



A Review of Studies on Academic Success in Blended Learning Approach in Turkey; A Content Analysis Study

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ABSTRACT

The purpose of this study is to conduct content analysis of studies on the effect of blended learning approach on academic success and determine the trends of these studies. In the study, 51 studies, which were accessed as a full text based on the keyword "blended learning" in higher education academic search engine by using the purposive sampling method, were subjected to content analysis through the Publication Classification Form (PCF). These studies were reviewed in terms of "study subject area, year of publication, research method, sampling method, sample group and size, data collection tools and data analysis methods". Frequency and percentage ratios were used in the analysis of data and the findings are presented in tables. Findings show that studies on blended learning were mostly conducted in 2012. It was found that quantitative research method was preferred more, simple random sampling stood out, primary school students were mostly included in the sample group, and the sample group generally consisted of between 31-100 people in these studies. As a data analysis method, single data analysis method was preferred more and the academic success was frequently addressed as the research subject.

KEYWORDS : Blended learning, instructional activities, academic success, content analysis

Introduction

Education is seen as one of the eternal functions of humanity. For this very reason, education always has a vital function in almost all societies. Education performs this function by conveying intergenerational cultural heritage and ensuring continuity of society (Tozlu, 2003). Effective teaching requires understanding the nature of learning event and characteristics of students in various development stages. In this context, teaching requires planning, implementation and evaluation of external events that support and ensure learning (Aykaç, 2005).

Today, there are computer and web technology applications, many relevant visual and audio equipment and devices and social media networks used in the learning environment. Such developments in the learning environment will have certain effects. Physically developing educational environments will be more attractive for the student and increase the will to attend the lesson. Learning environment is one of the most important factors that affect student's attitude, personality, and learning instinct and speed. For the effectiveness of learning, teaching environment should be organized well and meet the needs of student. A student wants to be in an environment where he likes, feels comfortable, and finds it positive (Koyuncu & Erden, 2011). When learning environment, teaching qualities and teaching service are suitable for the characteristics and development of student, it accelerates the interaction of student with the teaching-learning process. This will facilitate the learning and make it more meaningful and permanent. Through an education that is provided in this context, student finds himself in effectiveness and competency and has increased motivation (Duman, 2008).

Humanity has made many discoveries until the 21st century and is still making. However, humanity realized the importance of integration as well and started creating innovations by integrating processes, results, methods and items. Blended learning is also an innovation that was found as a result of integration of face-to-face learning and distance learning (Uysal, 2016). This learning is defined as a curriculum that is developed tailored in the most suitable way to a certain group at an "average" level by integrating different learning approaches and technologies, activities and events. The term "blending" comes from a new approach that is created by addition of other electronic resources to face-to-face learning. Blended learning curriculum is used by means of different forms of e-learning (Bersin, 2004). Generally, blended learning means any combination of learning delivery methods, including most often face-to-face instruction with asynchronous and/or synchronous computer technologies. Hybrid learning is another term which has been used synonymously with blended learning (So, Brush, 2008). Blended learning focuses on optimizing

achievement of learning objectives by applying the "right" learning technologies to match the "right" personal learning style to transfer the "right" skills to the "right" person at the "right" time (Singh & Reed 2001).

In essence, blended learning expands the range of educational possibilities and encourages educators to re-consider basic assumptions and approaches. The blending of traditional face-to-face and online teaching and learning create the environment where educators can have, concurrently, interaction with independence and effectiveness with efficiency (Garrison, 2009). Blended learning is a hybrid of classroom and on-line learning that includes some of the conveniences of online courses without the complete loss of face-to-face tact (Melton & Bland & Foss, 2009). As is also understood from here, blended learning is a rich combination of learning which includes traditional face-to-face learning environment at the centre with the integration of most powerful qualities of face-to-face learning and web-supported learning in a way to incorporate distance education in an interactive way and at a learning speed that is free and desired by the student.

The first thing that should be decided when designing a blending learning environment is that a part of blended subject should be designed in classroom context and another part should be designed in online format (Usta, 2007). Offering many diversified and large number of tools and equipment is useful for learning but not enough alone. Rather than having many stimulants in the learning environment, use of educational materials at the right time and place gives more effective results (Aykaç, 2005). For this reason, it is the duty of teacher to create the most appropriate blended learning environment. The instructor will be expected to synchronize and use modern tools, equipment and methods concertedly. In short, regardless of how smart the learning environment is, it will not be beneficial if the teacher does not have a command of this technology and use it at an adequate level.

