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Student Opinions towards Blended Learning Environment Created According to Individual and Collaborative Study Preferences

Ayşe Bağrıaçık Yılmaz
Gazi University, Turkey
aysebagriacik@gazi.edu.tr

ABSTRACT

The purpose of this study was to examine the opinions of students towards a blended learning environment, which is created according to individual and collaborative learning preferences of students. The study was based on the convergent parallel research design. In accordance with this research, firstly students were assigned to individual and collaborative groups according to their preferences. Learning activities with the same focus were applied to the groups in different ways. After six weeks of implementation process, students' opinions were collected by a questionnaire developed by researcher. The results showed that students' opinions were generally positive about the blended learning environment, and also having education according to their own learning preferences had a positive impact on their opinions. Students also indicated that they would like to take further courses with blended approach. Besides, the positive and negative aspects of implementation were taken part in the study.

Keywords: *Blended learning, students' preferences, collaborative learning, individual learning, Moodle*

INTRODUCTION

Nowadays, the idea of "one size fits all" loses its validity and this is a fact accepted by almost everyone who is interested in education. Education has been showing an alteration from this sight to the individual learning (Sonwalkar, 2005). Today, the students are not the students who are aimed to be educated by existing education system (Prensky, 2001). Today, each student has different learning expectations and has their own learning styles. Hence, being capable to meet the needs of the students is expected from the schools and the teachers. Developing technology is one of the greatest supporters of the teachers in meeting this expectation.

Intelligent systems that are able to adapt to aims, tasks, interests, and other characteristics of the users might be remedy for the negative effects of "one size fits all" approach (Brusilovsky & Maybury, 2002). When the interest and familiarity of the Z generation in technology is considered (Oblinger & Oblinger, 2005), it can be seen that using technology is the right choice to provide personalized learning environments.

Personalized learning environments aim to consider the individual differences of each student. These individual differences may have many characteristics such as learning styles, learning paces, skills, expectations, readiness, experiences, and motivation, etc. (Şahin & Kışla, 2013). It is very important for people who will conduct the teaching process to determine the entry behaviors of the students and design appropriate instruction accordingly (Ocak, 2011).

The awareness of learner needs and preferences in online learning environments is increasing progressively (Zhang & Bonk, 2008). There are many different types of research studies in the literature in this regard. In a study conducted by Kopcha and Sullivan (2008), students were asked to choose one of two controls (learner-control, program-control) in a computer-based instruction setting. Some students were assigned to the group they preferred and the others were assigned to the group they did not prefer. At the end of the process, it was determined that the academic achievements of the students who receive education according to their preferences were higher. In another study, Wang and Wu (2011) developed a ubiquitous-learning system that took into account the characteristics, behaviors, and preferences of the students. As a result of the study it was seen that learning effectiveness increased.

***Correspondence to*:** *Ayse Bağrıaçık Yılmaz, Department of Computer and Instructional Technologies, Gazi Faculty of Education, Gazi University, Ankara, Turkey, E-mail: aysebagriacik@gazi.edu.tr*

According to Sandanayake and Madurapperuma (2009), students' preferences towards the way they received education (distance, face to face), learning time (morning, noon, night time), learning location (university lab, cyber cafe etc.) and the learning activities are different, and this situation affects the learning performance. Another important finding about student preferences was reached by Rhode (2009). Accordingly, students do not give the same importance to interaction types in learning environments (learner-instructor, learner-content, learner-learner). Therefore, it can be said that in online learning environments, not all students give equal value to the student-to-student interaction; thereby, students cannot be expected to give equal value to collaboration.

It should not be forgotten that some students may not want to attend collaborative activities (Chung, 2012) in a learning environment for a variety of reasons, even though collaboration is one of the most important components of constructivist learning environments and one of the skills that 21st century individuals should have (P21, 2015). As Liu, Joy, and Griffiths (2010) pointed out, collaborative activities in learning environments often provide better learning experiences than individual activities, but it should not be ignored that collaborative learning activities may have some problems (Brush, 1997). The fact that the workload is not distributed fairly among the students and free riders who benefit from other group members' achievement negatively affect collaborative efforts of the students (Burdett, 2003; Bykerk-Kauffman, 1995; Shimazoe & Aldrich, 2010).

