discussion and cannot happen in class discussion. After all students phrase their thoughts in a relatively short original answer, they compare it to the other opinions and study other points of view and ideas in the forum. This is where meaningful learning can begin. This pedagogical strategy was also achieved by using personal blogs, and after the students posted all personal posts, the blog was switched into common (collaborative) blog, which enable peer-to-peer comments and replies. In this research, the online discussions were wider, richer and more contributing according to students' opinions (and the researchers' indications) than class discussions. This is in light of the literature that describes online learning as catalysis for creative learning and critical thinking (Cavanaugh's et al., 2008). The use of different tools might result in pedagogical biases and those can be found in technologies such as online discussion platforms and other tools (Scardamalia & Bereiter, 2008).

The differences between the two groups were not significant, yet they were consistent. The online students scored higher in all important parameters. It seems that the differences between the groups were not significant for two reasons: one – the groups were small (N=18 each). The other – both groups had similar educational perceptions. This suggests further research with larger and more heterogeneous groups.

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