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Nesibe Aydın Eğitim Kurumları tarafından yayımlanan *Eğitim ve Gelecek Dergisi* on üçüncü sayısında sizinle buluşuyor. Dergimizin on üçüncü sayısında yer alan çalışmaları siz değerli okurlarımıza sunuyoruz.

Öğretmen kalitesi bir eğitim sisteminin kalitesi ile doğru orantılıdır. Öğretmenlerin hizmet içinde takip edilmesi ve desteklenmesi kadar hizmet öncesinde de çok iyi donatılmış olarak mezun olmaları gerekmektedir. **Tuğba Akar ve Mustafa Cem Babadoğan** tarafından hazırlanan ***"Eğitim Fakültelerinde Kalite Kültürü Oluşturma Süreçlerine İlişkin Akademik Yönetici Görüşleri"*** başlıklı çalışmada çok boyutlu iç kalite standartları üzerinde yürütülen kapsamlı bir çalışmanın bir boyutu üzerinde durulmuştur. Nicel ve nitel veri toplama tekniklerinin bir arada kullanıldığı karma yönteme göre gerçekleştirilen araştırmada, üniversitelerin yazılı ve internet ortamında paylaşılan bir kalite politikası olmasına rağmen fakülte düzeyinde bu politikaların yaygın olmadığı tespit edilmiştir.

Erken okuryazarlık becerileri, yaşamın 0-5 yaş arası döneminde gelişen ve ilköğretim yıllarındaki okuma becerilerinin öncülü olan bilgi, beceri ve tutumlardır. Çocukların erken okuryazarlık beceri gelişimlerini takip edebilmek ve uygulanan eğitim programlarının etkisini belirlemek amacıyla dünya çapında çok sayıda araştırma yürütülmektedir. **Dilek Altun ve Burcu Sarı** tarafından hazırlanan ***"Erken Okuryazarlık Alanında Türkiye'de Son On Yılın Araştırma Eğilimleri: Tematik Bir İnceleme"*** başlıklı çalışmada tematik analiz yöntemi kullanılarak, 2006-2016 yılları arasında yayınlanmış toplam 99 tez ve 118 makale, Okul Öncesi Eğitim Programı'nda (2013) yer alan kazanımlar göz önüne alınarak incelenmiştir. Araştırma kapsamına alınan makale ve tezler, betimleyici özellikler, metodolojik özellikler ve içerik özellikleri bakımından incelenerek sınıflandırılmıştır.

Özlem Haskan-Avcı, Tolga Zencir, Alper Karababa, Faruk Bozdağ ve Seray Betül Öztürk tarafından hazırlanan ***"Erkek Okul Öncesi Öğretmen Adaylarının Mesleki Tercihlerine İlişkin Görüşleri: Toplumsal Cinsiyet Bağlamında Bir Analiz"*** başlıklı çalışmanın amacı, erkek okul öncesi öğretmen adaylarının mesleki tercihlerini etkileyen koşullara ilişkin görüşlerini derinlemesine incelemektir. Bu amaçla, 2015-2016 öğretim yılında Türkiye'de Okul Öncesi Öğretmenliği lisans programlarında öğrenim gören 112 erkek öğrenciye yöneltilen açık uçlu sorularla öğretmen adaylarının; bu bölümü tercih etme nedenleri, bölüm tercih sürecinde karşılaştıkları güçlükler ve aldıkları destekler, gelecek kariyer planları ve bölümü tercih etmek isteyen adaylara önerilerine ilişkin görüşleri alınmıştır.

Özcan Palavan, Volkan Çiçek ve Bayram Ali Yıldırım tarafından hazırlanan ***"Sınıf Öğretmenlerinin Kaynaştırmaya Yönelik Tutumları"*** başlıklı çalışmanın amacı, sınıf öğretmenlerinin kaynaştırmaya yönelik tutumlarını bazı değişkenler ışığında incelemektir. Gaziantep ilindeki 500 öğretmenin katıldığı araştırmada veri toplama aracı olarak araştırmacılar tarafından geliştirilen, 40 sorudan ve 5 alt boyuttan oluşan "Kaynaştırmaya Yönelik Tutum Ölçeği" kullanılmıştır. Araştırmanın sonunda, araştırmaya katılan öğretmenlerin kaynaştırmaya ilişkin tutum ölçeğinin bazı alt boyutlarından elde ettikleri

puanların cinsiyetlerine, yaş gruplarına, mesleki kıdem düzeylerine, medeni durumlarına göre istatistiksel olarak anlamlı farklılık gösterdiği tespit edilmiştir.

Sosyal Bilgiler soyut kavramlara ilişkin konuların ağırlıklı olarak yer aldığı bir disiplin alanıdır. Dijital hikâyeler ise soyut düşünmeyi somutlaştırmada önemli bir role sahiptir. Dijital hikâye anlatımları, öğrencilerin içinde bulunduğumuz çağa uygun becerilerini geliştirmek, algılarını toplamak, derse teşvik etmek ve öğrenmeye karşı motivasyonlarını arttırmak için kullanılabilecek bir yöntem olarak düşünülebilir. **Tuğba Turan ve Burcu Sezginsoy Şeker** tarafından hazırlanan ***"Dijital Hikâyelerin Beşinci Sınıf Öğrencilerinin Motivasyonlarına Etkisi"*** başlıklı çalışmanın amacı, ortaöğretim 5. sınıf Sosyal Bilgiler dersi "Gerçekleşen Düşler" ünitesindeki konuların anlatımında dijital öykü kullanımının öğrencilerin motivasyonları üzerine etkisini araştırmaktır. Araştırma sonucunda, dijital öykülerin öğrencilerin genel motivasyonları ve alt boyutlarında (dikkat-uygunluk ve güven-tatmin) deney grubu lehine anlamlı bir farklılık olduğu tespit edilmiştir.

Türkiye'deki mülteci ve göçmen nüfusu; savaş, işsizlik gibi faktörlerden dolayı son yıllarda artmaktadır. **Şahin İdin** tarafından hazırlanan ***"Mülteci Öğrencilerin Fen Bilimleri Derslerinde Karşılaştıkları Zorluklar: Fenemonolojik Bir Çalışma"*** başlıklı çalışmanın amacı, mülteci öğrencilerin fen bilimleri dersini öğrenmeleri üzerine etkili olan faktörleri belirlemektir. Çalışmada mülteci öğrencilerin fen bilimleri derslerinde başarısız olmalarının nedenlerini anlamak için bu öğrencilerden derinlemesine veri almaya odaklanılmıştır. Araştırma sonucunda, fen bilimleri öğretmenlerine göre öğrencilerin fen bilimleri dersinde başarısız olmalarında; Türkçeyi iyi bilmemeleri, kendilerini Türkiye'ye ait hissetmemeleri, ekonomik nedenler ve olumsuz okul iklimi gibi faktörlerin etkili olduğu tespit edilmiştir.

Nazlı Akar ve Filiz Tuba Dikkartın Övez tarafından hazırlanan ***"Ortaokul Matematiği Grafik Bilgisinin Antropolojik Açıdan İncelenmesi"*** başlıklı çalışmada, Antropolojik Didaktik Teorisi çerçevesinde ortaokul matematiği grafik bilgisinin kurumsal özelliklerini belirlemek için doküman incelemesi yapılmıştır. Doküman incelemesinden elde edilen veriler, ekolojik ve praksiyolojik yaklaşım kullanılarak analiz edilmiştir. Araştırma sonucunda grafiklerin; sayı ve işlemler, cebir ve veri işleme öğrenme alanlarında yer alan oran-orantı, yüzde, eğim, denklem ve eşitsizlikler, denklem sistemleri, fonksiyon, istatistik ve olasılık konularının öğrenilmesi ve öğretilmesinde; matematik okuryazarlığı, problem çözme, iletişim, ilişkilendirme ve psikomotor becerilerin geliştirilmesinde araç, amaç ve hem araç hem de amaç konumunda kullanıldığı tespit edilmiştir.

Bilişsel yapı, uzun süreli belleğe kayıt edilen kavramların birbirleriyle olan ilişkilerini ortaya koyan bir yapıdır. Bilişsel yapının oluşturulması sırasında öğrenci eski bilgileri ile yeni bilgileri arasında bilişsel köprüler kurar. **Özgür Özcan ve Erdem Tavukçuoğlu** tarafından hazırlanan ***"Lise Öğrencilerinin Işık ile ilgili Bilişsel Yapılarının Kelime İlişkilendirme Testi ile Araştırılması"*** başlıklı çalışmada, iki aşamadan oluşan kelime ilişkilendirme testi kullanılarak lise öğrencilerinin ışık ile ilgili bilişsel yapıları tespit edilmiştir. Çalışma sonunda elde edilen veriler, kelime sayısı ve kelimeler arasında mantıklı bağlantılar kurulabilmesi amacıyla anlamsal ilişki tekniği kullanılarak incelenmiştir. Kelime ilişkilendirme testi kullanılarak elde edilen verilerin analizi ile anlamsal yakınlığı bulunan

kelimeler beş kategori altında toplanmıştır. Bu çalışma ile elde edilen bulgular, lisede öğretmenlik yapanlar veya üniversitedeki öğretim üyelerinin ışık ile ilgili konuların öğretiminde bazı noktalara özellikle dikkat etmeleri gerektiğini göstermektedir.

Zeynep Turan ve Yüksel Göktaş tarafından hazırlanan ***"Öğretmen Eğitiminde Bilişim Teknolojileri Derslerinin Yenilikçi Şekilde Yeniden Tasarımı: Ters Yüz Sınıf Yöntemi Motivasyonu Nasıl Etkiler?"*** başlıklı çalışmanın amacı, ters yüz sınıf yönteminin öğrenci motivasyonuna etkisini ile yöntemin kullanımında motivasyonu artıran ve azaltan etkenleri belirlemektir. Karma araştırma yönteminin kullanıldığı araştırmada ters yüz sınıf yöntemi geleneksel yöntemle karşılaştırılmıştır. Bulgular; ters yüz sınıf yöntemi ile eğitim gören grubun geleneksel yöntemle eğitim gören gruba göre motivasyonunun daha yüksek olduğunu göstermiştir. Öğrenciler, sınıf içi uygulamalı aktivitelerin, grup çalışmasının ve oyunlaştırma aktivitelerinin motivasyon düzeylerini artırdığını belirtmişlerdir.

Cemre İşler ve Özgür Yıldırım tarafından hazırlanan ***"Türkiye'deki İngilizce Öğretmeni Adaylarının Tekno-pedagojik İçerik Bilgisi ile İlgili Algıları"*** başlıklı çalışmanın amacı, Türkiye'deki İngilizce öğretmen adaylarının Teknopedagojik İçerik Bilgisi (TPİB) ile ilgili algılarını araştırmak ve bu algılarını etkileyen faktörleri ortaya çıkarmaktır. Hem nicel hem de nitel veri toplama yöntemleri ile yapılan çalışmaya 94 İngilizce öğretmen adayı katılmış ve öğrenme-öğretme süreçleriyle alakalı TPİB algılarını ölçmek üzere hazırlanmış olan iki farklı anket yanıtlamışlardır. Çalışmanın nicel ve nitel verilere dayanan ve birbirini destekler nitelikte olan bulguları göz önüne alınarak, İngilizce öğretmeni yetiştirme ile ilgili iki temel öneri sunulmuştur.

Mustafa Fidan ve Murat Debbağ tarafından hazırlanan ***"Okul Deneyimi Dersinde Video Günlüğü (vlog) Kullanımı: Öğretmen Adaylarının Görüşleri"*** başlıklı çalışmanın amacı, öğretmen yetiştirme programlarında yer alan ve vlog oluşturma prensiplerine uygun olarak seçilen "okul deneyimi" dersinde öğretmen adaylarının bireysel video günlüklerini oluşturmasını sağlamak ve onların bu süreçle ilgili görüşlerini ortaya koymaktır. Bu amaç doğrultusunda araştırmada nitel araştırma desenlerinden durum çalışması deseni kullanılmıştır. Araştırma sonuçlarına göre, öğretmen adayları vlogun en fazla mesleki ve teknik anlamda yararlı olduğuna ilişkin görüş bildirmişlerdir. Bu bağlamda vlogların öğretmenlik mesleğiyle ilgili eksikleri görme, gözden geçirme ve düzeltme imkânı sağladığı (yansıtıcı öğrenme, öz-düzenleme becerisi), kişisel ve sosyal gelişim açısından; kendini ifade etme, iletişim, bilgi paylaşımı, eleştirel düşünme gibi becerilerin gelişiminde katkı sağladığı tespit edilmiştir.

Ahmet Şahin ve Ali Sabancı tarafından hazırlanan ***"Pedagojik Formasyon Öğrencilerinin Eğitim Kavramlarına ilişkin Algıları: Metafor Çalışması"*** başlıklı çalışmanın amacı, pedagojik formasyon öğrencilerinin eğitim, okul ve sınıftan oluşan temel eğitim kavramlarına ilişkin algılarının değerlendirilmesidir. Araştırma nitel araştırma yöntemlerinden olgubilim çalışması olarak desenlenmiştir. Veri toplama yöntemi olarak mecaz kullanımından yararlanılmıştır. Veriler, metaforik çözümlemelerden yararlanılarak içerik analizine ve betimsel analize tabi tutulmuştur. Araştırmada eğitim, okul ve sınıf

kavramlarına dair düşüncelerin çeşitlendiği görülse de sonuçlar, eklektik bakış açısı ile bütüncül açık bir sistem tanımını ortaya koymaktadır.

Eğitim ve Gelecek Dergisi olarak gösterdiğiniz ilgi ve değerli katkılarınız için teşekkür ediyorum.

Gelecek sayıda buluşmak üzere…

Prof. Dr. Erten GÖKÇE

Eğitim ve Gelecek Dergisi Baş Editörü

Editorial

Journal of Education and Future published by Nesibe Aydın Education Institutions, meets you with the thirteenth issue. We present the studies in the thirteenth issue of JEF to our valuable readers.

Teacher quality is directly related to the quality of education. It is important that teacher candidates be very well equipped at pre-service period as well as be followed during in service period. In the article titled ***"Opinions of Academic Administrators Regarding Constructing a Quality Culture at Education Faculties"***, which is prepared by **Tuğba Akar and Mustafa Cem Babadoğan,** one dimension of a multidimensional study on internal quality standards was focused on. The study was based on a mixed methods design with quantitative and qualitative data gathering techniques. In the results of the study, it was observed that while there were quality policies of universities at their internet sites and as a written document, such policies were not prevalent at faculty level.

Early literacy skills, which are the processors of literacy skills, set down roots during the early childhood period. Many studies have been performed all around the world in order to monitor the developments of early literacy skills and to examine the effect of different programs carried out. In the article titled ***"A Decade of Early Literacy Research Trends in Turkey: A Thematic Review",*** which is prepared by **Dilek Altun and Burcu Sarı,** a thematic review approach was used to examine the articles and the theses published between the years of 2006 and 2016 regarding early childhood education programs. The study sample consisted of 99 theses and 112 articles. A publication classification form was used to examine the studies. The publication classification form consists of three dimensions: descriptive characteristics, methodological features, and content features.

In the article titled ***"The Opinions of Male Pre-school Teacher Candidates on their Occupational Preferences: An Analysis in the Context of Gender"***, which is prepared by **Özlem Haskan-Avcı, Tolga Zencir, Alper Karababa, Faruk Bozdağ and Seray Betül Öztürk,** it is aimed to examine the views of male pre-school teacher candidates about the conditions influencing their occupational preferences in depth. For the purpose, a questionnaire was implemented to 112 male students in the pre-school education department in the 2015-2016 academic year in Turkey. Open-ended questions were asked regarding the causes of choosing the department, the difficulties those encountered in the department selection process and their support, career plans for the future and opinions about the proposals to candidatesdesiring to prefer the deparment.

In the article titled ***"Attitudes of Primary School Teachers towards Inclusive Education"***, which is prepared by **Özcan Palavan, Volkan Çiçek and Bayram Ali Yıldırım,** it is aimed to analyze the attitudes of classroom teachers towards inclusion education in the consideration of certain variables. 500 teachers working in different primary schools in Gaziantep have joined in the study. A scale of attitudes towards inclusion, consisting of 40 questions and 5 sub-dimensions that was formed by researchers as a data instrument was applied in the present work. It's identified at the end-of research that the

points attained by the teachers in the research from some sub-dimensions of the scale of attitutes towards inclusion reflect statistically meaningful difference according to gender, age group, length of service, marital status.

Social Studies is a discipline which includes mainly the subjects related to abstract concepts. Digital stories have an important role in materialising abstract thinking. Digital storytelling is a method that can be used to develop students' skills appropriate to the age we live in, to arouse their perceptions, to encourage them, and to increase their motivation to learn. In the article titled ***"The Effect of Digital Stories on Fifth-Grade Students' Motivation"***, which is prepared by **Tuğba Turan and Burcu Sezginsoy Şeker**, it is aimed to examine the effect of using digital stories while lecturing about subjects in the "Realizing Dreams" unit of the Social Studies course on students' motivation. As a result of the research, a significant difference was found in support of the experimental group which digital stories were used in terms of general motivations and sub-dimensions (attention-compliance and trust-satisfaction).

In recent years, because of some factors such as, wars and unemployment, refugee and migrant people population have been increasing in Turkey. In the article titled ***"The Challenges of Refugee Students Encountered in Science Courses: A Phenomenological Study"***, which is prepared by **Şahin İdin**, it is aimed to investigate the factors effect refugee students' learning process within the scope of science course. It was focused on to gain the data deeply, which were taken from the refugee students within science course to understand the reason of failure in science. Science teachers stated the reasons of students' failure in science that students do not know Turkish well, they do not belong themselves to Turkey, economic conditions and negative school climate.