It can be clearly seen that students' preferences are quite important on learning process and outcomes. Although collaborative learning usually gives positive results, it should be considered that forcing students to attend collaborative learning activities may trigger the "one size fits all" approach. At this point, it will be useful to get the students' opinions in order to make a decision. In this sense, the purpose of this study is to examine the students' views on a blended learning environment created according to students' individual and collaborative learning preferences. In line with this purpose, the following questions will be answered:

1. How satisfied are the students with the learning activities prepared according to their preferences?
2. What do the students think about the effect of implementation on their study performance and comprehension levels?
3. How do students feel in the personalised blended learning environment?
4. Would students like to benefit from blended learning activities in the future?
5. What are the positive aspects of implementation according to students' opinions?
6. What are the negative/weak aspects of implementation according to students' opinions?

METHOD

This section provides information about the research design, study group, data collection process, and implementation process.

Research Design

This research was carried out based on the convergent parallel research design. In the convergent parallel design, complementary data are collected at the same time to understand the research problem deeply. Analysis of the data is carried out separately and the results are combined in the general interpretation (Creswell, 2011).

Study Group

The study group was identified by using convenience-sampling method. Convenience sampling is a sampling method based on time, cost, location availability, or availability of responders. In this sampling method, the convenient condition is selected on the basis of convenience (Merriam, 2013, p.78, Patton, 2014, p.244). Participants were 3rd year undergraduate students who were taking the Distance Learning course. All these students were studying in the Department of Computer and Instructional Technologies Education in Gazi University. 7 students, who had hesitation if they could complete the course successfully, dropped out the course in the middle of the term. Thus, although 32 students were enrolled in the course, 25 students (17 females and 8 males), actively participated to the study (Table 1).

Table 1. Demographic information of the participants

Gender	Individual		Collaborative		Total	
	f	%	*f*	%	*f*	%
Female	11	64.71	6	75	17	68
Male	6	35.29	2	25	8	32
Total	17	68	8	32	25	100

When Table 1 is examined, it can be seen that most of the students (68%) preferred to work individually. In addition, most of the participants were female (68%). It is worth of mentioning that due to all students were studying computer education, they were quite familiar with the information communication technologies, thus there were no technical problems during the implementation period.

Research Process

Before implementation process, the students were observed in the classroom for four weeks by the researcher to determine which preferences of the students should be taken into account. As a result of the observation, it was determined that some students could communicate with other students and express themselves very easily while some of them showed individual behaviors such as listening and watching quietly. As a result of this situation, the question "What if students were assigned to groups according to their characteristics?" was determined as the research question. It was decided that students should be divided into two groups as individual and collaborative. This was done by collecting data from students through a survey created on Google Drive. Two experts who had publications in distance learning were asked to evaluate the survey items, and necessary corrections were made according to expert feedbacks. The survey items are as follows:

1. *How do you define yourself?*
   -introvert
   -extrovert
2. *How do you express yourself in a community?*
   -I can express myself easily.
   -I only talk if I have to, but I would prefer not to.
3. *Which of the following do you prefer if you have to do an assignment?*
   -I would prefer to work in a group.
   -I would prefer to work individually.
4. *Which of the following do you prefer if the instructor asks you a question?*
   -I would like to answer the question by myself.
   -I would like to discuss the question with my fellow students.
5. *How do you behave in learning environments?*
   -I am an active participant.
   -I usually prefer to listen.

Students were assigned to groups after their answers were analyzed individually. Accordingly, students were registered in the Moodle system.

Developing the table of specifications

After determining students' preferences, the process of creating table of specifications started. As it was stated above, there were two groups in this research. Thus, two different table of specifications were developed for each group. As Kılıç-Çakmak and Karataş (2008) pointed out, preparing online courses without determining students' learning styles means to assume that all students will learn in the same way. Table of specifications was highly beneficial while preparing educational activities. The researcher sometimes made some changes on table of specifications based on their observations made during the implementation process and student requests.

Preparing the Moodle system

There were two different course designs in the Moodle system for each group. Students were informed about the course contents, which were the same for both groups but the course structures were slightly different. After students were registered in the Moodle system, they were asked to test the system, thus, possible problems were solved before the implementation process started.

Course content

Course content was determined by consulting course instructor. "Icebreakers in distance education" was selected as the topic because it was compatible with both individual and collaborative learning activities. Activities were mostly based on question-answer, discussion and brainstorming techniques. As previously stated, for individual and collaborative groups, the content was the same but the activities were different. While the students in the individual group sent their answers directly to instructor through the learning management system, the students in the collaborative group answered the questions on discussion board. After the students answered all questions, a content including the correct answer and basic information about the topic was shared with the students. Individual feedback was provided to each student enrolled in the individual group. In the collaborative group, the teacher participated in learning activities as an observer and a facilitator.