There are many studies which show that student achievement is high and student satisfaction is good in lessons that are taught in blended learning environments. In his study, Dağ (2011) stated that blended learning has positive effects on academic success of students, their motivation on learning and their skills to control self-learning. Akgündüz (2013) reported that blended learning significantly increases success, motivation, attitude and self-learning skills compared with the face-to-face learning. Likewise, Dikmenli (2013) found that blended learning environments and online classroom practices make significant contribution to academic success of students compared with face-to-face learning practices. Pesen (2014) underlined positive

aspects of blending learning environment, such as being able to learn at one's own speed, access to course documents without any limit of time and space, expressing yourself freely, and revising the lesson at any time. Demirkol (2012) found that blended learning environment is more effective and useful in academic success of student compared with traditional learning environment. In their study, Balaman and Tüysüz (2011) stated that academic success, attitudes and motivations of students who study at a blended learning environment are higher and express more positive opinions than students who study at a traditional learning environment.

It is clear that considering technological developments blended learning will be a more preferred learning-teaching approach for educational institutions in the future. From this perspective, it becomes more important to design blended learning-teaching environments in connection with the studies conducted and technological developments in this field (Dağ, 2010). In Turkey, it can be suggested that there are trials of transition to blended learning environment with the Fatih Project, which is considered very important by the Ministry of National Education. In parallel with such developments in Turkey and in the world, it is observed that the importance of blended learning is increasing every passing day. Based on this information, the purpose of this study is to examine the methods and trends of studies on the effect of blended learning model on academic success by means of content analysis, point out missing areas, and present a set of recommendations. In this context, based on basic concepts and approaches related to blended learning, descriptive features and approaches and trends were systematically reviewed in the studies that were conducted between said years.

Method

In this study, content analysis method was used to review the studies conducted on blended learning. A search made with the keyword "blended learning" on the database of Higher Education Council in order to find out the articles and thesis studies as part of the content analysis. The search was limited with the term "academic success". As a result of searches, 25 articles, 19 master's thesis studies and 17 PhD thesis studies were found between 2007-2016. From these studies, 4 master's thesis studies and 3 PhD thesis studies were not accessed since the authors did not give permission. 3 studies out of 25 articles, which were found as a result of searches, were excluded from the study since they did not contain any part that will be reviewed in this study. Therefore, the study was restricted to a total of 51 studies; 22 articles, 15 master's thesis studies and 14 PhD thesis studies.

Data Collection Tool

In this study, the Publication Classification Form (PCF) that was developed by researchers is used as data collection tool. Studies were coded based on their distinguishing features in the PCF form. This form includes type of publication, date of publication, data collection tools, sample group, sampling method, sample size, research model, data analysis method, keywords used, study method and commonly used research topics in the studies. These sections were classified and coded in themselves based on the studies published.

Analysis of Data

In the study, the data that was created by coding the studies was analysed with SPSS 17.0. From among descriptive statistical calculations, frequency and percentage calculations were made in the analysis of data. The results are shown in tables in the findings section.

Findings

This section covers analyses performed on different variables of publications retrieved under the study, and their findings. Accordingly, findings on study topics, date of publication, sample group, sampling method, sample size, data collection tools and data analysis methods of studies reviewed are featured.

Breakdown of Study Topics Reviewed in the Study

Frequency and percentage values were calculated based on research topics that were commonly studied between 2007-2016 in the field of blended learning. The findings are shown in Table 1.

Table 1 shows that studies on blended learning are published mostly in the field of success (n=17). It is followed by studies in the topic of success-student opinion (n=10) and success, motivation and attitude

(n=9). Also, it was observed that studies are published least in the topic of motivation-instructor opinion (n=1) and model development (n=1).

Breakdown of Sample Group in Studies

Breakdown of frequency and percentage values of studies reviewed under the study was calculated by sample group, and findings are shown in Table 2.

Table 1. Frequency and percentage values of research topics frequently used in the studies

Research topics	Frequency (f)	Percentage (%)
Success	17	33.3
Success, motivation	5	9.8
Success, student opinion	10	19.6
Success, motivation, attitude	9	17.6
Motivation, instructor opinion	1	2.0
Survey	3	5.9
Model development	1	2.0
Practical study	3	5.9
Scale development	2	3.9
Total	51	100

The data in Table 2 shows that primary school students are mostly included in the sample group (n=29) in the studies reviewed as part of the study. It is followed by the sample group of university students (n=10), high school students (n=6), other (n=4), and formal education (n=2).

