FACTORS AFFECTING TEAM BASED LEARNING IN A BLENDED COURSE

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Abstract

In face-to-face, online and/or blended settings, there are many factors affecting team outcomes including communication, listening, trust, roles, managing stress, social skills, common mistakes, motivation, and so on The main goal of the study is to explore various factors that affect team-based learning in an online learning environment. Factors taken into consideration in this study were specialization, credibility, coordination, group harmony, group atmosphere, and cognitive absorption level. Sixty pre-service teachers majoring in early childhood education from an undergraduate blended course participated in this study. During the semester, some assignments were completed within groups, some were completed between groups. At the end of each assignment, students were asked to fill out questionnaires about their groups – transactive memory systems, group atmoshpere and group harmony. The data used in this paper was obtained after students completed asynchronous discussions through Facebook. The data was obtained via four questionnaires administered throughout Fall 2012: cognitive absorption scale, group harmony, group atmosphere, and a field measure of transactive memory systems. The questionnaires were translated into Turkish and reliability checks were completed in other studies. Data analysis was conducted using correlations and multiple linear regression techniques. Results indicated that participants' cognitive absorption to Facebook was not related to their postings. Also, group harmony was significantly associated with participants' transactive memory.

Keywords

Blended learning, Social media, Team-work, Team based learning.

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KARMA EĞİTİM ORTAMLARINDA TAKIM ÇALIŞMASINI ETKİLEYEN FAKTÖRLER

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Özet

Yüzyüze, online ya da karma eğitim ortamlarında, takım çalışmasını etkileyen birçok faktör bulunmaktadır. Bu faktörlerin bazıları iletişim, dinleme, güven, roller, stresi kontrol edebilme, sosyal beceriler, genel hatalar ve motivasyondur. Bu çalışmanın amacı karma eğitim ortamında takım çalışmasını etkileyen faktörleri araştırmaktır. Bu çalışma kapsamında göz önüne alınan faktörler: uzmanlık, güvenilirlik, koordinasyon, grup uyumu, grup atosferi ve bilişsel kapılmaseviyesidir. Bu çalışmaya okul öncesi öğretmenliği bölümünde eğitim görmekte olan 60 öğretmen adayı katılmıştır. Dönem boyunca bazı etkinlikler grup içi bazılarıda gruplar arası tamamlanmıştır. Türkçe'ye uyarlanmış ve geçerlik-ggvenirlik çalışmaları diğer araştırmacılar tarafından yapılmış olan dört ayrı ölçek veri toplanması amacı ile kullanılmıştır. Bu ölçekler Bilişsel kapılma ölçeği, grup uyumu ölçeği ve grup atmosferi ölçeği ve geçişken bellek ölçeğidir. Her bir grup çalışmasından sonra katılımcıların bu ölçekleri doldurmaları istenmiştir. Bu çalışmada özellikle online ortamda tamamlanan grup çalışmalarından elde edilen veriler kullanılmıştır. Elde edilen veriler temizlendikten sonra korelasyon ve çoklu doğrusal regresyon yöntemleri kullanılarak analizler yapılmıştır. Elde edilen sonuçlar götermiştir ki, katılımcıların sosyal medyaya yönelik bilişsel kapılma oranı, sosyal medyadaki paylaşım yapma oranlarını etkilememektedir. Ayrıca, grup uyumu ile geçişken bellek ölçeklerinden elde edilen verilerin anlamlı olarak birbiri ile ilişkili olduğu ortaya çıkmıştır.

Anahtar Sözcükler

Karma eğitim, Sosyal medya, Takım çalışması, Takım temelli öğrenme.

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INTRODUCTION

As an instructional strategy, team based learning (TBL) uses group of learners to promote active and effective learning. There are many benefits of TBL. Specifically, TBL settings encourages its members to productively interact with each other to negotiate meaning, to share knowledge, and to reach consensus if necessary (Cortez, Nussbaum, Woywood,& Aravena, 2008; Nussbaum et al., 2009). In addition, according to Fink (2002) and Michaelsen and Sweet (2008), TBL does not just increase the quality of performance that team showed comparing to individual performance, individual learning is greater comparing with individuals learning on their own. Now, the question is whether TBL need to be used only in face-to-face settings. The answer is no without any doubts.