Implementation process

Implementation lasted 6 weeks. A face-to-face orientation program was carried out in the first week of implementation. The students were informed about how do they log in and navigate through Moodle system. In the following weeks, teaching process continued, assignments and proper feedbacks were given to students. Throughout these weeks, the researcher observed students behavior in both groups. In the fifth week, students in the individual group interacted with the instructor and other students in the collaborative group interacted with each other. The last week was devoted to evaluation of the implementation process. In this week, instructor and students evaluated the learning process in a face-to-face classroom. After taking the students' verbal comments about the education, they were asked to fill out a questionnaire to evaluate the implementation process. A 9-items questionnaire was shared with the students through Moodle system, and the students filled the questionnaire in the classroom. Only one of the items in the questionnaire had two choice, six of the items were in Likert scale format, and the remaining two were open-ended questions. Students filled the questionnaire voluntarily. In the following section, the data obtained by the questionnaire will be evaluated.

FINDINGS

In this section, students' opinions about the learning environment that was developed according to their individual preferences were evaluated. A total of 25 students participated in the study. 17 of the students were enrolled in the individual group while the others (8 students) were enrolled in the collaborative group. However, 22 students answered the questionnaire. The findings based on the data obtained from 22 students were given below.

1. **How satisfied are the students with the learning activities prepared according to their preferences?**

Students' satisfaction on learning activities was examined based on their opinions and descriptive statistics for both individual and collaborative groups are presented in Table 2.

Table 2. Students' satisfaction on learning activities

Group	***f***	$\overline{X}$	**%**
Individual	15	4.6	92
Collaborative	7	5	100

When Table 2 is examined, it is seen that both individual (92%) and collaborative (100%) groups were quite satisfied with the activities. Besides, it can be said that the satisfaction level of the collaborative group was slightly higher. As it will be seen in the further findings, some of the students who were enrolled in the individual group, expressed their desire to attend the collaborative group. This may have affected satisfaction level of the individual group. It is possible to see studies recognized the importance of interaction between students (Borup, Graham, & Davies, 2013; Cheng, 2013). However, some studies mention the fact that students may have some problems in some aspects of student-student interaction even though it is an important component of learning (Chang & Kang, 2016). For example, Rhode (2009) has found that in online learning settings, students do not give the same value to the discussions they made with other

students and the communications with the instructor. Similarly, Kwon and Cifuents (2007) have found that the students in collaborative group did not like working in a group. In a study conducted by Del Valle and Duffy (2009), before being assigned to self-paced groups students were asked whether they would like to study with their fellow students or not. The authors stated that they didn't want to study with the others who prefer to collaborate with others to not to have difficulty with self-paced learning. In the current study, it was seen that the students' opinions were positive when the groups were determined according to their preferences.

2. What do the students think about the effect of implementation on their study performance and comprehension levels?

Students' opinions about the effect of implementation on their study performance and their comprehension levels were examined under the same heading because these two variables were related to each other. Descriptive statistics of the individual and collaborative group students' study performance and comprehension are given in Table 3 and 4.

Table 3. The effect of the implementation on students' study performance

Group	***f***	$\overline{X}$	**%**
Individual	15	4.3	86
Collaborative	7	4.6	92

Table 4. Then effect of the implementation on students' comprehension

Group	***f***	$\overline{X}$	**%**
Individual	15	4.4	88
Collaborative	7	4.3	86

When Tables 3 and 4 are examined, it can be seen that the students' opinions about the effect of implementation on their study performance and comprehension were positive. Similarly, Uluyol and Karadeniz (2009) have indicated that, learning environments including blended activities increase students' achievement. In a study conducted by Chang and Kang (2016), the successful students stated that the other students slowed them down. Slackers in a collaborative group may negatively affect the group performance (Myers et al., 2008). Thus, it can be said that putting students to the groups which is not proper for them can affect the learning performance and comprehension. However, in a study conducted by Kwon and Cifuents (2007) not significant difference was found between the comprehension levels of individual and collaborative groups. Nonetheless, although the achievement was not measured in the current study, the students stated that the implementation positively affected their comprehension. However, these findings are based on student opinions, more reliable and precise results can be achieved with the studies based on inferential statistics.

3. How do students feel in the personalised blended learning environment?

It was thought that students' emotions in learning environment were important for learning. In this regard, students were asked how they felt in the implementation process. The opinions about feeling comfortable and being able to express themselves easily examined under the same heading because they were related to each other. Descriptive statistics of the individual and collaborative group students' opinions are given in Table 5 and 6.