Table 2. Frequency and percentage values of sample groups in the studies

Sample group	Frequency (f)	Percentage (%)
Primary school students	29	56.9
High school students	6	11.8
University students	10	19.6
Non-formal education	2	3.9
Other	4	7.9
Total	51	100.0

Breakdown of Studies by Year of Publication

Frequency and percentage values of breakdown of studies reviewed by year of publication were calculated. The findings are shown in Table 3. The data shows that the highest number of studies on blended learning was conducted in 2012 (n=11), which is followed by 2007 (n=1), 2008 (n=1) and lastly 2016 (n=1). Also, it was found that no study was conducted in 2010.

Table 3. Frequency and percentage values of studies by year of publication

Year of publication	Frequency (f)	Percentage (%)
2007	1	2.0
2008	1	2.0
2009	4	7.8
2011	8	15.7
2012	11	21.6
2013	8	15.7
2014	10	19.6

2015	7	13.7
2016	1	2.0
Total	51	100

Breakdown of Studies by Sampling Method

Frequency and percentage values of breakdown of studies by sampling method in the studies reviewed in relation to blended learning were calculated. Findings are shown in Table 4.

Table 4. Frequency and percentage values of sampling method in the studies

Sampling method	Frequency (f)	Percentage (%)
Simple random sampling	34	66.7
Purposive sampling	9	17.6
Not specified	8	15.7
Total	51	100.0

When the breakdown of sampling method in studies reviewed under the study is examined in Table 4, it is observed that simple random sampling (n=34) is the most preferred method. It is followed by purposive sampling method (n=9). Also, it was found that there are studies where the sampling method is not specified (n=8).

Breakdown of Studies by Sample Size

Frequency and percentage values of breakdown of studies by sample size in the studies reviewed were calculated. The findings are shown in Table 5.

When the frequency and percentage values of sample size of studies are examined in Table 4, it is observed that researchers of studies reviewed mostly prefer a sample size between 31-100 (n=30) in their studies. It was also found that the least preferred sample size is between 501-100 (n=2).

Table 5. Frequency and percentage values of studies by sample size

Sample Size	Frequency (f)	Percentage (%)
Between 5-30	7	13.7
Between 31-100	30	58.8
Between 101-200	8	15.7
Between 201-500	4	7.8
Between 501-1000	2	4.0
Total	51	100.0

Breakdown of Data Collection Tools Used in the Studies

Frequency and percentage values of data collection tools used in the studies reviewed in relation to blended learning were calculated. The findings are shown in Table 6.

The data in Table 6 shows that test-scale form (n=14) is mostly used together as a data collection tool in the studies. Also, it was found that the least used data collection tool is test-interview form (n=1) and test-record form (n=1).

Table 6. Frequency and percentage values of data collection tools used in the studies

Data Collection Tool	Frequency (f)	Percentage (%)
Scale	5	9.8
Questionnaire	2	3.9
Test	5	9.8
Scale, test	17	33.3
Interview	4	7.8
Survey	3	5.9
Questionnaire, interview form, test	8	15.7
Test, scale, interview form	3	5.9

Test, interview form	1	2.0
Test, record	1	2.0
Scale, interview form	2	3.9
Total	51	100

Breakdown of Data Analysis Methods Used in the Studies

Frequency and percentage values of data analysis methods used in the studies reviewed in relation to blended learning were calculated. The findings are shown in Table 7.

Table 7. Frequency and percentage values of data analysis methods used in the studies

Data analysis method	Frequency (f)	Percentage (%)
Single data analysis method	30	58.8
Two different data analysis method	14	27.5
Three different data analysis method	7	16.7
Total	51	100.0

Table 7 shows that researchers who study the field of blended learning mostly use the single data analysis method (n=30). It is followed by two different data analysis method (n=14) and three different data analysis method (n=7).

Breakdown of Studies by Research Methods

Frequency and percentage values of research methods of the studies reviewed under this study were calculated. The findings are shown in Table 8.

Table 8. Breakdown of Studies by Research Methods

Research method	Frequency (f)	Percentage (%)
Quantitative	34	66.7
Qualitative	14	27.5
Quantitative+Qualitative	3	5.8
Total	51	100

Table 8 shows that quantitative research methods (n=34) are mostly preferred in the studies reviewed as part of the study, which is followed by qualitative research methods (n=14). However, it was also observed that there are few studies where quantitative and qualitative methods are used together.