The rapid development in technologies has influenced the ways of teaching and learning. One way is to use of social media sites (SMS) for teaching and learning. Specifically, in Turkey alone, the number of people who have Facebook account is about 32 million and among those people, 42 percent of them are between the age of 18 and 24. Also, there are almost 13 million Turkish people who have Twitter account and 200 thousand Turkish people have @Blogger account. Considering these numbers, use of Facebook or other SMS in education need to be, and actually is, a promising field for educators. In some studies (i.e., Figl, Motschnig-Pitrik & Derntl, 2006; Gomez, Wu & Passerini, 2010; Palsolé & Awalt, 2008) TBL has been implemented in blended learning environments where learning takes place both in face-to-face and online settings and those studies have a common result: success of TBL adaptation with learner satisfaction. However, in face-to-face, online and/or blended settings, there are many factors affecting team outcomes including communication, listening, trust, roles, managing stress, social skills, common mistakes, motivation, and so on (Johnson et al., 2010). In addition, group atmosphere and group harmony are considered two other factors that affect team outcomes (Burke, Aytes & Chidambaram, 2001; Williams, Duray &Reddy, 2006).

In this study, the main goal is to explore various factors that affect team-based learning in a bended learning environment. Factors taken into consideration in this study were specialization, credibility, coordination, group harmony, group atmosphere, and cognitive absorption level. Since the analyses are still in process, the preliminary analysis results are shared in this paper.

METHOD

Participants

The study was conducted at a government university that is located in the east side of Turkey. A total of 60 early childhood teacher candidates participated in the study. All of them were full time students. There were 11 male and 49 female participants who were between 19 and 23 years old. Among the participants, 4 of them did not a Facebook account. Although at the beginning of the semester they obtained their account and completed all tasks, they were unable to fill out the cognitive absorption scale; thus, they were not included in any of the analysis.

Procedures

The data was being collected as a part of course entitled Science Education in Early Childhood and data collection is still in progress. The course was given at the fall semester of the third year. At the beginning of the semester, a Facebook group page (FGP) was created by the instructor and all students were invited to the group. All announcements about the course were/are given through FGP.

The course content, assignments, and the resources were introduced to the juniors in the first week of the semester. Also, two questionnaires were filled by students about their expectations from the course and their cognitive absorption to Facebook. Then, they were asked to make a group of three or four. There were total of 19 groups – 16 groups with three people and 3 groups with four people. Two groups were consisted of males, four groups were mixed, and the rest were consisted of females.

At the beginning of the semester, some assignments were completed within groups, some were completed between groups. At the end of each assignment, students were/are asked to fill out questionnaires about their groups – transactive memory systems, group atmosphere and group harmony. The data used in this paper was obtained after students completed asynchronous discussions through Facebook.

Instruments

The data used in this study was obtained from four instruments: Cognitive Absorption Scale (CAS), a field measure of transactive memory systems, group harmony questionnaire, and group atmosphere questionnaire. The first instrument, Cognitive Absorption Scale (CAS), was developed by Agarwal and Karahanna (2000). It was translated into Turkish by Koçak-Usluel and Kurt-Vural in 2009. Although the instrument measures participants' cognitive absorption to web, for this study the term "web" in the instrument was

replaced with "Facebook." The instrument consists of four factors: time, curiosity, pleasure, and focusing of attention. The Cronbach Alpha values were 0.88, 0.90, 0.90, and 0.82, respectively. A field measure of transactive memory systems (TMS) were developed by Lewis (2003). It was translated into Turkish by Alsancak (2010). The measure has three factors: specialization, credibility, and coordination with Cronbach Alpha reliability coefficients values of 0.70, 0.79, and 0.87 respectively. The group harmony questionnaire was developed by Price and Mueller (1986) and translation was completed by Alsancak in 2010. The reliability score for this instrument is 0.92. The last instrument is the group atmosphere questionnaire developed by Fiedler (1967) and Alsancak (2010) translated it into Turkish. The Cronbach Alpha value is 0.93. Since the instruments were tested for reliability and their reliability coefficients reported were high, they were accepted as reliable instruments. In addition to the data obtained from those questionnaires, the total number of participants' comments in asynchronous discussions was calculated.

RESULTS

The descriptive results about each survey are given in Table 1 and Table 2. As seen from the Table 1, the group members reported that their group specialization and coordination and the trust that they feel to the other group members were high. In addition, in terms of group harmony score and group atmosphere score were above the average.

Table 1. Descriptive statistics of three instruments

	Expected				Observed			
	N	$\bar{X}$	Min	Max	$\bar{X}$	Min	Max	SD
TMS								
CAS Specialization	56	9	3	15	9.84	6	14	2.01
CAS Credibility	56	12	4	20	15.65	7	20	3.07
CAS Coordination	56	15	5	25	19.29	9	25	3.72
Group harmony								
	56	15	5	25	19.57	8	25	3.77
Group atmoshpere								
	56	18	6	30	24.16	8	30	4.98

Table 2 shows the descriptive statistics for cognitive absorption scale. According to the results, students reported that their cognitive absorption to Facebook is at moderate level.