Table 5. Students' opinions about feeling comfortable

Group	***f***	$\overline{X}$	**%**
Individual	15	4.5	90
Collaborative	7	4.1	82

Table 6. Students' opinions about being able to express themselves easily

Group	***f***	$\overline{X}$	**%**
Individual	15	4.6	92
Collaborative	7	4.1	82

When Tables 5 and 6 are examined, it is seen that the students' opinions about feeling comfortable and being able to express themselves in the provided online learning environment were positive. Lamb and Balaman (2014) have reached a similar result in a different context. According to their study results, students felt more comfortable on the web. Similarly, Karaman, Özen, Yıldırım and Kaban (2009) have pointed out that internet-supported learning environments encouraged

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students to express themselves. However, Kwon and Cifuents (2007) have stated that the students in the individual group were more positively engaged than the students who were in the collaborative group. What was noteworthy in the current study is that the mean scores of the students who are located in the individual group were higher in both aspects (feeling comfortable and being able to express herself/himself). This finding showed that students who cannot express themselves very well in a community and in the classroom were able to do this easily in the asynchronous individualized online learning environment.

4. Would students like to benefit from blended learning activities in the future?

Students were asked whether they would like to benefit from blended learning activities in the future courses. Opinions of the students were analyzed in Table 7.

Table 7. Students' opinions about using blended learning activities in the future courses

Group	*f*	$\overline{X}$	%
Individual	7	4.3	86
Collaborative	4	4.6	92

According to Table 7, students would like to involve blended learning activities in the future. This finding is important in terms of effectiveness of blended learning environments created according to students' learning preferences. Similar results were reached by Uluyol and Karadeniz (2009), Geçer and Dağ (2012) and Poon (2012). According to these studies, students are interested in blended learning and they would like to take blended courses. Owston, York, and Murtha (2013) have found that successful learners' opinions about blended learning were more positive and unsuccessful students cannot cope with blended learning. At this point, it is possible to emphasize the importance of student characteristics and preferences.

5. What are the positive aspects of implementation according to students' opinions?

Qualitative data were collected by open-ended questions in order to support the quantitative data. Also, qualitative data provided deeper insight about the study. When students' answers were examined, it was seen that the positive aspects of the implementation were grouped under the following headings:

• Doing assignments and learning outside of the classroom
• Time and place independence
• Being able to express yourself easily
• Instructor's feedback on assignments
• Having a certain time limit for assignments
• Learner support
• Getting to know other students closer

The following are some quotations from students' reflections:

"... it's more funny because we can do assignments through Moodle at home" (Individual)

"I think I expressed myself more comfortably." (Individual)

"It was nice because you don't have to hand over the assignments, you can forward them through Moodle system. I think another good thing was to be able to get feedback on the assignments. "(Individual)

"Having a certain time limit and feeling free" (Individual)

"Through this activity, I learned different words and new things that I did not know before." (Individual)

"Moodle gave me a lot of time to express my ideas. However, the activities were independent of time and place." (Individual)

"It was good for me to be able to do the assignments within a period of time." (Individual)

"Moodle motivated me to investigate." (Individual)

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"The best aspect was that I could do my assignments at anywhere and anytime, without the time and place limitations. Of course, I have to mention the instructor's feedback. The feedback was quite motivational and incentive. "(Individual) "... our instructor provided as qualified feedback, and this caused us to look forward to following activities. It was very nice that the instructor answered what we wrote. "(Individual)

"We used a similar system in Instructional Design course last year. Both of these courses provided me more clear and understandable learning opportunities. I liked the course contents. I think that this was an excellent learning experience for us."(Individual)

" What I liked the most was that I could see my fellow students' thoughts and ideas about the topic, and this allowed me to be aware of different perspectives." (Collaborative)

"The ice-breaker activity was very funny, I liked it the most :)" (Collaborative)

"This implementation allowed us to know our friends closer." (Collaborative)

"... the implementation was very pleasure because it fostered creative thinking " (Collaborative)

"I could express myself as I wish, so it was the best aspect of the activity..." (Collaborative)

When the students' comments were examined, it can be said that students were generally satisfied with the blended learning activities. The aspects students liked in blended learning environment are compatible with the well-known opportunities of distance education. Kuzu and Balaman (2009) have found that students were more comfortable and more motivated in the web-based learning environment when they were not restricted in time. Similarly, the importance of determining a certain time limit for assignments and providing feedback to students were emphasized by Chickering and Gamson (1987). At this point, it would be beneficial to indicate an observation of the researcher. Three students who were not native speakers of Turkish language participated in this study. One of these students was in the collaborative group and the other two students were in the individual group. Although these students have difficulty expressing themselves in the face-to-face learning environment, they were observed to be more confident in the online environment. Sometimes, these students asked instructor to check the Turkish grammar of their sentences before posting to discussion board. Here, once again, the importance of student characteristics and their preferences in the learning environment can be seen clearly.

