



## Full length article

## Increasing teacher candidates' ways of interaction and levels of learning through action research in a blended course



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## ABSTRACT

Within the scope of this research, efforts were exerted to increase teacher candidates' interaction ways through action research in a blended teaching profession course in higher education level. Teacher candidates participated in various blended learning activities during a semester-long course, and the problems related to learners' participation in blended learning activities and their interactions during learning process were solved via action decisions. Blended learning activities were developed according to Felder-Silverman Learning Style Model and the lessons learned from previous two pilot studies. In order to conduct the activities; face-to-face and synchronous virtual classroom sessions were combined with asynchronous from discussions and blog. At the beginning of the course, teacher candidates chose activity sets according to learning style model and throughout a semester-long course, they participated in the activities. Throughout the action research process, the ways of interactions between students, students and instructor, and students and the content were examined as well as the levels of learning accomplished by students during the learning process. This study has revealed indicators pointing to an increase both in students' interactions and levels of learning during the blended learning process.

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## 1. Introduction

Online learning environments providing multiple tools contribute positively to face-to-face learning experience and computer-based learning settings (Chorfi & Jemni, 2004) present the content through multifarious materials and applications, and links between learners and instructors are easily established (Gardner & French, 2003). In addition, the fact that technologies developed for online learning are of many kinds, easily accessible, and relatively more affordable explains why online learning is frequently utilized in face-to-face settings within regular education.

How to combine face-to-face and online media used to be a prominent question to address, and this led to the concept of blended learning, which means the cooperation of face-to-face learning processes with learning via info-communication technologies (Akpınar, 2005; Graham, 2006; Littlejohn & Pegler, 2007). Gülbahar (2005) states that simultaneous use of traditional and technology-based instructional approaches in accordance with

their prominent features is highly influential over a great many of teaching-learning processes. Yet, the least functional aspects of face-to-face and online learning settings could also be integrated when caution is not taken during the design of blended learning process (Graham, 2006). Therefore, it is possible to note that there is a need for effective practices offering versatile learning experiences to students by means of blended learning process.

The related literature highlights that effective blended learning models should ensure the learners' interactions. Being an indispensable part of educational processes, interaction has long been regarded as a leading variable for success, retention, enjoyable learning process, and for learning approaches (Anderson, 2006).

How to establish interaction, which is a vital and indispensable component for courses in blended learning, requires first designing blended learning activities that entail interactivity. However, design of such activities does not guarantee a high level of interaction. Learners are supposed to take part in these activities and try hard actualizing three types of interaction, as described by Moore (1989), student-student, student-teacher, and student-content.

The current study reports a blended learning process which mainly focuses on learner's interactions during their participation in blended learning activities. Learners were provided with various online and face-to-face learning activities. Three different online

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learning environments; discussion forums, blog and synchronous virtual classroom were combined with face-to-face learning environment in order to conduct blended learning activities. The blended learning activities were designed according to the Felder-Silverman Learning Style Model (Felder & Silverman, 1988; Felder & Spurlin, 2005) which is one of the most referred model for e-learning environments (Akbulut and Çardak, 2012). However, because the study does not focus on the effect of learning styles and preferences on interaction, the learning style model of Felder-Silverman was taken just as a guide while designing blended learning activities and directing students to these activities. Students had an opportunity of choosing activities according to their preferences. Graham (2006) underlines that what kind of choices students will make within the learning process they are attending should carefully be designed and planned in blended learning. Therefore, according to previous two pilot studies and selected learning style model, blended learning activities were carefully developed for this study.

A semester-long blended course process in the present study was observed and students' explicit participation in blended learning activities of the study and interactions were investigated via macro level analysis on process. Various problems emerged during the learning-teaching process regarding the students' participation and interactions was solved with agreed solutions through participatory action research design.