The article titled ***"An Anthropological Analysis of the Knowledge on Graphics within Middle School Mathematics"***, which is prepared by **Nazlı Akar and Filiz Tuba Dikkartın Övez**, it is aimed to analyze the knowledge on graphics within middle school mathematics from an anthropological perspective. The study, which was carried out in framework of the Anthropological Theory of the Didactic, conducted a document analysis. The data that were obtained from document analysis were analyzed with ecological and praxeological approaches. The study concluded that the use of graphics as a goal, a tool, and both as goal and tool the institution was addressed to the instruction of subjects (ratio and proportion, percentage, curves, equations and inequalities, equation systems, functions, statistics, and probability) in numbers and operations, algebra and data processing learning fields, for the improvement of mathematics literacy, problem-solving, communication, association, and psycho-motor skills.

Cognitive structure is a structure exhibiting the mutual associations of concepts recorded in the long-term memory. Students set up cognitive bridges between their previous knowledge and new knowledge during the creation of the cognitive structure. In the article titled ***"Investigating the High School Students' Cognitive Structures about the Light Concept through Word Association Test"***, which is prepared by **Özgür Özcan and Erdem Tavukçuoğlu**, it is aimed to determine high school students' cognitive structures about the

concept of light by using a two-stage word association test. The data obtained were analysed by using the technique of semantic relations in order to be able to set up logical ties between the number of words and words. The words having semantic proximity were divided into five categories by analysing the data through word association test. The findings obtained in this study indicate that high school teachers and university instructors should take special care with some points in the teaching of subjects related with light.

In the article titled ***"Innovative Redesign of Teacher Education ICT Courses: How Flipped Classrooms Impact Motivation?"***, which is prepared by **Zeynep Turan and Yüksel Göktaş**, it is aimed to determine the impact of the flipped classroom method on student motivation and what related factors increase and decrease motivation. The flipped classroom method is compared to traditional techniques in the study. Results showed that students who were trained with the flipped classroom method had more motivation than students who were trained with traditional methods. Students reported that hands-on in-class activities, group work, and gamification activities increased their motivation.

In the article titled ***"Perceptions of Turkish Pre-Service EFL Teachers on Their Technological Pedagogical Content Knowledge"***, which is prepared by **Cemre İşler and Özgür Yıldırım**, it is aimed to investigate perceptions of Turkish pre-service EFL (English as a Foreign Language) teachers related to their level of Technological Pedagogical Content Knowledge (TPACK), the factors affecting their perceptions of TPACK, and their beliefs related to technology integration into EFL classrooms. The study employs both quantitative and qualitative data collection and analysis procedures. A total of 94 Turkish pre-service EFL teachers answered two questionnaires designed to gather information about their combining technology, pedagogy, and content knowledge in the ways of both learning and teaching processes. In the light of the findings of the study, two basic suggestions presented on training of English teachers.

In the article titled ***"The Usage of Video Blog (vlog) in the "School Experience" Course: The Opinions of the Pre-service Teachers"***, which is prepared by **Mustafa Fidan and Murat Debbağ**, it is aimed to provide that the pre-service teachers make their individual video blogs and they reveal their opinions about the process in the "school experience" course that is among the teacher education programs and has been chosen in accordance with the principles of forming vlog. Case study, one of the qualitative research patterns, was used in this study. At the end of the research, the pre-service teachers expressed opinions regarding that vlogs are useful mostly in professional and technical terms. Accordingly, it was observed that vlog contributes to recognizing the shortcomings, reviewing and correcting them (reflective learning, self-regulation skill) and to the development of self-expression, communication, information sharing, critical thinking in terms of individual and social development.

In the article titled ***"The Perception of Pedagogical Formation Students have towards Educational Concepts: Metaphoric Study"***, which is prepared by **Ahmet Şahin and Ali Sabancı**, it is aimed to evaluate the perceptions pedagogical formation students have about basic educational concepts, such as education, school and class. The research was designed

as a phenomenological study, a qualitative research method. the results revealed a holistic open system definition with an eclectic point of view, although the thoughts about the concepts of education, school and class were diversified in the study. The use of metaphors was used as the method of data collection. The results revealed a holistic open system definition with an eclectic point of view, although the thoughts about the concepts of education, school and class were diversified in the study. Besides, pedagogical formation trainees seem to have a positive perception of the concepts of education, school and class.

Thanks for your interest and valuable contributions for Journal of Education and Future.

Look forward to meeting in the next issue…

Prof. Dr. Erten GÖKÇE

Editor in Chief of

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Opinions of Academic Administrators Regarding Constructing a Quality Culture at Education Faculties*

Tuba Akar** **Mustafa Cem Babadoğan *****

Abstract

Teacher quality is directly related to the quality of education. It is important that teacher candidates be very well equipped at pre-service period as well as be followed during in service period. The aim of teacher education is to equip student teachers with knowledge, skills and attitudes regarding the teaching profession. In this context, it is important to construct a quality culture at education faculties to improve the quality. In this study, one dimension of a multidimensional study on internal quality standards was focused on. This study was based on a mixed methods design. While quantitative data gathering techniques (document analysis) were used to determine the current quality policies at education faculties, qualitative data gathering techniques (interview) were used to determine the suggestions regarding applications to foster a quality culture of academic administrators (deans, vice deans and department chairs). When results of the study about quality policies were analyzed, it was observed that while there were quality policies of universities at their internet sites and as a written document, such policies were not prevalent at faculty level. In addition to this, when the opinions of academic administrators regarding quality applications to foster the quality of teacher education and a quality culture were analyzed, it was observed that there was a consensus regarding constructing quality policies at the faculty level by a participating view, informing all participants about this study and the necessity to apply the decisions. In this context, it is necessary to guarantee that required mechanisms, processes, and functions are existing to reach the desired quality and systems to be designed to help the institutions to reach their target.

Keywords: quality, quality culture, ESG, education faculty, academic administrator

* This study was derived from the research part of the doctoral thesis called "Internal Quality Practices in Teacher Education Program in Turkey"

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Eğitim Fakültelerinde Kalite Kültürü Oluşturma Süreçlerine İlişkin Akademik Yönetici Görüşleri

Öz

Öğretmen kalitesi bir Eğitim sisteminin kalitesi ile doğru orantılıdır. Öğretmenlerin hizmet içinde takip edilmesi ve desteklenmesi kadar hizmet öncesinde de çok iyi donatılmış olarak mezun olmaları gerekmektedir. Öğretmen eğitiminin amacı, öğretmen adaylarının öğretmenlik mesleğine ilişkin bilgi, beceri ve yetkinliklere sahip olmalarını sağlamaktır. Bu bağlamda Eğitim Fakültelerinde niteliği artırıcı bir faktör olarak kalite kültürünün oluşturulması önem taşımaktadır. Çalışmada çok boyutlu iç kalite standartları üzerinde yürütülen kapsamlı bir çalışmanın bir boyutu üzerinde durulmuştur. Bu araştırmada nicel ve nitel araştırma desenlerinin bir arada kullanıldığı karma yöntem; eğitim/eğitim bilimleri fakültelerinde mevcut kalite politikalarının belirlenmesi amacıyla nicel veri toplama teknikleri (belge analizi) ile bilgi toplanmasına, ardından akademik yöneticilerin (dekan/dekan yardımcıları ve bölüm başkanları) görüşlerine dayalı olarak öğretmen eğitiminde niteliği artıracak kalite kültürü uygulamalarına ilişkin önerilerin belirlenmesi için nitel veri toplama tekniklerinden (görüşme) yararlanılarak derinlemesine bilginin elde edilmesine olanak sağlaması nedeniyle tercih edilmiştir. Sonuç olarak; kalite politikaları konusunda araştırmada ulaşılan sonuçlar incelendiğinde üniversitelerin yazılı ve internet ortamında paylaşılan bir kalite politikası olmasına rağmen fakülte düzeyinde bu politikaların yaygın olmadığı görülmüştür. Bununla birlikte akademik yöneticilerin, öğretmen eğitiminin niteliği artıracak kalite uygulamaları ve kalite kültürü oluşturulmasına ilişkin önerileri incelendiğinde fakülte düzeyinde katılımcı bir anlayışla kalite politikalarının oluşturulması, bu politikalardan tüm katılımcıların haberdar edilmesi ve alınan kararların etkili bir şekilde uygulanması gerektiği konusunda hemfikir olduğu anlaşılmaktadır. Bu bağlamda istenen kaliteye ulaşılmasını sağlamak için gerekli mekanizmaların, süreçlerin ve işleyişlerin mevcut olduğunun garanti altına alınması ve kurumların hedeflerine ulaşmalarında onlara yardımcı olacak sistemlerin tasarlanması gerekmektedir.

Anahtar Sözcükler: kalite, kalite kültürü, ESG, eğitim fakültesi, akademik yönetici

Introduction

While the number of students at education faculties is increasing in Turkey, these faculties face the problem of quality. The quality of teachers is directly related to the quality of an education system. It is important that teacher candidates be very well equipped at pre-service period as well as be followed during in service period. The aim of teacher education is to equip student teachers with knowledge, skills and attitudes regarding the teaching profession. In this context, it is important to construct a quality culture at education faculties to improve the quality. In this study, one dimension of a multidimensional study on internal quality standards was focused on. It is believed that the opinions of academic administrators regarding constructing a quality culture will provide insight to improve the quality of teacher education.

It is observed in all developed and developing countries that the importance of educational institutions is increasing every day since they are responsible with educating a qualified human force necessary for the improvement of economic, social, political, and technical ways.

The aim to construct a democratic, contemporary, secular, and civilized progressing environment by creating knowledge, opinions and technology and to make this permanent is a need both for developed as well as undeveloped countries.

Transformations regarding knowledge creation and free movement as well as economic and social areas have led countries to review their education policies and plan the contents, processes, and results of education programs more carefully (Niemi and Kemmis, 2012; Bolaert, 2014).

Although numerous definitions have been made, quality as a concept is abstract and there is still not a widely accepted consensus on its definition (Kumbasar, 2009). The dictionary definition of quality is characteristic (TDK, 2015a). The dictionary definition of characteristic is the feature to be good or bad, to define how a thing looks like, to differentiate an item from the others (TDK, 2015b). Quality, in one way, is closely related to concepts such as change, improvement reform, construct and is an expression of valuing people, constantly changing and renewal.

Transformations regarding knowledge creation and free movement in addition to economic and social areas worldwide affect the education service as a whole. It is important that the quality of students, teachers, schools, and universities be increased as well as their quantitative increase.

The complexity of educational activities and the diversity of factors affecting institutions in various ways necessitate to analyse the concept of quality and the criterion determining quality in view of stakeholders working at institutions. Higher education institutions feel the need to define and construct their own quality assurance systems according to their principles and aims rather than accepting a previously determined definition and complying with pre-determined standards (Başaran, 2012).

Teachers in many developed countries feel themselves under pressure to improve learning outcomes and the quality of education to create better and qualified workforce (Bassett, 2008). As Barber and Mourshed (2007) state, the quality of an education system is the quality of teachers in that system. While the number of schools and students is increasing

quantitatively in Turkish education faculties, they face serious problems in terms of quality. It is important that teacher candidates be very well equipped at pre-service period as well as be followed during in service period. The aim of teacher education is to equip student teachers with knowledge, skills and attitudes regarding the teaching profession. In this context, it is important to construct a quality culture at education faculties to improve the quality.

It is aimed in this study to analyse the current policies at education /educational sciences faculties and to determine the opinions of academic administrators working at education faculties regarding constructing a quality culture. Thus, answers to the following questions were sought;

- Are there written quality assurance policies at education faculties? If there are, then, what do these policies contain?
- What is the level of reflection of the current situation of the quality evaluation reports regarding actions for quality at institutions including self-evaluation of institutions?
- Do the applications of quality assurance policies determined by the Higher Education Institution constitute awareness on academic administrators, academics and students regarding quality?
- What are the views of academic administrators regarding constructing a quality culture to improve the quality at education faculties?

Method

This study is based on a mixed method design in which both quantitative and qualitative techniques were used. Studies of mixed methods design aim at strengthening the study by combining both methods to understand a phenomenon when quantitative and qualitative studies cannot be conducted separately and alone (Gay, Mills and Airasian, 2009). While quantitative data gathering techniques (document analysis) were used to determine the current quality policies at education faculties, qualitative data gathering techniques (interview) were used to determine the suggestions regarding applications to foster a quality culture of academic administrators (deans, vice deans and department chairs).

Sample

As the study is based on a mixed method design and as both quantitative and qualitative data gathering techniques were used, selection of the study group was determined at two phases. To gather data from academic administrators (deans, vice deans, chairs of departments) working at 18 states and 6 private education faculties a questionnaire was formed. To support data gathered from the questionnaire, interviews were conducted by using stratified sampling at 97% accuracy level (Büyüköztürk et al, 2008) and a randomized sampling size was obtained. Table 1 presents data about the distribution of academic administrators who participated into the study.

Table 1. *Number of academic administrators for questionnaire and interview*

Position	Questionnaire	Interview
Dean	12	21
Vice Dean	15	44
Department Chair	30	73
Department Head	24	59
Total	81	197

Data Sources

Data sources of the study comprise documents about internal quality assurance such as reports, presentations, web pages of universities who took part in the study.

Data Gathering Tools

Within this study a document analysis form to determine the current state of quality policies of universities and the contents of such policies was used. In addition, a questionnaire and interview forms were used to determine the opinions regarding constructing a quality culture to improve the quality at education faculties and to analyse the effects of current practices to quality. The draft forms prepared by researchers in the light of literature were analysed by three area experts, 5 experts of measurement and evaluation, two language experts and 4 experts of curriculum development to determine content validity, and the appropriateness of items for language and technical matters. As a result of feedback by experts, draft forms were rearranged, and pilot studies were conducted. Forms then were rearranged and finalized by feedback from the pilots.

Data Analysis

Content analysis was used to analyse data. Document analysis, frequency and percentages were calculated based on data gathered from questionnaires. Data from the interviews were analysed by Nvivo 8.0 data analysis program according to content analysis approach.

Findings

Current Practices: Quality Policies and Constructing and Improving Institutional Quality Culture

At the 7th entry of Higher Education Quality Assurance Regulation published at Official Gazette (Resmi Gazete) on 23rd July 2015 by Higher Education Council, it was proposed to set up higher education quality commissions at universities and duties and responsibilities of these councils were determined by the 8th entry of the same regulation. In this regard, quality assurance commissions were set up at universities and regulations were established. Universities within the scope of this regulation, were asked to publish Institutional Internal Evaluation Report containing the results of institutional evaluation and quality improvement studies online through their internet sites.

Regulations were not added to documents to be analysed regarding quality policies since each university has the same contents. Except from this, universities' internal evaluation reports of 2016, their documents of quality policies, booklets of quality, web sites where they share knowledge and reports of quality policies were included within the study.

Findings regarding document analysis of current practices about quality policies are presented at Table 2.

Table 2. *Findings regarding sub dimension practices of quality policies (document analysis)*

Quality policies	**f**	**%**
The institution has a written or online quality policy/regulation shared by the public	15	62,5
Education faculty has a written quality policy	1	4,1
Students were involved in the process while constructing quality policy	4	16,6
Academics were involved in the process while constructing quality policy	11	45,8
Administrative staff were involved in the process while constructing quality policy	3	12,5
Alumni were involved in the process while constructing quality policy	1	4,1
Research institutes were involved in the process while constructing quality policy	3	12,5
Employers were involved in the process while constructing quality policy	5	20,8
Professional associations were involved in the process while constructing quality policy	4	16,6
Quality policy includes all quality processes implemented at the institution.	12	50,0
Quality policy includes all quality processes targeted to be implemented at the institution.	12	50,0
Quality policy includes organization of the quality system.	12	50,0
Quality policy includes responsibilities of institutional administrators during quality processes.	8	33,3
Quality policy includes responsibilities of academics during quality processes.	13	54,1
Quality policy includes responsibilities of administrative staff during quality processes.	9	37,5
Quality policy includes responsibilities of students during quality processes.	10	41,6
-Quality policy includes responsibilities of other stakeholders during quality processes.	7	29,1
Quality policies aim to contribute to constructing institutional quality culture.	6	25,0
Quality policies aim to provide the workers to internalize a quality conception.	8	33,3
There is someone at each faculty/department/program responsible with quality.	12	50,0
There is a handbook at each faculty/department/program stating standards and processes of quality.	6	25,0

When Table 2 is analysed according to document analysis results, it can be observed that among 24 universities, 15 universities have and share a written or online quality policy and one university has them even at the faculty level. When designing the quality policy, students (16%), academics (45%), administrative staff (12%), alumni (4%), research institutes (12%), employers (20%) and professional associations (16%) were included in the process. In addition to this, at 50% of the universities within the study, while quality policy contained quality processes and quality system organization which has been implemented and been aimed to implement at the institution, responsibilities of academics (54%), administrative staff (37%), students (41%) and other stakeholders (29%) were stated at quality policies.

In addition, it was stated in the quality policy that contribution to constructing an institutional quality culture (25%) and adopting a quality conception by all workers (33%)

were aimed. According to document analysis results, while there are 12 universities in which there is a team responsible with quality at faculty/department/program level, only 6 of them have a handbook containing quality standards and processes.

To determine the current practices about quality policies, academic administrators were asked whether they read the "Strategic Plan" or "Institutional Internal Evaluation Report" and their opinions were gathered regarding the reports' status to reflect the real state. Findings obtained from the interviews are presented at Table 3.

Table 3. *The distribution of academic administrators' opinions regarding the sub dimension quality policies (interview)*

		Participant opinions		
State		**Yes**	**Partly**	**No**
KİDR (Corporate Internal Evaluation Report)	**f**	28	30	33
Reading strategic plan	**%**	34,5	37,5	40,0
KİDR (Corporate Internal Evaluation Report)	**f**	18	21	42
Strategic plan reflecting the real state	**%**	22,2	25,9	51,8

As seen in Table 3, 40% of the 81 academic administrators who participated into the study stated that they did not read the reports about quality processes prepared at the institution and published as accessible by anyone. While 34 percent stated that they fully read the reports, 37% stated that they partly read the reports. When results regarding reports' level of reflecting the real cases about quality processes are analysed, it was seen that few academic administrators believe that the reports reflect reality (f:18) while the majority thinks that (%51) reports do not reflect the real circumstance.