Table 2. Descriptive statistics for Cognitive Absorption Scale

Cognitive Absorption Scale	N	$\bar{X}$	SD
Time	56	3.02	1.21
Curiosity	56	2.78	0.92
Pleasure	56	2.87	0.83
Focusing of attention	56	3.07	1.03

One assignment of the course was related to the asynchronous discussions. The main goal of this assignment was to encourage teacher candidates to share their pedagogical and content knowledge to each other and to provide solutions to their problems posted by the other group members. In order to get a common measurement scale representing teacher candidates' posts, related variable was divided into four groups representing low, low-medium, medium-high, and high exposure. Thus, the scores of this variable ranged from one to four. While a score of one represents low participation, a score of four refers to high participation into the discussion. As seen in Table 3, while some participants did not post any comments, there are some others who had as many as 27 posts.

Table 3. Descriptive statistics for teacher candidates' posts

	N	$\bar{X}$	Min	Max	SD
Number of posts	56	9.25	0	27	7.01
Low participation	14	2.07	0	3	.92
Low/Medium participation	12	5.5	4	7	1.24
Medium/High participation	15	9.2	8	12	1.37
High participation	15	19	13	27	4.88

Table 4 shows the correlations between individual transactive memory system scores and group harmony, group atmosphere, and posting level. The test results showed positive, high and significant correlation between the TMS scores and group harmony scores and group atmosphere scores. However, there is no significant correlation between posting level and TMS and its subscales. In addition, negative but not significant correlation was found between cognitive absorption scores and TMS scores.

Table 4. Correlation results

	N	TMS Specilization	TMS Credibility	TMS Coordination	TMS Total score
Group harmony	56	.356*	.543*	.611*	.679*
Group atmosphere	56	.491*	.482*	.432*	.594*
Posting level	56	-.016	.161	.099	.121
CAS	56	-.123	-.181	-.031	-.134

* $p<.01$

For further analysis, basic linear regression model with stepwise option was applied to test whether group harmony, group atmosphere and/or number of posting explained a significant amount of variance in individual transactive memory. The results showed that only one independent variable (group harmony) explained a significant amount of variance in participants' transactive memory score, $R^2 = .461$, adjusted $R^2 = .451$, $F(1, 55) = 46.202$, $p = .000$. In other words, 46.1% of the variance was explained by this variable.

In addition, basic linear regression model with stepwise option were applied to test whether group harmony, group atmosphere, transactive memory, and cognitive absorption explained a significant amount of variance in number of posting. None of the independent variables entered the equation.

DISCUSSION AND CONCLUSION

Team-based learning in educational settings – face-to-face, online or blended– has the potential to help students improve various skills including communication skills, interaction skills, problem solving skills, and critical thinking skills (Michaelsen & Sweet, 2008; Smart & Csapo, 2003). There exist studies that focus on factors affecting team outcomes. Similarly, in this study, possible relationship among participants' transactive memory, group harmony, group atmosphere, cognitive absorption level, and participation level were investigated in a blended learning environment – face-to face and Facebook as a social media. Although huge amount of data was and is still being collected, in this paper, a small portion of data was used.

The results showed that during the completion of online assessment as a group, students were satisfied with their team in terms of their specialization, credibility, and coordination skills. In addition, team members were happy with their group harmony and group atmosphere. One possible explanation of such result is that participants were allowed to make their own groups. In other words, participants had the option to choose with whom they preferred to work. Also, another explanation is the limit in the number of the people in each group, which helped team members to know each other better and which did not allow some team members to bear the burden of the work load while completing the tasks. In the literature, various categories including team-related knowledge, skill, attitude, dynamicity, and environment, were strongly correlated to team performance in online and face-to-face environment (see Lee & Johnson, 2008; Mathieu et al., 2000). In this blended learning course, participants' transactive memory score, group harmony, and group atmosphere have been tracked down over time. Further analyses will be run to determine any changes – significant or not – in order to find out the influences affecting them.

The results also showed that participants' cognitive absorption level while using Facebook was at moderate level and this absorption level did not affect their online postings. One critical point is that there was a considerable range in the number of posting. While two students never posted, other participants submit their thoughts as much as 27 times. Differential usage could have been due to differences in motivation and interest in the activity, but usage could also have been related to how comfortable participants felt with technology or specifically with Facebook. Significant research is needed to ensure that all teacher candidates benefit from online resources as much as others who have more technological skills.