Discussion

In this study, the effect of blended learning on academic success was reviewed and their trends were determined in studies conducted between 2007-2016 based on various variables, such as frequently used research topics, year of publication, sample group, sampling method and size, data collection tools used, and data analysis methods. Findings obtained on the research questions were discussed one by one and recommendations were presented accordingly.

It was found that in many studies conducted in Turkey on blended learning the student success is examined and the success of students in lessons that are taught with this method is higher than the students in lessons that are taught with traditional teaching method (Akğündüz, 2013; Ceylan, 2015; Çiftçi & Dönmez, 2015; Sarıtepeci & Çakır, 2015; Usta & Mahiroğlu, 2008). In the studies reviewed under this study, the most frequently used blended learning topic is student success. Accordingly, it is understood that in future studies the importance should be attached to studies that examine blended learning capabilities of individuals and their willing to use such capabilities as well as attitude and motivation of students and teachers towards this learning method.

In his content analysis study on blended learning environments, Dağ (2011) found that studies were done in the relevant field mostly between 2006-2010. The information we obtained from this study shows that the studies on blended learning had increased gradually until 2011 and reached its peak in 2012. This finding coincides with the finding of study conducted by Hebecci (2015), where the trends

of studies on blended learning were examined with the content analysis method. The finding that no study was conducted in 2010 is another interesting point.

In some studies where the effect of blended learning on academic success of students is examined, it is observed that primary school students are mostly included in the sample group (Çiftçi & Dönmez, 2015; Sarıtepeci & Çakır, 2015). It was found that primary school students are mostly included in the sample group in the studies reviewed as part of the study. However, another interesting point is that individuals who study non-formal education are least included in the sample group. Since blended learning model is an educational model that can be used by individuals from all education levels, it is important to conduct a study on individuals from all education levels rather than focusing on the same sample group. Therefore, for future studies it could be recommended that the study include individuals from all education levels when selecting the sample group.

In the simple random sampling method, the power of sample to represent the population is high (Büyükoztürk, Çakmak, Akgün, Karadeniz & Demirel, 2016). In the studies reviewed under this study, it was found that simple random sampling is the most preferred method. It was also determined that Dikmenli and Ünalı (2013) and Yapıcı and Akbayın (2013) used simple random sampling method in their studies. These results support our research findings. Likewise, findings of study show that researchers mostly prefer purposive sampling method after simple random sampling method. Also, the number of studies where sampling method is not specified is very few. This reveals how important it is to specify the sampling method in studies that examine the effect of blended learning on academic success. Also, it is observed that reaching a sufficient sample size depending on research topic and purpose in qualitative researches is among the important factors. In this study, we found that researchers mostly prefer a sample size between 31-100. The result of studies conducted by Döş (2014) and Dikmenli (2013) is parallel with the finding of our study. Likewise, it was found in this study that the least sample size preferred by researchers is between 501-100. Büyükoztürk et al. (2016) states that the sample should be selected as big as possible to increase its power to represent the population.

In this study, it was found that researchers mostly use test-scale form together as a data collection tool. Studies conducted by Usta (2007) and Bağcı (2012) support this finding. Also, it was determined that the least used data collection tool is test-interview form and test-record form. This finding shows that it is important to use multiple tools in studies conducted on blended learning, such as "test-scale form" rather than using a single data collection tool. It also indicates that the use of two or three data collection tools together by researchers in their studies on blended learning could be an important factor in reaching more valid and reliable results and explaining the relations between variables better.

Also, this study reveals that researchers who study the field of blended learning mostly use the single data analysis method. The number of data analysis methods used in studies conducted by Balaman (2016), Sarıtepeci and Çakır (2015) supports this finding as well. Also, this study found that there are studies where two different data analysis method and three different data analysis method are used after single analysis method. Moreover, it was observed that quantitative research methods are mostly preferred in studies that are conducted on blended learning. Usta and Mahiroğlu (2008) used quasi-experimental design in their study where the effect of blended learning on academic success and learning satisfaction in students of classroom teaching department is examined. Also, it was found that Öner, Yıldırım and Bars (2014) used quasi-experimental design in their study where the effect of blended learning approach on student success in math class is examined.

With the use of modern educational technologies in today's educational environments, many studies have been done in the field of blended learning. The literature review shows that there are just two studies which review the blended learning studies as a whole (Batdı, 2014; Hebebcı & Usta, 2015). In this respect, our review is important in terms of covering and evaluating blended learning studies conducted in Turkey as a whole, discussing their result and serving as a guide for future studies.

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