Opinions of Academics Regarding the Effects of Current Practices on Quality

In order to determine the effects of current practices on quality regarding quality policies, academic administrators' opinions were asked about the effects of constructing awareness regarding quality processes of higher administration and academic staff working at institutions of the current policies and findings obtained are presented in Table 4.

Table 4. *The distribution of opinions of academic administrators regarding the effects of quality policy practices on the awareness of university higher administration, academic staff, and students (interview)*

Level of awareness		**Higher administration**	**Academic staff**	**Student**
They have a high level of awareness	f	40	13	8
	%	*49,3*	*16,0*	*9,8*
Latest policies created a remarkable level of awareness	f	29	11	-
	%	35,8	13,5	-
There is none at the beginning, but their awareness is raising during the process.	f	-	-	42
	%	-	-	*51,8*
They have partial awareness and it differs personally.	f	9	42	11
	%	*11,1*	*51,8*	*13,5*
It cannot be said that they have awareness.	f	3	15	20
	%	*3,7*	*18,5*	*24,6*

When Table 4 is analysed, it can be observed that academic administrators have a high level of awareness regarding quality processes at universities (49%) and that higher administration have increased their awareness with latest policies (35,8%). In addition, participants stated that the awareness of academics changes substantially personally, and they have partial awareness (51%). On the other hand, few academic administrators (f:3) have stated that higher administration does not have awareness regarding quality processes. About the reflection of policies of quality processes on students, participants also stated that students did not have awareness at the beginning but they had a higher awareness level (51%) in time during their education process.

When the answers of the participants are analysed, it can be observed that quality policies created an awareness dominantly on higher administration. On the other hand, there is consensus on the opinion that quality policies did not create such an important awareness at the same speed and rate on academic staff and students.

Opinions / Suggestions of Academic Administrators Regarding Quality Practices to Improve the Quality of Teacher Education

Academic administrators were asked about their opinions regarding constructing a quality culture and quality processes to improve the quality of teacher education in terms of quality policies and findings are presented in Table 5.

Table 5. *The distribution of academic administrators' opinions/suggestions regarding practices to improve quality in terms of quality policies (questionnaire)*

Quality policies	**f**	***%***
The faculty needs to have policies regarding quality processes.	180	*91,3*
Policies need to be formed by a participatory action in the light of common principles.	188	*95,4*
The administration needs to inform academic staff, teachers, and students about quality policies and methods of implementation.	197	*100,0*
Agreed upon decisions need to be effectively implemented.	183	*92,8*
The faculty needs to have studies with national/international partners.	136	*69,0*
Improvement needs to be highlighted by means of regular meetings and workshops.	129	*65,4*
Higher administration needs to have effective leadership for quality practices.	116	*58,8*
Academic staff who study on quality practices need to be honored by a certificate of achievement, or promotion.	117	*59,3*
Administrative staff who study on quality practices need to be honored by a certificate of achievement, or promotion.	107	*54,3*
Students who study on quality practices need to be honored by a certificate of achievement, or promotion.	113	*57,3*
There should be units responsible with quality at the faculty/program.	41	*20,8*
There should be a group or commission to carry out studies on the developments of teacher education at the faculty.	25	*12,6*

As can be seen in Table 5, academic administrators hold the opinion that it is necessary to have quality policies at the faculty level (91%), policies need to be formed by a participatory view (95%), inform the stakeholders about decisions and policies (100%), and

implement the agreed upon decisions (92%). According to academic administrators, other necessary implementations to improve the quality of teacher education are studies with national/international partners, highlighting improvements, and an effective leadership of the higher administration. Some academic administrators also stated that it will be encouraging to reward academic staff (59%), students (57%), and administrative staff (54%) who carry out studies on quality practices with certificate of achievement, or promotion.

In the light of these findings, it can be said that academic administrators share the same opinion that quality policies need to be formed at the faculty level by a participatory action, all stakeholders need to be informed about these policies and decisions need to be effectively implemented.

Conclusion and Discussion

This study aims to find out the opinions of academic administrators working at education faculties regarding constructing a quality culture as well as the current policies at education/educational sciences faculties. When the findings regarding quality policies are analysed, it can be said that although universities have a written or online quality policy, such policies are not prevalent at the faculty level. Although it was reported that students, academic staff, administrative staff, alumni, research institutes and professional organizations were involved in the process of quality policy formation, academic staff stated during the interviews that such policy documents do not completely reflect the reality. In the quality policies, it was stated to aim to contribute to institutional quality culture and to make all workers adopt a quality approach. It can be said that although policies of quality processes affected the awareness of higher administration greatly, they did not have a great reflection on students and academic staff at the beginning but rather impacted them during their education process in time.

When the opinions of academic administrators regarding constructing quality practices and quality culture to improve teacher education are analysed, they share the opinion that policies need to be formed by a participatory view at the faculty level, stakeholders need to be informed about decisions and policies, and agreed upon decisions need to be implemented. As Harvey and Green state (1993), no matter how it was assessed or defined, required mechanisms, processes and implementations need to be guaranteed to reach the desired quality and systems need to be planned to help institutions to reach their targets. When Quality Assurance Standards and Principles of European Higher Education Area (ESG, 2017) are analysed, it is seen that the emphasis is increasing with each new regulation.

When compared with international standards, the results of our students aged 9 and 15 from such exams as PISA, TIMMS, and PIRLS (Bakioğlu and Yıldız, 2013; Çobanoğlu and Kasapoğlu, 2010; MEB-EARGED, 2003, 2009; OECD; 2004, 2007, 2014; Uzun, Bütüner and Yiğit; 2010) necessitate to educate quality teachers who are responsible with raising quality students and improve the quality at education faculties. It is important that education faculties responsible with educating student teachers perceive quality assurance developments at higher education as an opportunity to meet the expectations of the state, society, school, students and parents. In addition, it is also important that education faculties construct quality assurance systems and take action to implement these systems.

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A Decade of Early Literacy Research Trends in Turkey: A Thematic Review*

Dilek Altun** **Burcu Sarı*****

Abstract

Early literacy skills, which are the processors of literacy skills, set down roots during the early childhood period. In general, the developed countries apply home-based and school-based programs for the purpose of raising the next generations as competent literate individuals in the preschool period. Many studies have been performed all around the world in order to monitor the developments of early literacy skills and to examine the effect of different programs carried out. It is observed that in Turkish National Preschool Education Programs (PEP), the importance given to the emergent literacy skills and acquisitions of Turkish Language activities has been gradually on the increase. While the number of studies conducted within this field is likewise increasing, to our knowledge, no studies concerning thematic analyses carried out regarding early literacy skills were encountered in national context. Therefore, the aim of the present study is to examine the research trends in the field of early literacy in the last decade in Turkey. In this study, a thematic review approach was used to examine the articles and the theses published between the years of 2006 and 2016 regarding early childhood education programs. The study sample consisted of 99 theses and 112 articles. A publication classification form was used to examine the studies. The publication classification form consists of three dimensions: descriptive characteristics, methodological features, and content features. Whitehurst and Lonigan's (1998) conceptual model was used to examine the content of the articles and theses. The findings showed that the number of early literacy studies has increased in the last decade. Those skills identified as "inside-out" have been studied more in recent years, however there are fewer studies in general. The findings are discussed in the related literature and recommendations were addressed for further studies.

Keywords: early literacy skills, thematic review, early childhood education programs

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Erken Okuryazarlık Alanında Türkiye'de Son On Yılın Araştırma Eğilimleri: Tematik Bir İnceleme

Öz

Erken okuryazarlık becerileri, yaşamın 0-5 yaş arası döneminde gelişen ve ilköğretim yıllarındaki okuma becerilerinin öncülü olan bilgi, beceri ve tutumlardır. Gelecek nesilleri yetkin okuryazar bireyler olarak yetiştirmek amacıyla, gelişmiş ülkeler okul öncesi dönemde erken okuryazarlık becerilerini destekleyici ev-içi ve kurum temelli çeşitli eğitim programları yürütmektedirler. Çocukların erken okuryazarlık beceri gelişimlerini takip edebilmek ve uygulanan eğitim programlarının etkisini belirlemek amacıyla dünya çapında çok sayıda araştırma yürütüldüğü görülmektedir. Bu alanda ülkemizdeki mevcut durum değerlendirildiğinde yenilenen Okul Öncesi Eğitim Programı'nda (2013) erken okuryazarlık becerilerine ve Türkçe dil alanındaki kazanımlara giderek daha fazla yer verildiği gözlemlenmektedir. Okul Öncesi Programı'nda erken okuryazarlık becerilerine ilişkin yer alan kazanımların sayısındaki artışa paralel olarak da bu alanda yapılan araştırma ve tezlerin artması beklenmektedir. Ulusal alanyazın incelendiğinde; erken okuryazarlık becerileri ile ilgili yapılan çalışmaları tematik olarak inceleyen bir araştırmaya rastlanmamıştır. Bu çalışmanın amacı, erken okuryazarlık alanında son on yılda Türkiye'de yürütülen çalışmaların hangi erken okuryazarlık becerilerine ağırlık verdiğini ortaya koymak ve bu bağlamda son yıllarda hâkim olan araştırma eğilimlerini belirlemektir. Bu çalışmada tematik analiz yöntemi kullanılarak 2006-2016 yılları arasında yayınlanmış toplam 99 tez ve 118 makale, Okul Öncesi Eğitim Programı'nda (2013) yer alan kazanımlar göz önüne alınarak incelenmiştir. Araştırma kapsamına alınan makale ve tezler, betimleyici özellikler, metodolojik özellikler ve içerik özellikleri bakımından incelenerek sınıflandırılmıştır. Çalışmaların içerik özellikleri açısından yapılan sınıflandırmalarda Whitehurst ve Lonigan'ın (1998) kavramsal modeli temel alınmıştır. Bu modelde yer aldığı gibi erken okuryazarlık becerileri içten-dışa ve dıştan içe olmak üzere sınıflandırılmıştır. Araştırma sonucunda, "içten-dışa" olarak tanımlanan harf-ses ilişkisi, sesbilgisel farkındalık ve yazma becerileri; "dıştan içe" olarak tanımlanan hikâye anlama, dil becerileri, kelime ve kavram bilgisi becerilerine oranla daha az çalışıldığı görülmüştür. Ancak, harf-ses ilişkisi, sesbilgisel farkındalık ve yazmaya yönelik çalışmaların son zamanlarda giderek arttığı da gözlemlenmiştir. Araştırma kapsamına incelenen çalışmaların betimleyici ve metodolojik özellikleri alanyazında yer alan diğer araştırma bulguları ışığında tartışılmış ve gelecek çalışmalar için öneriler sunulmuştur.

Anahtar Sözcükler: erken okuryazarlık becerileri, tematik inceleme, okul öncesi eğitim programı

Introduction

To fully participate in today's world, literacy skills are survival skills. In the digital age, individuals need to use a set of complex literacy skills, not only in the workplace but also in daily life (Plomp, 2013; Nutbeam, 2008; Tyner, 2014). Reading is a complex mental process in which the reader constructs his or her own meaning from text by decoding the print (Akyol, 2012; Coltheart, 2010). According to Scarborough (2001), competent readers perform word recognition and language comprehension in the reading process reciprocally. The reader gains the automation of word recognition skills, vocalizes written text by decoding print, and uses language comprehension skills in a strategic manner to construct meaning from the text. Reading skills are acquired in a process linked to the child's cognitive, physiological, and social development. The development of these skills is taken its root in the early childhood period (Cunningham, 1990; Güneş, 2007). According to the Reading Rope Model of Scarborough (2001), phonological awareness, alphabet principles, and sight word recognition are components of the word recognition process, whereas vocabulary, verbal reasoning, print concepts, background knowledge, and language structure skills are components of the language comprehension process (Scarborough, 2009). The longitudinal link between early literacy skills and later reading skills has been examined in previous studies (Lonigan, Farver, Nakamoto, & Eppe, 2013; Ouellette, 2006; Pullen & Justice, 2003; Riedel, 2007; Su et al., 2017). In addition, the results of the American Early Literacy Panel (NELP) (2008) meta-analysis study showed that early literacy skills such as phonological awareness, letter identification, print awareness, vocabulary, oral language skills, and concepts about print are precursors of later reading skills.

Early Literacy Skills

Early literacy skills are defined as those skills, knowledges, and attitudes that develop in the age range of 0–5 years and are the predictors of later reading skills (Teale & Sulzby, 1986; Whitehurst & Lonigan, 1998). Whitehurst and Lonigan (1998) proposed a conceptual model for explaining early literacy skills and their associations to future reading skills. According to Whitehurst and Lonigan (1998), early literacy skills consist of two different, but closely related, domains: "outside-in" and "inside-out." Table 1 presents the Conceptual Model of Early Literacy Skills in details. In addition they addressed the skills required for the fluent reading process in five units. These are contextual, semantic, language, sound, and writing units. The outside-in domain represents the skills that children use in constructing meaning from what they read based on the context, whereas the inside-out domain represents the skills used in the word recognition process. The main early literacy skills and their scopes are briefly described below.

Story Comprehension refers to the ability to find the main and the most important idea in a story, to determine the cause and effect relation between events, to understand the story plot correctly, to find the links in the text, and to relate these connections with the reader's own interpretation and to summarize the events in the story (Paris & Paris, 2003; Stein, 1978).

Language Skills cover listening, speaking, reading, and writing skills (Morrow, 2009; Otto, 2006). Language skills are divided in two parts: expressive and receptive language skills. Oral language skills also include grammar, vocabulary, and pragmatics (Cabell, Justice, Logan, & Konold, 2013).

Table 1. *Conceptual model of early literacy skills (Whitehurst & Lonigan, 1998)*

Outside-In Skills	**Inside-Out Skills**
Story Comprehension	Letter-sound correspondence
Language Skills	Phonological Awareness
Vocabulary	Writing
Concept Knowledge	

Vocabulary refers to word knowledge that children can understand, use in their daily conversation, and understand when they read, or words they say, write, or say when they listen to others (Armbruster, Lehr, & Osborn, 2001; Christ & Wang, 2010; Sever, 1995).

Phonological Awareness refers to the ability to identify, substitute and blend sounds and also being able to segment spoken words into sound units such as initial sounds, syllables, and final sounds (Gillon, 2004; Lane & Pullen, 2004; Yopp & Yopp, 2009).

Print Awareness refers to knowledge that children can understand the concept that print represents oral language and it transfers a message (Clay, 2000).

Concepts about Print is to be aware of the book covers and page orientation of the books , plus to understand that the text moves from left to right in Turkish, and there are spaces between words and sentences (Clay, 2000).

Letter Knowledge refers to alphabetical knowledge of the names of the letters and knowing that each sound has a correspondence to the written system (Armbruster, Lehr, & Oshorn, 2001).

Educational Programs to Develop Early Literacy Skills

Learning how to read is a complex process and contains wide range of skills such as oral language, vocabulary, identifying sounds, letters, and decoding. Recent research shows that oral language skills, and vocabulary are as effective as letter knowledge, decoding for later reading achievement (Dickonson, Golinkoff, & Hirsh-Pasek, 2010; Muter, Hulme, Snowling, & Stevenson, 2004). The developed countries such as the USA, Canada, and England apply home-based and school-based early literacy programs for the purpose of raising the next generations as competent literate individuals in the preschool period. The developed countries formed early literacy programs, such as Early Reading First (2005 – USA), Grow Start Grow Smart (2002 – USA), Read to Me! (2002 – Canada), Read for Life (2005 – Canada), and Raising Early Achievement in Literacy (1995 – England) (Balla-Boudreau & O'Reilly, 2002; Evangelou & Sylva, 2003; Israel, 2007). In addition, the National Association for the Education of the Young Children (NAEYC) (1998) published a position statement on developmentally appropriate literacy education for young children. The position statement firstly pointed out the importance of the early literacy skills for later reading skills. Secondly, the early literacy skills were explained under the three developmental levels: a) birth through preschool, b) kindergarten, and c) primary grades. Lastly, teaching practices were recommended for each developmental level.

Numerous studies have been performed all around the world in order to follow-up the progress of young children's early literacy skills and to examine the effect of different programs that have been carried out. When examining the related literature, the majority of the early literacy studies were conducted in English as compared to other languages (NELP,

2008). However, every language has its own language rules. For example, English has a deep orthography whereas Turkish language has a shallow orthography (Rayner, Pollatsek, Ashby, & Clifton, 2012). Therefore, there is a need to study early literacy skills, the relations among the skills, and their predictable relations with later reading skills in the Turkish language. Despite the orthographic characteristics, early literacy skills as the roots of later reading achievement should be examined in an extensive way.

In the national context, it can be said that that acquisitions related to early literacy skills are gradually increasing. When the National Preschool Education Programs (PEP) was examined, it was seen that phonological awareness skills have been included since 2006. The current PEP (2013) includes more detailed acquisitions and indicators relating to early literacy skills, such as reading and writing awareness. At the same time, the program does not cover any acquisitions related to letter knowledge. The program stressed out that "the program certainly does not aim to teach reading and writing to children and does not cover any goals for children to be introduced to letters and learn to write letters" (PEP, 2013, p. 45). Detailed information regarding the scopes of the former and the current PEPs language domain is given in Table 2.