Moreover, students' interactions were investigated according to Moore (1989) interaction model with in-dept micro level content analysis in order to identify their interaction ways with their peers, instructor and the content of the course. Instead of analyzing the quality of the interactions via respectful interaction analysis models found in the related literature (eg. Garrison, Anderson, & Archer, 2000; Gunawardena, Lowe, & Anderson, 1997; Henri, 1992), students' interaction ways were themed for the current study. Though the quality of interactions has a crucial importance, before enhancing quality, it seems important to pull the learners into the activities and help them interact via different ways such as sharing an experience, approving others, asking questions, answering others' questions, etc. The study was based on the following claim: "if the students' explicit participation in structured blended learning activities which require interactivity and their meaningful interaction ways with other students, the instructor and the content during these learning activities increase, so forth their learning levels might increase". Therefore, though the focus of the study is learners' interactions, their learning levels were examined during the blended learning process. This study reports the results of micro-level analysis both for interaction ways and learning levels.

Students' learning levels were analyzed according to Blooms' Taxonomy of Educational Objectives for the cognitive domain (Bloom, 1956); knowledge, comprehension, application, analysis, synthesis and evaluation. Two different approaches were applied for investigations on learning levels. The first one is using a standardized achievement test developed according to aims and objectives of the blended course on cognitive domain of Bloom's taxonomy. The second one is analyzing the records of online and face-to-face learning environments with micro-level in-dept content analyses to classify learning levels according to Bloom's taxonomy on cognitive domain as in the studies of Meyer, 2005; Schrire, 2004, 2006. Moreover, a statistical test could not have been conducted to understand the significant difference between the interaction ways and learning levels because of mostly qualitative data at hand. Additionally, this study does not provide a significant effect of blended learning process on learners' interactions and learning levels because of the method of the study, action research.

## 2. Theoretical background

Wisely designed learning activities should be required for blended learning in order to achieve the instructional aims and objectives. Moreover, if the blended learning activities require interactivity, high levels of interactions might be enhanced. Enhancing interaction via blended learning activities which require interactivity might increase learning and achievement.

### 2.1. Blended learning environments and activities

It is important to describe what blended learning is prior to explaining blended learning settings and activities. Accordingly, literature hosts a number of various definitions concerning blended learning. The broadest definitions in the literature underlie employing more than one learning situation at a time. Describing blended learning in general sense, Mantyla (2001) states that it refers to merging two or more presentation or teaching methods in order to provide students with content and learning experiences. Rather simpler definitions limit blended learning to combining face-to-face learning processes with learning through information communication technologies (Graham, 2006; Littlejohn & Pegler, 2007; Wilson, 2009). Other definitions relate blended learning to online learning environments. Among them, blended learning is considered to be a joint of face-to-face and online processes (Bender, 2003; Gülbahar, 2009; Ko & Rossen, 2004; Stacey & Gerbic, 2009a).

Applied through third group definitions of blended learning processes, blended learning consists of two basic settings; face-to-face and online. As also stated by Littlejohn and Pegler (2007), such kind of blended learning processes support students to discuss, explore, and cooperate via offering them a variety of learning experiences. Face-to-face learning environments are those that both learners and teachers are used to. What makes blended learning different is the online setting.

With advanced internet technologies, many tools are used to establish synchronous and asynchronous online learning environments. Most often employed examples include e-mail, instant messaging, forum, video conference, weblog (blog), viki, podcast, white board, and virtual class. Learning management systems, on the other hand, can offer all these tools in a pack. Different tools provide different environments, and each learning settings serves as the ground for various learning activities. In this research, online learning tools within blended learning are synchronous virtual class, forum, and blog.

#### 2.1.1. Virtual class

It is any kind of online setting where students and teachers meet for learning activities through computer connection (Ko & Rossen, 2004). Virtual classes generally include several common online opportunities (Hofmann, 2004). Synchronous online settings within virtual classes are chat rooms, audio and video conferences, white board, questionnaires and questions, and screen and application sharing. A majority of in-class activities can easily be conducted in the virtual class by the help of these tools. For instance, discussions, role-plays, case studies, and cooperative learning activities can be organized during synchronous virtual class hours.

#### 2.1.2. Forum

Forums are asynchronous online learning settings that bring teachers and students together, are open all day long, and that support cooperative learning via discussions. In this sense, forums make learning possible anywhere, any situation, and anytime (Dawley, 2007). Learning activities that can be organized on a forum platform may include entries where students can

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