

Probleme Dayalı Öğrenme Yaklaşımının Öğrencilerin Bloom Taksonomisi'nin Bilişsel Alan Alt ve Üst Düzey Akademik Başarılarına Etkisi
The Effect of Problem Based Learning Approach to the Students' High Level and Sub-Level Academic Success In Cognitive Domain of Bloom's Taxonomy
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EXTENDED SUMMARY

Purpose

Constructivist Learning Approach reveals critical thinking, questioning, problem solving and entrepreneurship of an individual (Brooks and Brooks, 1993). In the teaching methods based on this approach, student should be active and teacher should lead this to happen. Problem Based Learning is one of the learning methods that is based on Constructivist Learning Approach and encourages students to involve learning process actively. Many national and international studies emphasize that Problem Based Learning Approach used in Science teaching, increases academic success of students (Ayaz, 2015; Ayaz ve Ayaz, 2015; Strang, 2014; Tarhan ve Sesen, 2012; Şahin, 2011; Yıldırım, 2011; Demirel ve Arslan-Turan, 2010; Tüysüz, Tatar ve Kuşdemir, 2010; Williams, Woodward, Symons ve Davies, 2010; Severiens ve Schmidt, 2009; Uluçınar-Sağır, Yalçın-Çelik ve Öner-Armağan, 2009; Uluyol, 2009). Tosun and Taşkesengil (2011) stated that both sub-level and high level questions in cognitive domain should be included in tests to determine the students' real success. At this point, one can rarely see the studies that analyse high level and sub-level academic success in Cognitive Domain of Bloom's Taxonomy (Şahin, 2011; Bilgin, Şenocak ve Sözbilir, 2009; Şahin ve Parim, 2002).

The purpose of this study is to find out the effect of Problem Based Learning Approach and traditional teacher-centered method to the students' sub-level, high level and total academic successes in Cognitive Domain of Bloom's Taxonomy.

Method

We used quantitative method in our research. In different settings, it is suitable to use quasi-experimental design (McMillan and Schumacher, 2006). Therefore, the research was carried out according to the quasi-experimental design. A suitable sample method was used to determine sample. Suitable sample method in which researcher used to gather data by choosing a sample from an accessible environment (Büyüköztürk et al., 2009). For this purpose, the sample of the study should be carried out in researcher's own school. The research was carried out in a government school in Eskişehir in 2015/2016 Education year first term with 54 students of two different class. One of the classes is determined as Problem Based Learning (PBLG) (N=27) in which Problem Based Learning Approach applied and the other is determined as control Group (CG)(N=27) in which traditional teacher-centered method applied. Data was gathered by using Academic Success Test Appropriate to Bloom's Taxonomy (ASTABT) as pre-test and post-test and problems to use during application. Data gathered from research, analysed by means of independent groups T-test.

Results and Discussion

It appears that Problem Based Learning is more effective to the sub-level academic success in Cognitive Domain of Bloom's Taxonomy than traditional teacher-centered method. Sub-level step in Cognitive Domain of Bloom's Taxonomy involves knowledge, comprehension and practice. In terms of knowledge and practice, Problem Based Learning Approach is more effective than teacher centered method for the academic success. It is clear that there is no positive effect of Problem Based Learning Approach and teacher-centered method to the students' academic success in the comprehension steps of Cognitive Domain. But it is clear that Problem Based Learning Approach students' academic success average in the comprehension steps of Cognitive Domain is higher than traditional teacher-centered method students'. It could be said that Problem Based Learning Approach affects positively to the students' academic success in the comprehension steps of Cognitive Domain rather than traditional teacher-centered method.

It appears that Problem Based Learning Approach is more effective to the high-level academic success in Cognitive Domain of Bloom's Taxonomy than traditional teacher-centered method. High level step of Cognitive Domain contains analysis, synthesis and evaluation steps. In terms of analysis, synthesis and

evaluation, Problem Based Learning Approach is more effective than teacher centered method for the academic success. This result is in compliance with similar studies that states Problem Based Learning Approach has positive on academic success (Şahin, 2011; Bilgin, Şenocak ve Sözbilir, 2009; Şahin ve Parim, 2002).

It could be said that Problem Based Learning Approach affects positively to the students' academic success in test total rather than traditional teacher-centered method. This result is in compliance with similar studies that states Problem Based Learning Approach has positive on academic success (Ayaz, 2015; Ayaz and Ayaz, 2015; Strang, 2014; Çınar and İlik, 2013; Tarhan and Sesen, 2012; Gürlen, 2011; Şahin, 2011; Yıldırım, 2011; Demirel and Arslan-Turan, 2010; Tüysüz, Tatar and Kuşdemir, 2010; Williams, Woodward, Symons and Davies, 2010; Severiens and Schmidt, 2009; Uluçınar-Sağır, Yalçın-Çelik and Öner-Armağan, 2009; Uluyol, 2009).

As a result, it could be stated that Problem Based Learning Approach affects students' sub level and high level academic success in Cognitive Domain of Bloom's Taxonomy and total academic success.