Table 2. *Comparing National Preschool Education Programs regarding language development domain scopes*

National Preschool Education Program (2006) Language Domain Objectives	**National Preschool Education Program (2013) Language Development Acquisitions**
1. Being able to segment the sounds	1. The child segments sounds
2. Being able to use the sound suitably while speaking	2. The child uses his/her voice appropriately
3. Being able to use Turkish properly	3. The child forms a sentence using the rules of syntax
4. Being able to express himself/herself in words	4. The child uses grammar rules correctly while speaking
5. Being able to express the things he/she listens to in different ways	5. The child uses language for communicative purposes
6. Being able to develop his/her vocabulary	6. The child enriches his/her vocabulary
7. Being aware of phonemes	7. The child grasps the meaning of what he/she has listened to and watched
8. Being able to read the visual materials	8. The child expresses what he/she has listened to and watched in various ways
	9. The child develops phonological awareness
	10. The child reads visual materials
	11. The child shows an awareness of reading
	12. The child shows an awareness of writing

As can be seen in Table 2, the scope of early literacy skills was broadened in the PEP and the inside-out early literacy skills are introduced in the program. Furthermore, early literacy studies are emerging and represent a hot research topic in Turkey (Altun, 2016). The number of studies conducted within this field has been increasing gradually over the last decade. Therefore, it is important to examine the possibility of extending the early literacy scope and new early literacy skills in PEP in a way that reflects early literacy research over the last decade.

A growing number of thematic review studies have been conducted in different research areas to gain general view about the specific research topics (Grubb, 2006; Ormanci, Cepni, Deveci, & Aydin, 2015; Press & Hayes, 2000; Ültay & Çalık, 2012; Simon & Daneback, 2013). In the national context, a limited number of studies have examined theses (Ahi & Kıldan, 2013; Altun, Öneren Şendil, & Şahin, 2011; Demirtaş İlhan, 2017; Ramazan & Balat, 2007) and articles (Yılmaz & Altınkurt, 2012) conducted in the field of early childhood education.

In addition, some studies focused on a specific research topic, such as play (Kaytez & Durualp, 2014), drama (Can Yaşar & Aral, 2011), science (Ozen Uyar & Ormancı, 2016), mathematic (Bağcı & İvrendi, 2016) special education (Gül & Diken, 2014; Taştepe et al., 2016), social skills (Ogelman, 2014), and environmental education (Ogelman & Güngör, 2015). In this respect, when the national literature is examined, no study was encountered concerning thematic analysis of the studies carried out regarding early literacy skills. Therefore, it is the aim of this study to examine the research trends in the field of early literacy in the last decade in Turkey. The study presents general information about researches carried out in the field of early literacy in the last decade in our country to the researchers, and the educators are given an opportunity to evaluate the researches from a thematic aspect, which will enable comparisons with international research trends. In order to attain the goals of the present study, the following research questions were investigated:

1) What are descriptive characteristics of the studies in early literacy field in Turkey?
2) What are methodological characteristics of the studies in early literacy field in Turkey?
3) Which early literacy skills were examined in early childhood period in Turkey?

Method

Research Model

In this study, a qualitative research design was used to examine the articles and the theses published between the years of 2006 and 2016 (until March 2017) regarding early literacy skills in Turkey. A thematic review approach was used to analyze the data. Thematic review studies are given a clear outline related to the general, methodological, and content features of the conducted research. It reveals neglected, emerging, and popular research topics and methods in the literature. The approach was used to examine, classify, and interpret the studies systematically (Vaismoradi, Turunen, & Bondas, 2013).

Participants

A total of 118 articles and 116 theses were identified at the end of the database search process. In order to identify the studies, keywords such as “emergent literacy,” “early literacy,” “kindergarten”, “preschool”, “language development”, and “ reading readiness” were typed and the databases “ERIC”, “EBSCHO”, “TÜBİTAK Ulakbim”, “Google Academic”, and “YÖK Thesis Search” were scanned. .The research was limited to the preschool period (0–6 age) and the studies that include foreign language education and special education and elementary school children that were not included the study. At the end, six articles and 17 theses were excluded from the study. Finally, the study sample consisted of 112 articles and 99 theses.

Data Analysis Process

A publication classification form was used to examine the studies. The form was prepared based on previous studies (Goktas et al., 2012; Ormancı, Cepni, Deveci, & Aydın, 2015). The publication classification was consisted of three basic dimensions. Firstly, descriptive features such as the name, author, language, and type of the articles and theses were examined.

Table 3. *Thematic review matrix for the data analysis*

Dimensions	Sub-dimensions
Descriptive characteristics	Types of study Number of authors Language of the study
Methodological Features	Research methods Sampling methods Sample size/number of participants
Content Features	Outside-in early literacy skills İnside-out early literacy skills

Secondly, the research design, sample, and data analysis methods were classified after a detailed examination. Thirdly, early literacy sub-skills were examined by using Whitehurst and Lonigan's (1998) conceptual model. The detailed information regarding the thematic review matrix is presented in Table 3. The researchers coded the data individually and then calculated the coding consistency between the researchers. Cohen's Kappa coefficient was calculated between .92 and .95 for the sub-dimensions.

Findings

Descriptive Characteristics of the Studies

In the context of the study, 99 theses were examined. Of these theses, 81.8% were master theses and 18.2% were dissertations. In addition, 112 articles were examined. Of these articles, 28.6% were produced from the theses, and 15 (15.10%) were published in the social sciences citation index (SSCI). The detailed information is presented in Table 4.

Table 4. *Descriptive information of the studies*

Theses			Articles		
	f	%	Produced from Theses	f	%
Master	81	81.80	No	80	71.40
Dissertation	18	18.20	Yes	32	28.60
Total	99	100	Total	112	100

Concerning the languages of the studies, 91.90% of the theses were written in Turkish, whereas 80.40% of the articles were written in Turkish (see Table 5).

Table 5. *Distribution of the studies regarding languages*

	Theses		Articles	
	f	**%**	**f**	**%**
Turkish	91	91.90	90	80.40
English	8	8.10	22	19.60
Total	99	100	112	100

As shown in Table 6, a majority of the articles (48.20%) have two authors, 25% of the articles have one author, and 14.30% of the articles have three authors.

Table 6. *Distribution of the articles regarding author numbers*

Author Numbers	**f**	**%**
1	28	25.00
2	54	48.20
3	16	14.30
4	5	4.50
5	3	2.70
6	5	4.50
7	-	-
8	1	.90
Total	112	100

Methodological Features of the Studies

Secondly, the studies were examined in terms of research method. As shown in Table 7, most of the theses (52.52%) and articles (37.50%) were survey studies. The second most preferred design was an experimental study, both in the theses (25.25%) and articles (28.75%). On the other hand, a longitudinal study was conducted for at least 1.01% of the theses, while 2.67% of the articles did not specify the study design.

Table 7. *Design of the studies*

	Theses		*Articles*	
	f	*%*	*f*	*%*
Survey	52	52.52	42	37.50
Experimental	25	25.25	21	18.75
Scale Development	5	5.05	14	12.50
Literature Review	-	-	18	16.07
Correlational	2	2.02	12	10.71
Longitudinal	1	1.01	2	1.78
Not Specified	14	14.14	3	2.67
Total	*99*	*100*	*112*	*100*

Regarding the subject characteristics of the studies, children were the most frequently used participant groups in theses (44.78%) and articles (59.01%). However, documents such as books, story books, and curricula (17.16%) were the second most preferred subjects in theses. On the other hand, a teacher (17.21 %) was the second the second most preferred participant groups in the articles (see Table 8).

Table 8. *Participants of the studies*

Subjects	Theses		Articles	
	f	%	f	%
Children	60	44.78	72	59.01
Teacher*	20	14.93	21	17.21
Parents	15	11.19	20	16.40
Book, Curriculum, materials	23	17.16	9	7.37
Others	1	0.75	-	-
*Total***	*134*	*100*	*122*	*100*

**pre-service and in-service*
***some studies covered more than one participant group*

Table 9 presents the frequencies and percentages of the sampling methods used in the studies. Most of the theses (53.53%) and articles (38.39%) did not specify the study sampling method. A total of 31.31% of the theses and 20.53% of the articles used a random sampling method to select the study participants. Purposive sampling was the third most preferred sampling method in theses (8.08%) and articles (9.82%).

Table 9. *Sampling methods of the studies*

Sampling types	Theses		Articles	
	f	%	f	%
Not specified	53	53.53	43	38.39
Random	31	31.31	23	20.53
Purposive sampling	8	8.08	11	9.82
Convenience sampling	5	5.05	7	6.25
Stratified sampling	2	2.02	9	8.03
Snowball sampling	-	-	1	0.89
Not applicable	-	-	18	16.07
Total	*99*	*100*	*112*	*100*

Concerning the sample size of the studies, a majority of the sample numbers of the theses (40.40%) and articles (40.42%) were between 31 and 100. Of the sample size, 30.30% of the theses and 26.08% of the articles were between 101 and 300. Only 2.02% of the theses and 6.38% of the articles were conducted with fewer than 11 individuals. Detailed information regarding sample sizes of the studies is presented in Table 10.

Table 10. *Sample size of the studies*

Sample size	Theses		Articles	
	f	%	f	%
1–10	2	2.02	6	6.38
11–30	12	12.12	13	13.82
31–100	40	40.40	38	40.42
101–300	30	30.30	24	26.08
301–1000	15	15.15	13	13.82
Total	*99*	*100*	*94*	*100*

Lastly, the studies' data analysis techniques were examined. As indicated in Table 11, a majority of the theses (68.92%) and the articles (72.64%) conducted parametric statistics tests to analyze the data. T-test was the most frequently used statistical test both in the theses (24.27%) and the articles (21.70%). On the other hand, 14.56% of the theses and 12.26% of the articles used non-parametric tests to analyze the data. In addition, 16.50% of the theses and 15.09% of the articles used content analysis to interpret the data.

Table 11. *Data analysis techniques of the studies*

Data Analysis Techniques	**Theses**		**Articles**	
	f	**%**	***f***	**%**
Parametric Tests				
T-test	25	24.27	23	21,70
ANOVA	23	22.33	22	20.75
Correlation	11	10.68	18	16.98
Regression	6	5.82	6	5.66
ANCOVA	2	1.94	1	0.94
Factor Analysis	3	2.91	5	4.72
SEM/Path Analysis/Multilevel Modeling	1	0.97	2	1.89
Non-Parametric Tests	15	14.56	13	12.26
Content Analysis	17	16.50	16	15.09
Total	103	100	106	100

Content Features of the Studies

Thirdly, studies were examined regarding research content. Table 12 indicates that the majority of the theses (n = 72) examined outside-in skills. Fifteen of the theses investigated inside-out skills. Similarly 15 of the theses examined other topics related to early literacy. As indicated in Table 12, the inside-out skills have been the focus of the research since 2010 in theses.

The distribution of the research content in articles is presented in Table 13. Similar to the theses, the majority of the theses (n = 100) examined outside-in skills. Of the articles, 93 investigated other topics related to early literacy. Lastly, 53 of the studies examined inside-out skills. Contrary to the theses, the inside-out skills have been addressed in the research since 2007 in articles.

Table 12. *Distributions of the theses conducted in early literacy scope regarding years*

Content*		**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**Total**
Outside-in skills	Story telling & comprehension	-	-	1	-	1	2	1	-	-	2	-	*7*
	Oral Language Skills	3	-	3	4	1	-	1	1	1	8	1	*23*
	Vocabulary	1	1	1	3	1	1	5	6	5	11	7	*42*
	Total	*4*	*1*	*5*	*7*	*3*	*3*	*7*	*7*	*6*	*21*	*8*	***72***

Inside-out skills	Concepts about print & writing	-	-	-	-	-	1	1	-	1	1	2	*6*
	Phonological Awareness	-	-	-	-	-	-	4	-	1	3	1	*9*
	Total	-	-	-	-	-	*1*	*5*	-	*2*	*4*	*3*	***15***
Others	Reading Readiness	-	-	-	-	-	-	-	1	1	-	-	*2*
	Book Review	-	-	2	2	1	-	7	1	3	6	1	*20*
	Teacher views	-	2	2	-	1	1	-	-	3	2	-	*11*
	Reading attitude & motivation	-	-	-	-	-	-	-	1	1	-	-	*2*
	Literacy Environment	-	-	-	-	-	-	-	-	-	1	1	*2*
	Total	-	*2*	*4*	*2*	*2*	*1*	*7*	*3*	*8*	*9*	*2*	***15***

**Some studies covered more than one early literacy skill*

Table 13. *Distributions of the articles conducted in early literacy scope regarding years*

	Content*	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**Total**
Outside-in skills	Story telling & comprehension	1	2	-	1	3	-	1	2	1	4	8	23
	Oral language skills	3	2	2	4	4	4	3	3	5	4	7	41
	Vocabulary	-	1	2	3	3	3	2	5	8	5	4	36
	Total	*4*	*5*	*4*	*8*	*10*	*7*	*6*	*10*	*14*	*13*	*19*	*100*
Inside-out skills	Concepts about print & writing	-	1	-	-	-	-	2	4	5	4	7	23
	Phonological awareness	-	1	1	1	3	3	1	3	8	5	4	30
	Total	-	*2*	*1*	*1*	*3*	*3*	*3*	*7*	*13*	*9*	*11*	*53*
Others	Reading Readiness	3	-	-	-	-	1	2	2	3	4	2	17
	Book review	1	-	-	-	-	-	-	1	1	2	4	9
	Teacher views	1	-	-	-	1	-	1	3	2	1	2	11
	Reading attitude & motivation	-	-	-	1	-	-	-	1	-	2	1	5
	Literacy Environment	-	-	-	1	-	-	-	-	1	2	2	6
	Total	*5*	-	-	*2*	*1*	*1*	*3*	*7*	*7*	*11*	*11*	*93*

**Some studies covered more than one early literacy skill*

The percentages of the content of the studies regarding years is also presented in Figure. 1 and Figure 2. Figure 2 shows that outside-in and inside-out early literacy skills were more equally distributed in articles than in theses.

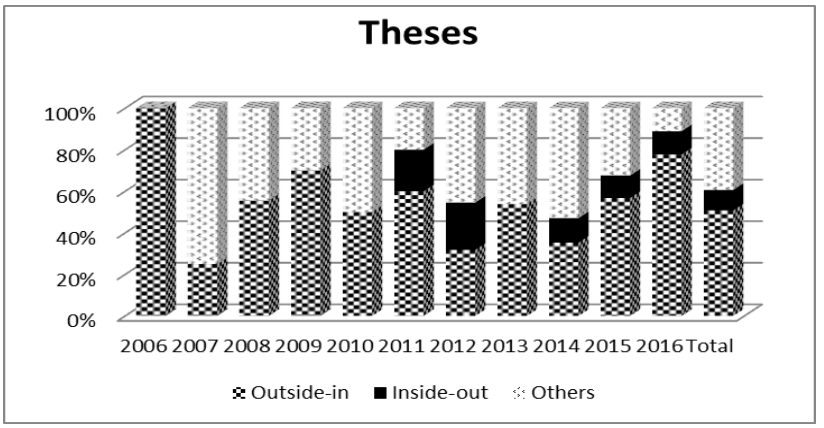

Figure 1. Percentages of the theses content regarding years

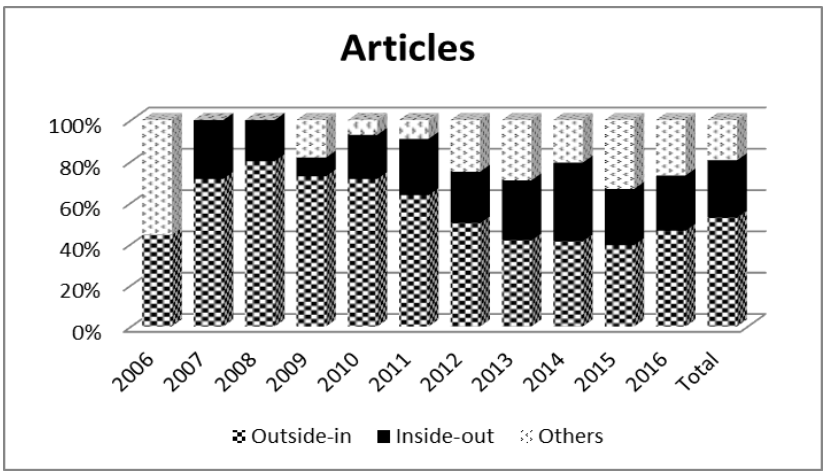

Figure 2. Percentages of the articles content regarding years

Conclusion and Suggestions

A thematic review study provides a big picture of the studies in related fields. It presents a comprehensive summary of the studies and reveals research trends and research gaps for researchers. The study presents the research trends in the field of early literacy during the last decade in Turkey. The findings showed that the number of studies related to early literacy skills has been on the increase in recent years. Haktanır (2007) stated that 44 faculties had early childhood education programs, but in the 2015–2016 academic years the number grew to 66 with 19 master's and 5 PhD degree programs (Demirtaş İlhan, 2017). The findings were consistent with the previous studies (Demirtaş İlhan, 2017; Özen Uyar & Ormancı, 2016). The increasing number of the study can be explained by the developments in early childhood education programs in universities in recent years.

According to the findings, 15.10% of the papers were published within the scope of SSCI, a percentage that is similar to the findings of Özen Uyar and Ormancı (2016). They found that 16.70% of the science education studies were published in early childhood studies

journals that are in the SSCI index. Regarding the language of the articles examined in the study, 80.40% of the studies were published in Turkish.