6. What are the negative/weak aspects of implementation according to students' opinions?

In order to conduct more effective and efficient implementations in future, students' negative opinions about the blended learning activity were taken. When students' answers were examined, it was seen that the negative/weak aspects of the implementation were grouped under the following headings:

- Necessity of continuous system checking
- The necessity of internet connection
- Being not satisfied with the group
- Time limit
- Possibility of repeating previous answers in the discussion forum

The following are some quotations from students' reflections:

"... you always have to check Moodle system, and the necessity of internet connection is a limitation" (individual)

"... I wish I was in the collaborative group" (Individual)

"... It is a little bit difficult to have a certain time limit for assignments, but I guess there is nothing to do about this." (Individual)

"I wish the Moodle system to let me know an hour before the assignment submission expires :)" (Individual)

"The time given for the assignments was a little short. Unfortunately, sometimes I could not submit my assignment, even though the instructor reminded me again and again. "(Individual)

"There is nothing that bothers me; but due to the time limit, I could not finish one of the assignments on time. "(Collaborative)

"Actually, I would like to be in the collaborative group, because it would be better to see ideas of my friends and different explanations of a term. While filling out the form (the preference form), I pretended as I did not want the group work. It was because I usually have to do the whole work in the group studies. "(Individual)

"I was in trouble when I wrote a late reply. Because when I am late, my answer was very close to the answers posted by my fellow friends." (Collaborative)

When students' opinions were examined, it can be seen that the most frequently mentioned negative aspect was having a time limit for assignments. However, the assignments were quite easy and could be completed in 30 minutes maximum. Besides, the students had 4 to 5 days to complete assignments. Therefore, students' complaints in this regard did not seem realistic. However, this was a normal situation when it is considered each student had different learning styles. Therefore, it is still necessary to set a time limit for each assignment. This necessity was also emphasized by Chickering and Gamson (1987).

Some of the students stated that they have to check the system constantly to follow the assignments. However, the instructor informed the students by e-mail when a new assignment was uploaded; hence, it can be argued that this complaint was aroused from the students' e-mail usage behaviors. Nevertheless, it may be useful to use an assignment/deadline reminder if the learning management system has such a function.

The most remarkable point was that two students studied in the individual group even though they wanted to study in the collaborative group. One of them deliberately gave false answers to the questions, because she/he had previous bad experiences with group work. The fact that some students could have bad experiences with collaborative work was stated by Shimazoe and Aldrich (2010). They recommend identifying learner needs and designing proper instruction to handle with this problem. At this point, it can be said that the answers given by the students while collecting data were extremely important. However, it is clear that when the students' characteristics do not match with the learning activities designed it will be difficult to please them.

CONCLUSION AND RECOMMENDATIONS

In this study, the effects of providing a blended learning environment according to student preferences were investigated. The study was conducted based on mixed model research principles. Firstly, two experimental groups were created. One of them was including collaborative learning activities and the other was based on individual learning activities. After implementation process, students' opinions about the implementation were taken both qualitatively and quantitively.

The results of the study showed that providing a learning environment compatible with student preferences affected the students' opinions positively. Students believed that this implementation had a positive effect on their study performance and comprehension. The students in both groups stated that they felt comfortable and could express themselves easily in the learning environment.

The students also stated that they would like to benefit from blended learning in the future. The students in the collaborative group were more likely to think in this regard than the individual group. According to the students, the positive aspects of the personalised blended learning education were the independence of time and place, the ability to express themselves comfortably, feedback on assignments, the certain time limit, learning support and the ability to get to know the other students more closely. The negative aspects stated by students were the necessity of continuous system checking, the necessity of internet connection, being not satisfied with the group, time limit, and possibility of repeating previous answers in the discussion forum.

The point to be emphasized in the study is not the superiority of collaborative work over individual work or vice versa. It is a fact that both collaborative work and self-paced learning are

important learning methods. Both of these methods have their own advantages and disadvantages. The main question is which method students prefer for their own learning. The conclusion that can be drawn from this study is that students are satisfied with the learning activities when these activities were designed based on their preferences. It should be remembered that there may be students who are not in favour of collaborative learning; hence instructors should consider the individual differences in education.

The results of this study are limited since only the descriptive analysis techniques were used. In other words, the results of the study cannot be generalized to all blended learning environments. Moreover, only one criterion (preferring collaborative or individual activities) was used when study groups were being created. For this reason, it is recommended to consider more student preferences in future studies.

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