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GENIŞ ÖZET

Takım çalışmasının başarılı olabilmesi tüm takım elemanlarının çalışmaya aktif olarak katılması sonucu gerçekleşir. Ancak bireylerin çalışmalara aktif olarak katılımını etkileyen bazı faktörler olduğu bilinmektedir. Bunlardan bazıları şunlardır: takımla ilgili durumlar, beceriler, tutumlar, grup dinamiği ve çevresel faktörler (Lee & Johnson, 2008; Mathieu et al., 2000). Bu çalışmada ise bu faktörler içerisinden grup uyumu, grup atmosferi, geçişken bellek durumları ve bilişsel kapılma seviyelerinin takım çalışmasına etkisi araştırılmıştır. Bu bağlamda okul öncesi öğretmenliği bölümünde okuyan 60 öğretmen adayı ile birlikte bu çalışma gerçekleştirilmiştir. Tüm katılımcılar gönüllü olarak bu çalışmaya dahil olmuştur.

Verilerin toplanması için dört ölçek kullanılmıştır. Bunlar Geçişken Bellek Ölçeği, Bilişsel Kapılma Ölçeği, Grup Uyumu Ölçeği ve Grup Atmosferi Ölçeği'dir. Geçişken Bellek Ölçeği (GBÖ) üç faktörden oluşmaktadır: uzmanlık, güven ve koordinasyon. Diğer taraftan, Bilişsel Kapılma Ölçeği (BKÖ) ise üç boyuttan oluşmaktadır: merak, zevk ve ilginin odaklanması.

Yapılan analizler sonucunda grup uzmanlıkları, koordinasyon ve grup elemanlarının birbirlerine duydukları güven bakımından sonuçların ortalamanın üzerinde olduğu görülmüştür. Ayrıca, grup uyumu ve atmosferi sonuçları da yüksek çıkmıştır. Bunlarla beraber, katılımcıların sosyal medyaya kapılma seviyelerinin de orta seviyede olduğu tespit edilmiştir.

Analizlerin detaylandırılması adına katılımcıların araştırma süresince sosyal medyada yaptıkları paylaşımlar tespit edilmiş ve katılımcılar yaptıkları paylaşımlara göre dört ayrı gruba ayrılmıştır: düşük seviyede katılanlar, düşük/orta seviyede katılanlar, orta/yüksek seviyede katılanlar ve yüksek seviyede katılanlar. Grup uyumunun, grup atmosferinin, bilişsel kapılma durumlarının ve paylaşım seviyelerinin geçişken bellek ile olan korelasyonlarına bakıldığında grup uyumu ve grup atmosferinin geçişken bellek boyutları ile anlamlı olarak ilişkili olduğu, yaptıkları paylaşım seviyelerinin ve bilişsel kapılma durumlarının ise ilişkili olmadığı tespit edilmiştir.

Ayrıca grup uyumu, grup atmosferi ve paylaşım seviyelerinin geçişken bellek seviyelerini ne kadar açıkladığına bakmak amacı ile stepwise opsiyonu kullanılarak regresyon analizi yapılmıştır. Analiz sonuçlarına göre sadece grup uyumunun geçişken bellek üzerinde %46.1 oranında etkili olduğu tespit edilmiştir ($R^2 = .461$, $F\ (1, 55) = 46.202$, $p = .000$). Diğerlerinin ise anlamlı olarak açıklamadığı görülmüştür.

Bu çalışma ile takım çalışmasını etkileyen çeşitli faktörler irdelenmiştir. Grup uyumu ve grup atmosferinin yüksek çıkma sebepleri araştırıldığında bunlardan bir tanesinin grup kurmaları için ders hocasının katılımcılara izin vermesi olarak açıklanabilir. Bir başka deyişle katılımcılara anlaşabilecekleri kişilerle takım

kurmalarına izin verilmiştir. Bu da grup uyumunun ve grup atmosferinin yüksek seviyede çıkmasına sebep olmuş olabilir. Bir başka sebep ise takımdaki eleman sayısı olabilir. Bu çalışma kapsamında oluşturulan gruplar dört ya da beş kişilik gruplar oluşturmuştur. Kalabalık olmayan bu gruplarda grup içi etkileşim daha fazla olmuş ve bu durumda grup uyumu ve atmosferine yansımış olabilir. Bu durumun netleşebilmesi için gruplar içindeki etkileşim daha kapsamlı bir şekilde araştırılmalıdır.

Bir başka önemli bulgu ise katılımcıların paylaşım sayıları ile ilgilidir. İki öğrenci hiç paylaşım yapmazken, diğerleri 27 paylaşıma kadar çıkmışlardır. Kullanımdaki bu farklılık katılımcıların motivasyonu ile ilgili olabilirken, teknoloji kullanımı ile ilgili genel tutumları ile ilgilide olabilir. Bu durumun sebepleri ve takım çalışmasına olan etkileri ileride yapılacak çalışmalar için bir araştırma konusu olabilir.

YAZAR HAKKINDA

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