The study findings showed that most of the studies were conducted as a survey research. The findings were consistent with the study of Özen Uyar and Ormancı (2016); 20.83% of the studies were surveys and 20.83% of them did not include information regarding the research method. Survey research is aimed at exploring and describing the characteristics of the individuals involved and collecting the data of interest through questionnaires (Check & Schutt, 2012; Ponto, 2015). Cross-sectional survey research is important for determining children's early literacy skills, early literacy experiences, and preschool teachers' early literacy practices and problems, but the findings reveal that there is a need to study early literacy skills longitudinally in the Turkish language, plus the predictable relations among the skills should be investigated. The study findings revealed that T-test and ANOVA are the most common statistical tests used to analyze data. Previous studies similarly reported that the tests are the most frequent statistical techniques to analyze data in early childhood education theses (Ahi & Kildan, 2013; Demirtaş İlhan, 2017). The tests generate univariate statistics for comparing group means (Tabachnick & Fidell, 2007). However, a limited number of studies used multivariate tests to investigate the degree of relations among variables. In order to facilitate a clearer interpretation of early literacy development in Turkish, further studies can use a broadened range of statistical techniques to examine different numbers and kinds of variables together in single analysis.

As concerns the findings regarding participants of the studies, children were the most frequent subject group for both theses and articles. These findings were expected and were supported by previous studies (Ahi & Kıldan, 2013; Altun et al., 2011; Demirtaş İlhan, 2017; Özen Uyar & Ormancı, 2016). The scope of early childhood education focuses on childhood development and learning. Parents, teachers, school principals, and other individuals are subjects who have an influence on children's development and learning. Another important finding of the study concerns the sizes of samples; for most of the studies, the number of participants was between 31 and 100. The findings were consistent with the findings of previous meta-review studies (Özen Uyar & Ormancı, 2016). Demirtaş İlhan (2017) indicated that the majority of the theses sample sizes were less than 200 in the early childhood education scope. Sample size is also related to a research design. There are numbers of aspects to determine the sufficient sampling for studies such as acceptable level of significance, power of the study, expected effect size, underlying event rate in the population, standard deviation in the population (Kirby, Gebski & Keech, 2002). Therefore, the sample size should be interpreted in the context of the research design. In addition, the findings can be related to the data collection condition in a national context. Researchers need to collect their data by their own effort and/or project budget with limited sources. There is no national educational data center. For example in the USA, the Early Childhood Longitudinal Study (ECLS) program collected data from more than 15,000 children from kindergarten to the elementary school years, which is a nationally representative longitudinal data set. The National Center for Educational Statistics (NCES) is a sponsor of the ECLS program in the USA. The data set is available for researchers to examine early learning and development in many developmental areas (Tourangeau, Nord, Lê, Sorongon, Hagedorn, Daly, & Najarian, 2015). The findings pointed out the necessity of collecting nationwide data to investigate early literacy development in the context of Turkey.

With respect to the early literacy research trends in the context of National Preschool Education Programs (PEPs), the inside-out skills have been studied more in recent years;

however, there are fewer studies in general. The increasing number of inside-out skill studies can be explained by the connection between PEP's scope and research topics. PEP (2013) has addressed more inside-out early literacy acquisitions than PEP (2006). Furthermore, inside-out skills were more investigated in articles than in theses. According to the findings of the current study, a small number of studies were involved in writing and writing awareness (Altun, Erden, & Snow, 2016; Çoşkun & Deniz, 2016; Şimşek, 2011; Yıldız, Ataş, Aktaş, Yekeler, & Dönmez, 2015). There are very few studies dealing with preschool settings and home literacy environments (Altun, 2013; Altun & Tantekin Erden, 2015; Altun 2016; Turan & Akoğlu, 2014; Sarıca et al., 2014) and phonological awareness of young preschool children (Sarı & Aktan Acar, 2013; Karaman, 2006; Karaman ve Üstün, 2011; Turan ve Akoğlu, 2011; Turan ve Gül, 2008). Overall, the smaller number of studies related to inside-out skills can be explained by the PEP's (2013) caution about introducing letters to children.

Kargın, Güldenoğlu & Ergül (2017) indicated that Turkish preschoolers perform better developing vocabulary than phonological awareness, letter identification and listening comprehension. In their study, they argued that preschool teachers' negative beliefs about teaching some early literacy skills such as letter identification might be the one of the reasons that causes low performance of young preschoolers on phonological awareness, and letter identification skills. In another study by Ergül et al (2014), it is presented that preschool teacher believe that they do not feel confident about showing letters in preschool settings. Additionally, in PEP (2013) acquisition of some early literacy skills such as phonological awareness are not defined in details to guide preschool teachers (Kargın et al., 2017).

To sum up, reading is a basic skill for intellectual development and personal learning. In the globalizing world, the proportion of literate people is important for economic development, as well as increasing the level of social development of the country (Council of the European Union, 2012). In this context, it is necessary for countries to increase the level of reading and to actively pursue the development of this skill. There is variety of early literacy programs around the world and their primary aim is to develop early literacy skills from the start. However, the content of those early literacy programs can be adjusted based on differences in cultures, languages and beliefs about teaching to young children (Snow, 2017), In this study, our aim was to examine the research trends in the field of early literacy in the last decade in Turkey. It can be concluded that content of National PEP was updated with more early literacy skills and concurrently, this reflected on the research trends in the last decade in Turkey.

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The Opinions of Male Pre-school Teacher Candidates on their Occupational Preferences: An Analysis in the Context of Gender

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Abstract

This study aims to examine the views of male pre-school teacher candidates about the conditions influencing their occupational preferences in depth. For the purpose, a questionnaire including demographic information and open-ended questions was implemented to 112 male students in the pre-school education department in the 2015-2016 academic year in Turkey. Open-ended questions were asked regarding the causes of choosing the department, the difficulties those encountered in the department selection process and their support, career plans for the future and opinions about the proposals to candidatesdesiring to prefer the deparment. As a result of the qualitative analysis of the reasons for the participants's pereference for the profession, the themes of the research shows that "the bussiness oppurtunities which the profession provides" (n=57, %=34.13), "being interesting in working with the children" (n=51, %=30.54), "being interested in the teaching" (n=21, %=12.57), "prefer the suitable profession in line with the University Entrance Exam score" (n=20, %=11.98), "the guidance of the family and teacher" (n=11, %=6.59), and "uninformed preference" (n=7, %=4.19). And also, it was revealed that the participants were those who supported them (n=61=, %=41.50), obstructed persons (n=60, %=40.82) and those who did not have an influence (n=26, %=17.68) when they preferred the profession. In the analysis of the participants' career plans, the themes were determined as being a teacher in the state institution (n=62, %=37.35), in the private sector (n=5, %=3), being a school director (n=38, %=22.90), establish a private pre-school education institution (n=28, %=16.87), having an academic career (n=28, %=16.87) and having no certain goals (n=5, %=3). In the qualitative analysis of the participants' suggestions to candidates preferring the pre-school education, the themes, such as those who suggest choosing in terms of the interest and the ability (n=74, %=47.74), those who suggest being considered independently of gender (n=62, %=40), those who do not suggest the department for men (n=15, %=9.68), and those who are irresolute (n=4, %=2.58), have been found out. The results have been discussed together with the findings of the similar studies in terms of the gender and the beneficial suggestions for the literature have been made.

Keywords: Pre-school education, early childhood, male pre-school teacher candidates, gender, male gender roles, career choice

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Erkek Okul Öncesi Öğretmen Adaylarının Mesleki Tercihlerine İlişkin Görüşleri: Toplumsal Cinsiyet Bağlamında Bir Analiz

Öz

Bu çalışmanın amacı, erkek okul öncesi öğretmen adaylarının mesleki tercihlerini etkileyen koşullara ilişkin görüşlerini derinlemesine incelemektir. Bu amaçla, 2015-2016 öğretim yılında Türkiye'de Okul Öncesi Öğretmenliği lisans programlarında öğrenim gören 112 erkek öğrenciye demografik bilgileri ve açık uçlu soruları içeren bir anket uygulanmıştır. Açık uçlu sorularla öğretmen adaylarının; bu bölümü tercih etme nedenleri, bölüm tercih sürecinde karşılaştıkları güçlükler ve aldıkları destekler, gelecek kariyer planları ve bölümü tercih etmek isteyen adaylara önerilerine ilişkin görüşleri alınmıştır. Katılımcıların bu mesleği tercih etme nedenlerine ilişkin nitel analiz sonucunda, mesleğin sunduğu iş imkânları (n=57, %=34.13), çocuklarla çalışmaya ilgi duyma (n=51, %=30.54), öğretmenlik mesleğine ilgi duyma (n=21, %=12.57), YGS sonucuna uygun bir bölümü tercih etme (n=20, %=11.98), aile ve öğretmen yönlendirmesi (n=11, %=6.59 ve bilinçsiz tercih (n=7, %=4.19) temaları bulunmuştur. Katılımcılar bölüm tercihinde bulunurken, çevrelerinde kendilerini destekleyenlerin (n=61, %=41.50), engel olmak isteyenlerin (n=60, %=40.82) ve hiç bir müdahalede bulunmayanların (n=26, %=17.68) olduğu ortaya çıkmıştır. Katılımcıların kariyer planlarına ilişkin nitel analiz sonucunda, devlette öğretmen olma (n=62, %=37.35), özel sektörde öğretmen olma (n=5, %=3), yönetici olma (n=38, %=22.90), özel bir okul öncesi kurumu açma (n=28, %=16.87), akademik kariyer planlama (n=28, %=16.87) ve hedefi net olmayanlar (n=5, %=3) şeklinde temalar ortaya çıkmıştır. Katılımcıların bölümü tercih etmek isteyen adaylara önerilerine bakıldığında, ilgi ve yetenek doğrultusunda seçim yapılmasını önerenler (n=74, %=47.74), toplumsal cinsiyetten bağımsız düşünülmesini önerenler (n=62, %=40), erkeklerin bu bölümde öğrenim görmelerini önermeyenler (n=15, %=9.68) ve kararsız olanlar (n=4, %=2.58) olduğu görülmüştür. Elde edilen bulgular, benzer araştırmaların bulguları ile beraber toplumsal cinsiyet bağlamında tartışılmış ve bazı önerilerde bulunulmuştur.

Anahtar Sözcükler: Okul öncesi öğretmenliği, erken çocukluk eğitimi, erkek okul öncesi öğretmen adayları, toplumsal cinsiyet, erkek toplumsal cinsiyet rolü, meslek seçimi

Introduction

Being a woman and being a man are the concepts that have a great deal of meanings into the content apart from the biological sex. These meanings vary from the culture to the culture and from the society to other. What is the similar is that the meanings have been transferred in a learning process to the individuals since the time they were born. The meaning of being a woman and being a man is shaped by social expectations. In addition, the expectations involve individual's roles in social sphere. One of the roles is the 'employee' role. The 'employee role' of the woman and man has been influenced by the gender role and has passed through certain stages until today. Moreover, gender roles have a significant effect in terms of the choice of professions of women and men in human history. It is a known fact that women having specific occupations were forbidden in many countries in the 20th century (Menkel-Meadow, 1989; Schultz, 2003; cited as Berk, 2013). Whereas the women are more related to home and domestic responsibilities, the man is conceptually approved as making money and being out (Morris, 2002).

It can be said that the characteristics attributed to women and men are related to historical process of their work lives. Thoughout the ages, even though the man is seen as powerful in making a decision and holding authority, women's characteristics such as weak, soft and subtle, obedient are found out spectacularly. In today's modern world, although women partially stand in public sphere, the stereotyped features might be said to be currently valid (is likely to be said to be currently valid).Within this context, the borders among the jobs of the man and woman are distinct at present (Kahraman, Ozansoy Tuncdemir & Ozcan, 2015).

The visibility of women and men in social life and their participation level in occupations is determined by the proportion of the gender perception in the society (Okten, 2009).). In many societies, while the gender roles expected from women are household tasks such as looking after children and cooking, males are expected to have business owners, bring home the bacon and use the car during going to a place with the whole family (Morris, 2002). Thus, when women tend to prefer occupations that are more consistent with their family duties, men are more concentrated in the professions that will be promoted to the higher status (Terzioglu & Taskin, 2008). It can be thought that such gender role patterns established in the societies influence the attitudes of the individuals towards the professions as well.

The separation of professions as 'female profession' or 'male profession' on the basis of gender roles can be considered as a communal issue. For instance, it can be predicted that, while some women have pilots in society, and that some are not found in society, related to cultural acceptance. Regardless of the cause, it is clear that the acceptance of gender plays a significant role on people's choice of profession. Some occupations are perceived as male specific while some occupations are perceived as female specific. Examples of women-specific occupations include pre-school teachers, nursing, and hostesses. Women tend to focus more on areas (such as teaching, secretarial, nursing, pediatrics) that can be considered extensions of traditional mother and wife roles (Ersoz, 1997). On the other hand, it is discussed that the professions giving the power, jobs providing to remain in the forefront of and making more money are associated to the men (Kahraman, Ozansoy Tuncdemir & Ozcan, 2015). According to Kmec (2008), women are perceived as being inferior to low-wage, feminine and the lower-status business lines, and men choosing these business lines are exposed to gender stereotyping norms.

It is estimated that the stereotyped gender roles related to the professions are achieved in the early childhood. As social and communication skills, gaining the homemaking skills and importance of physical attractiveness are educated for the daughters, the boys learns the technical skill, the authoritativeness and the attaching importance to physical power. This situation states the great tendency toward appropriate qualifications, inclination and expectations for the professions in terms of the gender roles. Therefore, the professions the boys and daughters want to be are differentiated based on the gender roles. The vast majority of women are oriented towards occupations wherewomen are heavily involved (Kucukkalay, 1998). This shows that the perception of a job as feminine or masculine can be simply influenced by periodical tendencies. This inclination is also found in the department of the pre-school education. It is a conundrum whether it is difficult for men to prefer this profession to women's preference for pre-school teachers and therefore to be perceived as "women's profession".

Although the numbers of men in the early childhood education in recent years increase, the vast majority of pre-school teachers are still women. According to the statistics of the Ministry of National Education of the year 2015, the number of male teachers in pre-primary education institutions is 3,871 while the number of female teachers is 68,357. Therefore, the rate of male pre-school teachers in Turkey is 5.36%. According to that, the number of female teachers is approximately 18 times that of male teachers.

Having looked at the condition of male pre-school teachers around the world, in Turkey, the rate of the male pre-school teachers is higher than many countries' (Sak, Kizilkaya, Yilmaz & Dereli, 2015). The statsitics in 2010 cite that the proportion of male preschool teachers is less than 1% in 17 countries of the 27 European Union member countries (Oberhuemer, Schreyer, & Neuman, 2010). It is predicted that the approximate 90% of the teachers working at the pre-school education institutions is female (Europan Trade Union Committee for Education [ETUCE], 2012). The proportion of male teachers in pre-school education is 2.3% in the United States (Bureau of Labor Statistics, 2011). There are publications showing that this ratio is 6% in only Japan (Taguma, Litjens & Makowiecki, 2012 cited from Sak, Kizilkaya, Yilmaz & Dereli, 2015). Sak and colleagues cited in 2015, in over a 10-year period, although the rate of male preschool teachers in Turkey seemed to be small in number, a momentous increase of about 25 times has been observed. Turkey is not only separated from the other countries by the increased rate but also differs by the spontaneous emergence of this increase. When the governments and non-governmental organizations try to enhance the rate of the male pre-scholl teachers by the campaigns and practices in some countries, the process develops naturally in Turkey.

Gender discrimination on the opting for the profession gradually decreases and both woman and man can be seen to work in all professions (Anliak & Beyazkurk, 2008). In Turkey, the pre-school teaching seen as "female specific" has dwindled away in recent years. In the social media, there are groups such as "male pre-school teachers", "pre-school teachers- male students'. Therefore, the opinions and experiences of men who prefer pre-school teachers are meaningful in order to understand gender effect.

Nowadays, when the women and men works in any professions, it is a known fact that the higher education departments have the non-normally distributed departments in terms of the sex. It is seen that while the number of the girl students in the engineering departments is less than the boys, the number of the female students in both nursing and early childhood education is more. This condition results from the choice of the students. In general, it can be

said that the male students are less likely to prefer the pre-school teaching education than the female students. Though the reasons for this situation are wondered; It is clear that it is a direction originating from gender bias. Despite not being a scientific reason, a paramount people think that the early childhood education is a female profession. However, the stereotypes related to gender can damage the male students selecting, being interested in and talented for the early childhood education. As a result, the aim of the study is the analyzing deeply the opinions of the male teacher candidates studying at the pre-school education. The opinions of the male teacher candidates about the reasons for the selecting the profession, the difficulties encountered, getting the support and the future plans; is aimed to learn. To this end, several questions were asked to participants about the demographic information as well as the reasons for choosing the pre-school education, what they have experienced in the process of choice and their future expectations. The observed situation on the society: 'how the gender affect the male students studying for pre-school education', is the topic of the study.

Method

Participants

The participants are 112 male students studying pre-school education at different universities in Turkey. The distribution of the universities where students study is presented in Table 1.

Table 1. *Distribution of universities where participants study*

University	n	%	**University**	n	%
Hacettepe University	7	6.3	Yildiz Technical University	3	2.7
Cukurova University	6	5.4	Ataturk University	2	1.8
European University of Lefke	6	5.4	Bahcesehir University	2	1.8
Mersin University	6	5.4	Cumhuriyet University	2	1.8
Mugla Sitki Kocman University	6	5.4	Dumlupinar University	2	1.8
Anadolu University	5	4.5	Karadeniz Tecnical University	2	1.8
Marmara University	5	4.5	Kirikkale University	2	1.8
METU	5	4.5	Mus Alparslan University	2	1.8
Pamukkale University	5	5.4	Necmettin Erbakan University	2	1.8
Adiyaman University	4	3.6	Trakya University	2	1.8
Dokuz Eylul University	4	3.6	Adnan Menderes University	1	0.9
Ege University	4	3.6	Afyon Kocatepe University	1	0.9
Gazi University	4	3.6	Ahi Evran University	1	0.9
Giresun University	4	3.6	Canakkale Onsekiz Mart University	1	0.9
Abant İzzet Baysal University	3	2.7	Dicle University	1	0.9
Bulent Ecevit University	3	2.7	Eastern Mediterranean University	1	0.9
Kocaeli University	3	2.7	Istanbul Aydin University	1	0.9
Sinop University	3	2.7	Cyprus International University	1	0.9
Total number of participants: 112					

While trying to reach the participants in the research process, it has been learned that the number of male students in the department of pre-school education in universities is low in general. For instance, in a large state university in Ankara, staff in the department of pre-

school education reported that there were a total of 7 male students at four grade levels in education period of 2015-2016. The similar situations were also encountered in other universities interviewed by the researshers. In addition, some of the students may not continue their education. Thereby, it was difficult to reach a diversified sampling. The participant's demographic information is showed in Table 2.

Table 2. *Demographical characteristics of participants*

		n	%
Age	19	3	3
	20	24	21
	21	19	17
	22	29	26
	23	21	19
	24+	16	14
Mother's profession	Housewife	96	86
	Nursing	3	3
	Worker	3	3
	Retired	2	2
	Other professions	7	6
Father's profession	Retired	26	23
	Artisan	11	10
	Farmer	10	9
	Civil cervant	17	15
	Freelancer	9	8
	Worker	17	15
	Unemployed	3	3
	Other professions	19	17
Class Level	1st grade	20	17.5
	2nd grade	36	32.5
	3rd grade	24	21.4
	4th grade	32	28.6
The place where the most of life is experienced	Metropolis	32	28.6
	City	27	23.8
	County	37	33.3
	Village	16	14.3
Mother's level of education	Illiterate	17	15.1
	Primary school graduate	63	56.3
	Secondary school graduate	11	10.1
	High-school graduate	15	13.5
	Bachelor	6	5
Father's level of education	Illiterate	6	5
	Primary school graduate	44	39
	Secondary school graduate	13	12
	High-school graduate	34	30
	Bachelor	15	13.5
	Master's degree	1	1
The order of preference of this department (after univ. entr. exam)	First preference	44	39
	In the top 5 preferences	30	27
	In preferences after 5	38	34

Procedure

Initially, previous studies and instruments related to the topic were investigated by the researchers. The semi-structured interview form including the demographic information and four open-ended questions was created in order to gather the information from the participants. In order to obtain demographic information in the interview, the students were asked about their ages, class level, the order of preference, where the most of the life is experienced, their mother's and father's profession and educational level. The open-ended questions in the interview are "*What were the causes of choosinng this department?", "Which difficulties and supports did you encounter during choosing for this department? "Which professions do you plan to work in the future?", "What are your suggestions for students who ask to choose this department?"*. With this questionniare, 112 male students studying in pre-school education programs in Turkey were applied. The other participants suggested by the volunteer participants who agreed to answer to the questionniare, were reached and their opinions were evaluated. Therefore, the convenience sampling and snowball sampling method (Yildirim & Simsek, 2013) were utilized for reaching 112 participants in the study.

Measures

The content analysis method was used in the analysis of the data. It was tried to identify the data and to reveal the facts which might be hidden in the data, by means of the content analysis (Yildirim & Simsek, 2013). Each expression of the answers given to open-ended questions formed the unit of analysis of the research. Thus, if a participant has multiple responses to open-ended questions, each can be considered separately. After data collection was completed, the entire data was read and coded. The themes that can explain the data at the general level based upon the codes, and collect the codes under the certain categories, are determined (Yildirim & Simsek, 2013). After reading and coding the data set in this way, the data set was examined independently by researchers in order to ensure consistency. Thus, the generated codes and themes are reasssessed, and than the revisions were done as agreed upon. A conceptual framework has been reached for each open-ended question by defining themes. After steps, the frequency of the each theme was determined from the answers which the participants gave to the questions asked.

Findings

In this section, qualitative analyzes of the reasons for choosing this occupation by participants, their support and the difficulties they encountered in participating during selecting the department, and their suggestions to future prospective career planners and students who want to choose the profession are presented.

1. The Qualitative Analysis of the Reasons for the Participants' Preference for The Profession

The qualitative analysis of the reasons for the participants' pre-school teaching preferences and the number and percentage of the themes and themes reached are presented in Table 3.

Table 3. *The Reasons why participants choose this profession*

Reasons	%	n
The business opportunities	57	34.13
Interest in working with the children	51	30.54
Interest in the teaching profession	21	12.57
The suitable profession in line with the university entr. exam score	20	11.98
The guidance of the family and teachers	11	6.59
Uninformed preference	7	4.19

As seen in the table, 34.13% of the male teacher candidates prefer this profession because of the bussiness opportunities. 30.54% are interested in working with children. 12.57% are interested in the teaching profession, 11.98% are suitable for the profession in line with the University Entrance Exam score score, 6.59% select due to the guidance of the family and teachers, and 4.19% have the uninformed preference.

The some striking expressions regarding the causes the participants choose the pre-school teaching education are presented below with a direct quote:

> Theme of the business opportunity: *"I did not prefer this profession fondly. It was a popular job then as now. I prefered it due to prospective advantages. It becomed very affective because of the high probability of job openings and assignments."*

> The theme of interest in the teaching profession: *"The fact that the teachers have a big role in the progress of the society and the role becomes more important as the age adressessed is smaller."*

> The theme of the suitable profession in line with the university entrance exam score: *"My exam score is the only reason for my election."*

> The theme of the guidance of the family and teachers: *"It is not a profession that I like. I choosed it, because my school counselor and my family supported it. They confronted me with the fact that if I choose other professions I will be unemployed. And I found myself here- in this department."*

2. The Qualitative Analysis of the Participants' Difficulties and Supports During Preferring the Department

The qualitative analysis of the participants' difficulties and support they received during preferring the pre-school teaching was presented in the table 4. The origin of the supporters and the obstacles is discussed in the theme. The numbers and percentages related to the theme are presented in the Table 4.

As seen in the table, 34.70% of the students prefering this department were supported by their families and relatives; 6.80% from the environment (teacher, friend, etc.). 28.57% of the students opting for the department stated that their families and relatives did not support and 12.25% of them said that the environment (teachers, friends etc.) prevents themselves.

Table 4. *The participants' difficulties and supports during preferring the department*

During preferring the department	**n**	**%**
The supporters		
The family, relatives	51	34.70
The envinroment (teacher, friend etc.)	10	6.80
The obstacles		
The family, relatives	42	28.57
The environment (teacher, friend etc.)	18	12.25
The neutral people	26	17.68

The some of the striking expressions about the difficulties and supports that participants have encountered in choosing the pre-school teaching are directly addressed below:

> The theme of the supporters (the family): *"My family supported me. They always support me because they believe that I will make the right decision for myself."*
>
> The theme of the supporters (the teacher*): "I had the doubts, but I selected without hesitation while my teacher said that you could easily do it."*
>
> The obstacles (the family): *"My father and elder brother tried to prevent in the belief that men should never be a pre-school teacher."*
>
> The obstacles (the friend): *"My parents don't know much about my job as well as the these things, they are not interested in that, but my friends were very opposed and said that it was a profession which "female specific"."*

A significant point observed in participants' responses in the study is; in the theme of those who want to prevent, the reasons for the blocking are completely gender-related. It is understood that in general in the process of choosing a profession, the male students are under pressure because of that this profession is a "women's profession" andin order to not choosing the profession

3. The Qualitative Analysis Regarding Participants' Targeted Status

The number and percentage of the themes and the themes reached by the qualitative analysis of the status of the participants in the future were presented in Table 5.

Table 5. *The qualitative analysis regarding participants's target status*

Target status	n	%
Being a teacher		
In the public schools	62	37.35
In the private schools	5	3
Being school director	38	22.90
Establish a private pre-school institution	28	16.87
Having an academic career	28	16.87
Those who have no certain goals	5	3

As seen in the table 5, 37.35% of the male teacher candidates aim to be teachers in the public schools, 3% of those desire to be a teacher in the private schools; 22,90% of those want to be school director; the goal of 16.87% is establish a private pre-school education institution (kindergarten, ets.); 16,87% purpose to pursue their academic career. 3% of them have no certain goals. The some striking expressions of the status of the participants for the future are demonstrated below with the direct quotation:

The theme of being a teacher in the public schools: *"I want to be appointed as a teacher for the first time."*

The theme of being a teacher in the private schools*: "I first think of teaching a private institution to learn profession thoroughly."*

The theme of being a school director: *"I am planning to work as a manager at the school."*

The theme of establish a private pre-school education institution: *"I think I will found my own school and continue as a teacher."*

The theme of having an academic career: "*I aim to be an academican at the university."*

The theme of those who have no certain goals*: "I can not say anything clear. If i do not want to practice my profession and also if my health condition is available, maybe I can be a police or a soldier".*

4. The Qualitative Analysis of The Participants' Suggestions to Candidates Preferring The Pre-School Education

The qualitative analysis of the participants' suggestions to candidates preferring the pre-school education and the number and percentage of the themes and themes reached are presented in Table 6.

Table 6. *The qualitative analysis of the participants' suggestions to candidates preferring the pre-school education*

Suggestions	**n**	**%**
Those who do not suggest the department for the men	15	9.68
Those who suggest to act independent from the gender roles	62	40
Those who suggest choosing in terms of the interest and the ability	74	47.74
Those who are irresolute	4	2.58

As seen in the table, 9.68% of the students do not suggest the department for men. 40% suggest to act independent from the gender roles. 47.74% suggest choosing in terms of the interest and the ability. 2.58 % of the participants are irresolute about the issue. The some of the striking statements about the participants' suggestions to candidates preferring the pre-school education are presented below, with a direct quote.

Those who do not suggest the department for the men: *"I think they should not prefer or they should prefer if they are sure of it. If it is possible, they should visit a pre-school. I don't think that they prefer after visiting."*

Those who suggest to act independent from the gender roles: *"I think, nowadays there isn't any difference between woman and man. I have learnt it from my family all the time. There is only human. Let you prefer this profession (as a suggestion); there are not the gender discrimination in the profession anymore; and if a woman succeeds in being an engineer, also a man can succeed to be a preschool teacher. The only reason why this department is not preferred by the men is that I think there is no advertisement for choosing and there some who do not know that the men can opt for the division."*

Those who suggest choosing in terms of the interest and the ability: *"I recommend they do not come by thinking to greduate easily and the assignment possibility of the division is high. I suggest, only if they love this profession and believe to do. I suggest, if they love children and relax in a noisy environment as well as having the belief they will provide the classroom management. They shouldn't choose, if they are not willing enough. This profession is not a profession to love afterwards."*

Those who are irresolute: *"I do not know what is recommended. I am undecided. I do not regret being here, but I have some worries".*

The sincere proposal of the one of the participants to those who wish to prefer this profession is presented below as well as related to the general purpose of the research:

"I do badly at pre-school education. If you believe you can do, not think twice about it. Don't forget, the cleanest part of the society will be your pupils. The education you give them will influence the society. I take a dislike to doing this job because of my incompetence and personal traits. You should decide whether you prefer or not this profession by analysis your own skill and personal traits."

Conclusion, Discussion and Recommendation

That the women mostly work in the profession such as the pre-school teaching and nursing leads as if these professions are unique for the woman, and prepares the ground for the men to face the gender inequalities (Niles & Harris-Bowlsbey, 2013). According to the statistical data of the Ministry of National Education for the years of 2015-2016, 18,083 teachers are working in the pre-school education institutions; 307 of the total number are men; 17,776 are women. In the light of this information, the pre-school teaching is confronted as a profession in which the representation of the woman and the man is not equal.

Just as in many societies, women in Turkey also need to work in the professions with the maternal features such as teaching, nursing, hostess, and services; It seems appropriate for men to work in jobs such as engineering, contracting, directorship / governorship and politics that require greater independence, power, and leadership (Kandiyoti, 1982). In the

research, it is wondered what men's motivational resources, which can overcome such social norms, affect the vocational selection process. The one of the outstanding results of the study relates how the men prefer the pre-school teaching. The findings focuses on "the opportunities of the profession" and "the interest in working with and care for the children". A similar result is encountered in different researches made in the recent years. Cruickshank (2012), who compiled research on why men chose the early childhood teaching, cited that they have reached the outcome of their choice, just like their female counterparts, with a desire to make a difference in the children's lives, to prepare them for a good education and to be a good role model for the children. It is a significant motivation to opt for this profession as it can be predicted to love and care for the children. However, it is necessary not to overlook the such spesific social-economical factors of Turkey. While preferring this occupation, it is seen that the participants choose mainly (34%) thanks to the labor-job protection of the profession. The high possibility of working in the state institutions etc. This suggests that it may face a re-biased picture in terms of the gender if the profession of the early childhood teaching loses the such advantages.

Another important finding of the study concerns the targeted status. It is also noted that the statues targeted by the participants are more masculine perceived statutory. The teacher candidates have expressed their preference mainly to be principals in the institutions and to work in administrative positions when they will work. Even the majority of those declaring to be teacher in the state were hit by what they see as a stepping stone to the administration of teaching. Therefore, they estimate their future as a manager rather than a teacher. In addition, this suggests that they imagine positions that are more masculine in comparison with the teacher in the society. The common findings are also founded in the results of the varied investigation. In the study by Smith (2004), it is stated that they also tried to specialize in certain areas as a way for the male pre-school teachers to differentiate themselves from their female colleagues and to appear more masculine at the same time. It is cited that these fields are especially sports and the technological knowledge. Consequently, the male pre-school teacher candidates may not completely reject the gender bias regarding their profession in their societyThose may be directed to the business lines, which the society have approved based on their own gender roles. It is controversial whether the some of the participants have the conception of the latent sexism (Benokraities & Feagin, 1995), which means "to indicate that women and men are equal, but to see many behaviors that ignore this equality as normal". Even if they indigenize the existing mold judgements, wanting to be a manager can be a way of reducing the pressure on themselves.

The stereotypes related to the gender influence the choice of the profession of both men and women. Unremarkably, it is expected that the men are more ambitious and success-oriented. It may even be thought that the men in the professions the women prefer more seen feminine (Lease, 2003). The patriarchal understanding in Turkey can sense being homosexual and feminine as a threat to the heterosexual manhood. According to the results of the research, it can be considered that that if the male students have the gendered stereotypes directed towards themselves, they turn to socially masculine business lines in the name of not being feminine. This situation shows that they feel pressure; in other words, it is possible that they feel "stereotype threat" (Sears, Taylor & Peplau, 2016) on themselves. Stereotype threat can defined as a situational misconduct in which people feel themselves to be at risk of conforming to stereotypes about their social group. And may be the participants experience masculine gender role stress (Eisler, Skidmore & Ward, 1988) which mean that male gender-role identification affects whether specific situations are appraised as stressful.

In this context, it may be useful to measure the masculine gender role stress level of male pre-school teacher candidates with a valid instrument (Bayar, Haskan Avcı & Koç, 2018).

Another result of this research is the increase in the number of the men who prefer pre-school teachers and do not perceive as a profession of the women. In general, is is understood that the expressions of the students become quesioning and criticizing the gender stereotypes. Even if they study only in this profession, they may be reducing the stereotype of the students. Furthermore, the expression of the students show that the acceptance of the male pre-school teachers increases throughout the society. The studies related to the nursing profession, which shares a similar view with the early childhood teaching in terms of the gender distribution, also relfects common situations. In a survey conducted by Kaya, Turan & Ozturk (2011) on 1482 people in order to determine the male nurse image in Turkey, 71,4% of the individuals know that men can also do nursing in Turkey; 62,6% said that nursing is a profession that both women and men can do; 71,7% stated that nurses' sucsess in their practice was more significant than the sex. It can be considered that the spereotypes regarding the gender related to the occupations in Turkey decrease with time on the occasion of the such studies' promosing results.

The suggestions that can be presented by way of the result of the research are also mentioned. In Turkey, it is explained to the students on the eve of their profession that the jobs such as the pre-school teaching, nursing and the child development are not "women's occupations" and aimed at the female. The findings of the researches can be showed to male high school students who want to the pre-school teaching. Moreover, the male students' first word of the mouth will be more effective as a peer. Particularly in this search, the direct expressions of some participants seen as an alarm and offer realistic ideas to the candidates wishing to opt for this profession. In addition, the projects may be produced in order to bring together candidates who wish to select with those performing this occupation.

As a result of the research, it is understood that there is a need for countrywide efforts to reduce gender bias. The students attending the pre-school teaching education programs in different parts of Turkey participated in this study. It can therefore be assumed that a significant portion of the participants were able to enroll in this department by overcoming the gender-related environmental obstacles or the stereotypes tending towards themselves. However, many students who have not been able to overcome the obstacles and have become the victims of the stereotypes should not be overlooked. There might be so many youngers who have a sense of social gender oppression notwithstanding their interest and abilities are in this direction. Hence, there is a requirement for the studies to creating awareness of gender issues. It gains the importance that the increasing the number of the projects such as "ETCEP" (co-financed by the European Union and the Republic of Turkey), "Honey Bees are Becoming Engineers" and the being made more inclusive by increasing. The more awareness about gender impact can be achieved for male high school students in choosing a profession. If the research findings indicate that the most critical obstacles faced by the students are related to gender and originated mostly from the family, it is more particularly showed that the projects involving the teachers and the mothers are the necessity.

Additionally, a finding that emerges as a result of the research is concerned with not loving this profession by the teachers but about their choices in terms of the job opportunities. However, this condition should be considered as a concern of the society. The tough jobs such as the child care and eldercare are difficult to perform without the interest. Moreover, these areas are vulnerable to exploitation and neglect, as they are thought to be in

a position where the caregivers are weak and needing the help.Therefore, the research underlines that the realistic information should be given to the students wishing to prefer the profession only due to their job opportunities and it is critical to establish a consciousness regarding the contents and the difficulties of the work in the society. It is a need for a scientifically based vocational guidance understanding that promotes them in all aspects and helps individuals to recognize their interests and different values, rather than understanding their career counseling in a shallow field and assessing the occupations only with job parameters. In vocational guidance services, it is extremely crucial that the techniques of individual recognition are utilized to help the students identify their interest and talents before they reach the latest stage.

It is thought-provoking that a significant proportion of the participants aims to become managers at the schools in the future. Nowadays, when the rates of administrators and teachers working in schools are evaluated, it is obvious that the fewer people can take part in the school management in the future. Thousands of teachers, men and women from the varied branches are appointed to the state institutions each year. In the study, it is clear that all of the students who purpose to "be an administrator" might not be "an administrator". It is very important to inform students realistically who want to opt for a career with such expectations. Especially during the period of the preference and in general while the vocational selection progress, the school counselors and career counselors need to illuminate the students on the unrealistic perceptions and expectations.

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Attitudes of Primary School Teachers towards Inclusive Education

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Abstract

The objective of the research is to analyze the attitudes of classroom teachers towards inclusion education in the consideration of certain variables. 500 teachers working in different primary schools in Gaziantep have joined in the study. A scale of attitudes towards inclusion, consisting of 40 questions and 5 sub-dimensions that was formed by researchers as a data instrument was applied in the present work. It's identified at the end-of research that the points attained by the teachers in the research from some sub-dimensions of the scale of attitutes towards inclusion reflect statistically meaningful difference according to gender, age group, length of service, marital status. As a result, it's to be remarked that teachers' attitudes towards inclusion give out diffence according to some variables and certain sub-dimensions oriented to inclusion don't indicate difference depending on diverse variables. The outcome of this study reveales that not only the teachers' length of service, but also the duration that the teachers have dealt with inclusive education is related to their attitude towards inclusive education. However, there are also other research findings in the literature, which reveal that the teachers' length of service does not affect their ideas towards inclusive education. Following suggestions may be made in the light of these findings: Students involved in the inclusive education may be assigned to the classes of married teachers. It may be useful for classroom teachers, who are in the first five years of their professional career especially, not to be directly responsible for students of inclusive education.

Keywords: inclusive education, students with disabilities, disabled students, teachers' attitudes, teachers' perspectives

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Sınıf Öğretmenlerinin Kaynaştırmaya Yönelik Tutumları

Öz

Bu araştırmanın amacı, sınıf öğretmenlerinin kaynaştırmaya yönelik tutumlarını bazı değişkenler ışığında incelemektir. Çünkü öğretmenlerin tutumları sayesinde kaynaştırma eğitiminde gerekli başarıya ulaşılabilir. Önemli olan tutumların olumlu ya da olumsuz hangi yönde olduğunun belirlenerek gerekli tedbirlerin alınmasıdır. Araştırmaya Gaziantep ili Şahinbey ve Şehitkâmil ilçelerindeki farklı ilköğretim okullarında görev yapan 500 öğretmen katılmıştır. Araştırmada veri toplama aracı olarak araştırmacılar tarafından geliştirilen, 40 sorudan ve 5 alt boyuttan oluşan "Kaynaştırmaya Yönelik Tutum Ölçeği" kullanılmıştır. Açımlayıcı faktör analizinin değerlendirilmesinde Kaiser-Meyer-Olkin (KMO) katsayısına bakılmış ve katsayı 0,88 olarak bulunmuştur. Bu değerin 0.60'dan yüksek olması dağılımın faktör analizi için uygun olduğunu göstermektedir. Araştırmanın sonunda, araştırmaya katılan öğretmenlerin kaynaştırmaya ilişkin tutum ölçeğinin bazı alt boyutlarından elde ettikleri puanların cinsiyetlerine, yaş gruplarına, mesleki kıdem düzeylerine, medeni durumlarına göre istatistiksel olarak anlamlı farklılık gösterdiği tespit edilmiştir. Sonuç olarak, kaynaştırmaya ilişkin öğretmen görüşlerinin bazı değişkenlere göre farklılık gösterdiği, kaynaştırmaya yönelik bazı alt boyutların ise çeşitli değişkenlere göre farklılık göstermediği söylenebilir. Bu araştırma, öğretmenlerin mesleki kıdemlerinin yanında kaynaştırma eğitiminin içerisinde bulunma süreleri ile ilişkili olduğu sonucunu ortaya çıkarmaktadır. Buna karşılık alanyazında öğretmenlerin mesleki deneyimlerinin kaynaştırma eğitimine ilişkin düşünceleri etkilemediğini gösteren araştırma bulguları da mevcuttur. Bu bulgular ışığında şu önerilerde bulunulabilir: Kaynaştırma öğrencilerinin daha çok evli öğretmenlerin bulundukları sınıflarda eğitim görmesi sağlanabilir. Sınıf öğretmenlerinin mesleklerinin ilk yıllarında özellikle ilk beş yılında kaynaştırma öğrencisi okutmaması faydalı olabilir.

Anahtar Sözcükler: kaynaştırma eğitimi, engelli öğrenciler, öğretmen tutumları

Introduction

Students with disabilities have educational rights as the same as the children of mainstream education. They need to be provided education that is individualized according to their developmental levels, disability levels, and their needs so that they can fulfill their roles in the society the best way possible (İmrak, 2009). Individualized education became more common in the 21st century with the developments in modern educational approaches leading to put an emphasis on the special education of students with disabilities (Kulaksızoğlu, 2011). However, the many different categories and types of disabilities render this task difficult. Thus, experts of the subject try to provide the appropriate educational settings, which would enable and facilitate the identification of the educational needs of the students with disabilities, meeting these identified needs, and uncovering their talents, skills and other latent powers (Özgür, 2008).

Inclusive education stands out as a primary approach in educating students with disabilities. A relatively older approach, isolating students with disabilities leading to very homogenous classes for both students with disabilities and regular students, did not yield the best results. Thus, via inclusive education, students with disabilities are tried to be integrated with regular students having mainstream education as much as possible and they are provided special education individually or in smaller groups only when there is definitely a need (Özgür, 2011). This way, not only students with disabilities will get the best education possible while not getting isolated from other students; other students will also learn to come to admire the differences in the society, to respect the disabled and not to despise them (Türk, 2011). However, inclusive education may yield the expected results only if the teachers adopt a positive approach to the matter (Ünal, 2010). Thus, it is important to determine the teachers' attitudes about the issue, the reasons for their negative attitudes if any, and the possible solutions to the problem of negative attitudes. Therefore, answers to the following questions are sought for to determine teachers' attitudes and approaches concerning inclusive education based on certain variables:

1. Is there a significant different between the scores that the teachers obtained from the scale of attitudes towards inclusion based on teachers' gender difference?

2. Is there a significant different between the scores that the teachers obtained from the scale of attitudes towards inclusion based on the marital status of the teachers?

3. Is there a significant different between the scores that the teachers obtained from the scale of attitudes towards inclusion based on teachers' length of service?

Method

Universe-Sample

Universe of the study comprises 3516 classroom teachers, of whom 2264 are serving at Şahinbey District of Gaziantep Metropolitan area and 1252are serving at Şehitkâmil District of Gaziantep Metropolitan area. Sample of the study comprises 500 classroom teachers selected from different prrimary schools via appropriate sampling. Following formula has been used to determine the size of the sample:

$$n = \frac{N \; x \; t^2 \; x \; p \; x \; q}{d^2 \; x \; (N-1) + t^2 \; x \; p \; x \; q}$$

Table 1. *Descriptive statistics about the participants*

n	Number of the samples	346
N	The size of the study universe (main body)	3516
p	Incidence of the event to be analyzed (probability of incidence)	0.5
q	Inverse incidence of the event to be analyzed (probability of inverse incidence) (1-p)	0.5
t	Confidence level	1.96
d	Acceptable error rate in sampling	0.05

$$n = \frac{N\ x\ t^2\ x\ p\ x\ q}{d^2\ x\ (N-1) + t^2\ x\ p\ x\ q} = \frac{3516\ x\ (1,96)\ \ ^2x\ (0,5)x\ (0,5)}{(0,05)^2\ x\ (3516-1) + (1,96)\ \ ^2x\ (0,5)\ x\ (0,5)} = 346$$

Sample size is calculated as 346. The number of participants that is 500 classroom teachers, included in this study is more than the calculated minimum sample size of 346 and is thus sufficient.

Table 2. *Descriptive statistics about the participants*

Variables	Sub-variables	f	%
Gender	male	280	56,0
	female	220	44,0
Marital Status	married	423	84,6
	single	77	15,4
Age Groups	age 23-29	86	17,2
	age 30-36	202	40,4
	age 37-44	137	27,4
	age 45+	75	15,0
Length of Service	1-5 years	67	13,4
	6-10 years	142	28,4
	11-15 years	134	26,8
	16-20 years	99	19,8
	21+ years	58	11,6

Data Collection Instrument

Scale of attitudes towards inclusion

A "Scale of Attitudes towards Inclusion" has been developed to collect the necessary data for this study. A pool of 40 questions has been prepared after a thorough literature study about the subject. 5-point Likert-type scale is decided to be used for the responses having response choices of, 'I totally disagree', 'I disagree', 'I am undecided', 'I agree', and 'I totally agree'. It is very well established in the literature that the connection between the scale to be developed and the variable to be measured using this scale has to be consistent. For this reason, commonly, expert opinions are sought for the provision of content validity during the pre-study phase (Yurdagül, 2005). Three different faculty members that work at universities' colleges of education are consulted with to determine the consistency of the scale developed by the authors of this study. Scale has been revised based on the opinions of these aforementioned experts and then pre-application stage for the scale was initiated. Pre-applicaton of the scale comprising 40 questions was administered to 300 classroom teachers that work at the schools in both Şahinbey and Şehitkamil districts of the bigger Gaziantep

metropolitan area. Scale was reviewed and revised once more based on the results of the pre-application and the final version of the scale has been administered to 230 classroom teachers. The data obtained after the application was transferred to the SPSS program. Kaiser-Meyer-Olkin (KMO) coefficient was examined for the assessment of the exploratory factor analysis, and it was found as 0.88. The fact that this value is higher than 0.60 indicates that the distribution is suitable for factor analysis.

Table 3. *Descriptive information regarding the factors of the attitude scale consisting of five factors towards inclusion*

Sub-Factor Distribution	Sequence Number of the Question in the First Scale	Sequence Number of the Question in the Last Scale	Factor's Load Value	Eigenvalue
1st Factor: Time and Quality in Education	18	1	.778	6.853
	9	2	.723	
	12	3	.426	
	35	4	.662	
	32	5	.763	
	24	6	.380	
	28	7	.679	
	3	8	.539	
	40	9	.483	
2ndFactor: Attitude Towards Success	36	10	.673	1.500
	39	11	.608	
	38	12	.440	
3rdFactor: Attitude Towards Protection	37	13	.573	1.393
	20	14	.722	
	23	15	.708	
4thFactor: Classroom Management	1	16	.510	1.227
	4	17	.640	
	6	18	.510	
	8	19	.625	
	17	20	.447	
5thFactor: Attitude Towards Speciality/Subject Taught	21	21	.778	1.014
	22	22	.709	

Additionally, Bartlett's test value has been found as 1028.78 also pointing out to the significance of this test result. Significant test results implied that the scale can consist of the factors. Factor analysis was repeated after removing the items that have a factor load lower than 0.30 from the scale and a 5-dimensional scale was created as a result. The descriptive rate of the scale is 54,48%.

Analysis of the Data

SPSS 20.0 for Windows software was used in the analysis of the obtained. Descriptive statisticswas utilized to determine the averages associated with the scale factors, whereas frequency analysis was utilized to determine the descriptive data of the participants. Independent samples t-test was used to compare the average scores of test participants on the

basis of participants' gender and marital status, whereas One-WayAnova analysis was used to compare the average scores of test participants on the basis of age groups and length of service. LSD test was used as a post hoc to find out which groups have difference between them as a result of the variance analysis. The significance level was identified as p <0.05 for all performed analyses.

Findings

Table 4. *Descriptive statistics regarding participants scores obtained from the scale factors*

Factors	N	At least	At most	X	Ss
Time and Quality in Education	500	9	45	28,30	7,124
Attitude towards success	500	3	15	10,90	2,381
Attitude towards protection	500	3	15	9,76	2,552
Classroom management	500	8	25	19,25	3,283
Attitude towards specialty/subject taught	500	2	10	7,81	1,685
Total Attitude Score	500	28	106	76,02	13,82

When the above table is analyzed, it is seen that the participants obtained medium level scores from the factors of time and quality in education, attitude towards success, attitude towards protection, attitude towards specialty, and from the total scale, whereas they obtained high level scores from the classroom management factor.

Findings regarding thesub-problem of "Is there a significant different between the scores that the teachers obtained from the scale of attitudes towards inclusion based on teachers' gender difference?" are displayed in Table 4 up to Table 10.

Table 5. *Comparison of the participants' average scores they obtained from the time and quality in education factor, on the basis of gender*

Gender	N	X	Ss	Sd	t	p
Male	280	28,42	6,901	453,752	,413	.679
Female	220	28,15	7,411			

p>0,05

When the above table is analyzed, it is seen that the participants' scores obtained from the time and quality in education factor are similar in terms of gender difference and that there is no statistically significant difference between them (p>0,05).This result may be due to both male and female teachers having similar backgrounds in terms of the socio-demographic and socioeconomic status of the schools that they had graduated from.

Table 6. *Comparison of the participants' average scores they obtained from the attitude towards success factor, on the basis of gender*

Gender	N	X	Ss	Sd	t	p
Male	280	10,78	2,374	469,328	-1,266	.206
Female	220	11,05	2,386			

p>0,05

When the above table is analyzed, it is seen that the participants' scores obtained from the attitudes towards success factor are similar in terms of gender difference and that there is no statistically significant difference between them (p>0,05). This result may be due to the similar features of the education and training materials that are used at the schools where male and female teachers work. Additionally, the emergence of this result may be also due to the similar attitudes of both male and female teachers' students towards success.

Table 7. *Comparison of the participants' average scores they obtained from the attitude towards protection factor, on the basis of gender*

Gender	**N**	**X**	**Ss**	**Sd**	**t**	**p**
Male	280	9,75	2,332	498	-,134	.893
Female	220	9,78	2,812			

p>0,05

When the above table is analyzed, it is seen that the participants' scores obtained from the attitudes towards protection factor are very close to one another in terms of gender difference and that there is no statistically significant difference between them (p>0,05).

Table 8. *Comparison of the participants' average scores they obtained from the classroom management factor, on the basis of gender*

Gender	**N**	**X**	**Ss**	**Sd**	**t**	**p**
Male	280	19,08	3,294	472,518	-1,379	.169
Female	220	19,48	3,261			

p>0,05

When the above table is analyzed, it is seen that the female participants' scores obtained from the classroom management factor are slightly higher than the male participants' scores obtained from the classroom management factor; however, this difference was not enough to produce a statistically significant difference (p>0,05). This result may be due to both male and female teachers having received classroom management education at similar levels.

Table 9. *Comparison of the participants' average scores they obtained from the attitude towards specialty factor, on the basis of gender*

Gender	**N**	**X**	**Ss**	**Sd**	**t**	**p**
Male	280	7,60	1,680	472,764	-3,090	.002
Female	220	8,07	1,661			

p<0,05

When the above table is analyzed, it is seen that the female participants' scores obtained from the attitudes towards specialty factor are significantly higher than the male participants' scores obtained from the attitudes towards specialty factor (p<0,05). This result may be due to male and female teachers possessing different level of qualifications in their specialties they have been serving.

Table 10. *Comparison of the participants' average total scores they obtained from the attitude scale consisting of 5-factors, on the basis of gender*

Gender	N	X	Ss	Sd	t	p
Male	280	75,62	13,185	445,686	-,727	.468
Female	220	76,53	14,610			

p>0,05

Male and female participants' total scores obtained from the attitude scale were similar and no statistically significant difference was observed between them (p>0,05).This result may be due to both male and female teachers having similar levels of knowledge and skills associated with the inclusive education they had received both at the universities, where they received higher education, and at the schools, where they have been working.

Findings regarding thesub-problem of "Is there a significant different between the scores that the teachers obtained from the scale of attitudes towards inclusion based on the marital status of the teachers?" are displayed in Table-11 up to Table-16.

Table 11. *Comparison of the participants' average total scores they obtained from the time and quality in education factor, on the basis of marital status*

Marital Status	N	X	Ss	Sd	t	p
Married	423	28,68	7,027	102,937	2,702	.008
Single	77	26,23	7,343			

p<0,05

Average scores that the married participants obtained from the time and quality in education factor were significantly high than the scores of the single participants (p<0,05). This result may be due to married teachers having more responsibilities in daily life compared to the single teachers leading to the married teachers having a higher level of attitude in terms of time management.

Table 12. *Comparison of the participants' average total scores they obtained from theattitude towards success factor, on the basis of marital status*

Marital Status	N	X	Ss	Sd	t	p
Married	423	10,95	2,377	105,086	1,095	.276
Single	77	10,62	2,395			

p>0,05

Table reveals that the married participants have higher averages of attitude towards success scores, however it is observed that the average scores of this factor have not been differentiated at a statistically significant level based on the marital status (p>0,05).This result may be due to the differentiation of the teachers' attitudes towards success in accordance with the academic levels of the students at the schools, where they work, rather than differentiation based on marital status.

Table 13. *Comparison of the participants' average total scores they obtained from the attitude towards protection factor, on the basis of marital status*

Marital Status	**N**	**X**	**Ss**	**Sd**	**t**	**p**
Married	423	9,89	2,526	103,869	2,564	.012
Single	77	9,06	2,597			

p<0,05

Table reveals that the married participants have higher averages of attitude towards protection scores and it is also observed that the average scores of this factor have been differentiated at a statistically significant level based on the marital status (p<0,05). This result may be due to married teachers having children of their own in general and thus, in this respect, this result of married teachers having higher scores of attitude towards protection than the single teachers can be considered as an anticipated result.

Table 14. *Comparison of the participants' average total scores they obtained from the classroom management factor, on the basis of marital status*

Marital Status	**N**	**X**	**Ss**	**Sd**	**t**	**p**
Married	423	19,27	3,291	106,275	,249	.804
Single	77	19,17	3,254			

p>0,05

Table reveals that the married participants and the single participants have had similar scores of classroom management factor and that the average scores of this factor have not been differentiated at a statistically significant level based on the marital status (p>0,05). This result may be more due to the physical characteristics of the classroom and the attitudes of the students towards the class rather than to the marital status of the teachers affecting the classroom management factor.

Table 15. *Comparison of the participants' average total scores they obtained from the attitude towards specialty/subject taught factor, on the basis of marital status*

Marital Status	**N**	**X**	**Ss**	**Sd**	**t**	**p**
Married	423	7,80	1,686	105,251	-,204	.839
Single	77	7,84	1,694			

p>0,05

Average attitude towards specialty/subject taught scores of both the married and single teachers are almost similar and the average scores of this factor have not been differentiated at a statistically significant level based on the marital status (p>0,05). This result may be due to similar competency levels of the married and single teachers in the subjects they taught.

Total attitude levels of the married participants are significantly higher than those of single participants (p<0,05).This result may be due to the fact that married teachers have children of their own in general and that they undertake more responsibilities.

Table 16. *Comparison of the participants' average total scores they obtained from the attitude scale, on the basis of marital status*

Marital Status	N	X	Ss	Sd	t	p
Married	423	76,58	13,772	105,503	2,137	.033
Single	77	72,94	13,784			

p<0,05

Findings related to the sub-problem of"Is there a significant different between the scores that the classroom teachers obtained from the scale of attitudes towards inclusion based on teachers' length of service?" are revealed in Tables 17, 18, 19, 20, 21 and 22.

Table 17. *Comparison of the participants' average total scores they obtained from the time and quality in education factor, on the basis of length of service*

Length of Service	N	X	Ss	Sd	F	p	Difference
1-5 years (1)	67	25,45	7,592				
6-10 years (2)	142	29,70	6,520				1-2,
11-15 years (3)	134	28,25	7,185	4	4,419	.002	1-3,
16-20 years (4)	99	28,73	6,439				1-4,
21≤ years (5)	58	27,55	8,083				

p<0,05

Table reveals that there is statistically significant difference between the participants' average scores obtained from the time and quality in education factor based on the length of service (p<0,05).This significant difference is due the significantly lower average scores of the classroom teachers that have a length of service between 1 and 5 years compared to the average scores of the classroom teachers those have lengths of service between 6 and 10, 11 and 15, and 16 and 20 years (p<0,05).

Table 18. *Comparison of the participants' average total scores they obtained from the attitude towards success factor, on the basis of length of service*

Length of Service	N	X	Ss	Sd	F	p	Difference
1-5 years (1)	67	10,45	2,433				
6-10 years (2)	142	11,24	2,186				1-2,
11-15 years (3)	134	11,02	2,379	4	2,624	.034	2-5,
16-20 years (4)	99	10,94	2,539				3-5,
21≤ years (5)	58	10,22	2,370				

p<0,05

It was found that there is statistically significant difference between the participants' average scores obtained from the attitude towards success factor based on the lengths of service (p<0,05). The reason for the observed significant difference is the lower average scores of the classroom teachers those have lengths of service between 1 and 5 years compared to the classroom teachers those have lengths of service between 6 and 10 years as well as the significantly lower average scores of the classroom teachers those have lengths of service between 21+ years compared to the classroom teachers those have lengths of service

between 6 and 10 years and 11 and 15 years (p>0,05). This result may be due to longer lengths of services linearly affecting the burn-out level in teachers.

Table 19. *Comparison of the participants' average total scores they obtained from the attitude towards protection factor, on the basis of length of service*

Length of Service	N	X	Ss	Sd	F	p	Difference
1-5 years (1)	67	10,45	2,433				
6-10 years (2)	142	11,24	2,186				1-2,
11-15 years (3)	134	11,02	2,379	4	2,624	.034	2-5,
16-20 years (4)	99	10,94	2,539				3-5,
21≤ years (5)	58	10,22	2,370				

p<0,05

It was observed that there is statistically significant difference between the participants' average scores obtained from the attitude towards protection factor based on the lengths of service (p<0,05). The reason for the observed significant difference is the lower average scores of the classroom teachers those have lengths of service between 1 and 5 years compared to the classroom teachers those have lengths of service between 6 and 10 years and between 11 and 15 years (p<0,05).

Table 20. *Comparison of the participants' average total scores they obtained from the classroom management factor, on the basis of length of service*

Length of Service	N	X	Ss	Sd	F	p	Difference
1-5 years (1)	67	18,87	3,143				
6-10 years (2)	142	19,77	3,334				2-5,
11-15 years (3)	134	19,32	3,079	4	3,433	.009	3-5,
16-20 years (4)	99	19,43	3,375				4-5
21≤ years (5)	58	17,98	3,338				

p<0,05

Table reveals that there is statistically significant difference between the participants' average scores obtained from the classroom management factor based on the lengths of service (p<0,05). The reason for the statistically significant difference is due to the significantly lower average scores of the classroom teachers those have lengths of service more than 21+ years compared to the average scores of the teachers those have lengths of services between 6 and 10, 11 and 15 and 16 and 20 years (p<0,05).This result may be due to longer lengths of services linearly affecting the burn-out level in teachers.

Table 21. *Comparison of the participants' average total scores they obtained from the attitude towards specialty/subject taught factor, on the basis of length of service*

Length of Service	N	X	Ss	Sd	F	p
1-5 years (1)	67	7,75	1,744			
6-10 years (2)	142	7,90	1,800			
11-15 years (3)	134	7,80	1,565	4	,779	.539
16-20 years (4)	99	7,92	1,800			
21≤ years (5)	58	7,48	1,380			

p>0,05

There are small differences between the participants' average scores obtained from the attitude towards speciality/subject taught factor, however these differences are not statistically significant (p>0,05).This result may be due to the similar skills and abilities of the teachers in their subject areas regardless of their lengths of services.

Table 22. *Comparison of the participants' average total scores they obtained from the attitude scale, on the basis of length of service*

Length of Service	N	X	Ss	Sd	F	p	Difference
1-5 years (1)	67	71,52	14,763				
6-10 years (2)	142	78,70	12,554				1-2,
11-15 years (3)	134	76,39	13,352	4	4,105	.003	1-3,
16-20 years (4)	99	76,66	14,361				1-4
21≤ years (5)	58	72,72	14,363				

p<0,05

There are differences between the participants' total attitude scores in terms of length of service and these differences are statistically significant (p<0,05).This statistically significant difference is caused by the significantly lower average scores of the classroom teachers those have lengths of services between 1 and 5 years compared to the teachers those have lengths of services between 6 and 10, 11 and 15, and 16 and 20 years. This result may be due to teachers those have less lengths of service also having less professional experience and due to teachers having the highest lengths of services also having high burn-out levels.

Results and Discussion

In this section, research findings related to the thoughts of the classroom teachers about inclusive education that are categorized in five sub-dimensions, time and quality in education, attitude towards success, attitude towards protection, classroom management and attitude towards specialty/subject taught, and investigated based on four variables of gender, marital status, age groups and length of service are discussed in the light of the similar studies in the literature.

The biggest responsibility with regards to inclusive education lies with the classroom teachers, thus a successful inclusive education is related to the attitudes of the teachers in this respect (Demir & Açar, 2010; Demir & Açar, 2011). An unsuccessful inclusive education will also limit the development of students receiving special education services.

In our study, participants' average scores from the sub-dimensions of the attitude towards inclusion scale, which are time and quality in education, attitude towards success, attitude towards protection, and classroom management factors and total attitude scale did not reveal any statistically significant difference on the basis of gender difference. On the other hand, in one of the sub-dimensions, that is the attitude towards specialty/subject taught dimension, female teachers were found to have higher average scores than the male teachers resulting in a high enough difference that is statistically significant. This result is coherent with the similar studies in the literature, some of which revealed that the female teachers attitudes in relation to the special education and inclusive education programs are higher than those of male teachers (Forlin et al., 2009), whereas others revealed that the gender difference did not have any effect on the attitudes of classroom teachers towards special and

inclusive education (Demir & Açar, 2010; Parasuram, 2006; Şahbaz & Kalay, 2010; Yıldız & Pınar, 2012; Ünal, 2010).

The findings related to the second variable that is the marital status revealed that the participants' average scores obtained from two of the five sub-dimensions that are time and quality in education and attitude towards protection and from the total attitude scale were found to be significantly different in terms of marital status. In these aforementioned sub-dimensions and the total attitude scale, average scores of married teachers were found to be higher than those of single teachers. As a reason, it may be speculated that the fact that the responsibilities of the married teachers associated with their family and social lifes are more than those of single teachers may affect the attitudes of married teachers with respect to inclusive education. This result is different than the finding of Seçer's study, in which he/she found that there was no statistically significant difference between the teachers' attitudes towards inclusive education based on the marital status (Seçer et al., 2010).

The findings related to the fourth variable that is the length of service revealed that the differences between the participants' average scores obtained from the sub-dimensions of time and quality in education, attitude towards protection, attitude towards success and classroom management factors and total attitude scale were statistically significant with the exception of attitude towards specialty/subject taught. As a reason, teachers that are in the beginning and at the end of their working lives had lower average scores compared to other teachers. The reason for the low scores of the teachers, who are in the beginning of their professional lives and who have served only between 1 and 5 years might as well be their inexperience with regards to the inclusive education, which is supported by other studies that can be found in the literature indicating that the attitude level towards inclusive education increases by increasing age (De Boer et al., 2010; Forlin et al., 2009; Hastings et al., 2013). Further, the reason for the low scores of the teachers, who are at the end of their professional lives and who have served 21+ years might as well be their burn-out rates, which is also supported by similar studies in the literature.Furthermore, it was observed in another study that the rate of positive responses given to certain questions asked at the end of the study to the participants of the study such as "do you think that you sufficiently care for the students those are included in the inclusive education?, do you think that students included in the inclusive education are a part of your class?, do you know how to help with the problems of the students included in the inclusive education?, do you think whether the guidance and counseling services are sufficient for the the students included in the inclusive educationat your school?" increased with increasing lengths of services (Demir & Açar, 2010). The results of the said study indicates that it is not just the length of service that affects the teachers' attitude levels towards inclusive education, but also the duration that the teachers were exposed to inclusive education and had to deal with inclusive education throughout their professional careers. On the other hand, there are also some studies, which did not reveal any relation between the teachers' attitude levels towards inclusive education and their lengths of service (Dupoux et al., 2005; Ünal, 2010) and others, which revealed that teachers' behavioral approach levels towards inclusive education decrease by increasing age, while their emotional and cognitive approach levels increase by increasing length of service (İmrak, 2009). Last not but not least, other studies revealed that the teachers with the lowest length of service had the highest attitude levels towards inclusive education and that the attitude levels towards inclusive education decrease by increasing length of service (Özdemir and Ahmetoğlu, 2012; Parasuram, 2006).

Conclusion

In conclusion, female teachers' attitude levels towards inclusive education in terms of specialty/subject taught were found to be higher than those of male teachers, which may imply that female teachers are more idealistic in their professions and they love their job more. Married teachers'attitude levels towards inclusive educationin terms of time and quality in education and attitude towards protection were found to be higher than those of single teachers, which may be due to married teachers undertaking more responsibilities in life than the single teachers. Lastly, attitude levels towards inclusive education of the teachers that have the shortest length of service and that are in the youngest age group and the teachers that have the longest length of service and that are in the oldest age group are both lower than those of other age groups and lengths of services, which may be due to lack of experience for the former and the high teacher burn-out rate for the latter.

Recommendations

Based on the findings of our study, following recommendations are deemed appropriate:

- Students included in the inclusive education may be taught more by the married teachers.
- It may be better for the students included in the inclusive education not to be taught by teachers, those are in the first five years of their career.
- New teachers may be mentored by the experienced teachers, which may also help the new teachers to learn about the experienced teachers' ideas about inclusive education.
- New studies investigating the perspectives of teachers in terms of other variables such as whether teachers had inclusive education or the level of education that the teachers are teaching may be conducted in order to define teachers' perspectives in a broader sense.
- New studies with larger sample groups can be conducted for more reliable and valid results.

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The Effect of Digital Stories on Fifth-Grade Students' Motivation*

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Abstract

Social studies is a discipline which includes mainly the subjects related to abstract concepts. Digital stories have an important role in materialising abstract thinking. Storytelling, story listening, story reading improve creative thinking and story provides permanent learning when combined with education. Digital storytelling is a method that can be used to develop students' skills appropriate to the age we live in, to arouse their perceptions, to encourage them, and to increase their motivation to learn. Presenting the effect size of using digital stories on training individuals in the digital age on motivation will reveal the importance and requirement of using digital stories appropriate to the current age. The purpose of this study is to examine the effect of using digital stories while lecturing about subjects in the "Realizing Dreams" unit of the Social Studies course on students' motivation. The study group includes 72 fifth-grade students in two different classes of Makbule Suleyman Alkan Secondary School, located in Izmir. In this study, an experimental model was used. Also, Turkish version (Kutu & Sözbilir, 2011) of the ARCS motivation survey developed by Keller (1987) was used to measure the motivation. As a result of the research, a significant difference was found in support of the experimental group which digital stories were used in terms of general motivations and sub-dimensions (attention-compliance and trust-satisfaction). In this context, it can be said that the student group in which digital stories are used as material is more motivated in terms of general motivation and sub-dimensions than the student group in which the videos in Eba are used as material.

Keywords: digital story, social science teaching, motivation, ARCS motivation survey

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Dijital Hikâyelerin Beşinci Sınıf Öğrencilerinin Motivasyonlarına Etkisi

Öz

Sosyal Bilgiler soyut kavramlara ilişkin konuların ağırlıklı olarak yer aldığı bir disiplin alanıdır. Dijital hikâyeler ise soyut düşünmeyi somutlaştırmada önemli bir role sahiptir. Hikâye yapma, hikâye dinleme, hikâye okuma yaratıcı düşünceyi geliştirmekte ve hikâye eğitimle birleştirildiğinde kalıcı öğrenme sağlamaktadır. Dijital hikâye anlatımları, öğrencilerin içinde bulunduğumuz çağa uygun becerilerini geliştirmek, algılarını toplamak, derse teşvik etmek ve öğrenmeye karşı motivasyonlarını arttırmak için kullanılabilecek bir yöntem olarak düşünülebilir. Dijital çağdaki bireylerin yetiştirilmesinde dijital hikâye kullanımının motivasyonu ne şekilde etkileyeceğini ortaya koymak, çağımıza uygun dijital öykü kullanımının önemini ve gerekliliğini ortaya çıkaracaktır. Bu araştırmanın amacı, ortaöğretim 5. sınıf Sosyal Bilgiler dersi "Gerçekleşen Düşler" ünitesindeki konuların anlatımında dijital öykü kullanımının öğrencilerin motivasyonları üzerine etkisini araştırmaktır. Araştırmanın çalışma grubunu, İzmir il merkezinde Makbule Süleyman Alkan Ortaokulu 5. Sınıfında eğitim gören iki şubedeki toplam 72 öğrenci oluşturmaktadır. Araştırmada deneysel model kullanılmaktadır. Araştırmada ölçme aracı olarak Keller (1987) tarafından geliştirilen ARCS motivasyon anketinin Türkçe'ye uyarlanmış hali (Kutu & Sözbilir, 2011) kullanılmıştır. Araştırma sonucunda dijital öykülerin öğrencilerin genel motivasyonları ve alt boyutlarında (dikkat-uygunluk ve güven-tatmin) deney grubu lehine anlamlı bir farklılık olduğu görülmüştür. Bu bağlamda dijital hikayelerin materyal olarak kullanıldığı öğrenci grubunun, Eba'da yer alan videoların materyal olarak kullanıldığı öğrenci grubuna göre genel motivasyon ve alt boyutlar açısından daha motive edici olduğu söylenebilir.

Keywords: dijital hikaye, sosyal bilgiler öğretimi, motivasyon, ARCS motivasyon ölçeği

Introduction

The definition of technology which start with the history of mankind is practical applications that are used in organizing the information whose accuracy is proven in realising determined targets, satisfying the needs and facilitating the life (İşman, 2011, p.3). Technology change makes effects in economical, social, political and cultural fields in society, new change processes arise (Erkan, 1998, p. 92-96). Information is now everywhere. It is not possible to incarcerate it to limited institutions. So, it is required to shift schools from being institutions which transfer information to institutions which produce information and gain individuals skills such as, understanding, analysing and problem solving (Şimşek, 1997, p.75).

Story is in every field of our lives. While stories are inside our lives to this extent, their usage in schools as lesson material will contribute to education process and will ease the learning of students. Digital storytelling focuses on a selected theme and maintains a certain point of view. Digital storytelling is a method which can be used for developing students' skills appropriate to the age we live in, to arouse their perceptions, to encourage them, and to increase their motivation against learning.

There are many different concepts used to identify the generation growing up with digital technologies and accepting these digital technologies as part of their lives. It can be observed that concepts such as New Millennium Learners; Millennials, Digital Natives, Net Generation, Gamer Generation, Instant Message Generation, Cyber Kids etc are used (Akçam-Yalçın&İzgi, 2014). Arrangement of learning environment in accordance with technological expectations and needs of today's students which are characterised as "New Millennium Learners or Digital Natives" a qualification which is requested by learners in current conditions. It will reveal the importance and necessity of digital story usage convenient for our age to put forth extention of the effects of digital story usage in the raising of individuals in digital era on their motivation, attitude and achievements. Based on the literature studies conducted, it is considered that usage of digital story in social studies lesson would make the lesson more visual, interesting and funny for students, it will increase the interest against lesson, motivation and success and it will enable a more permanent learning. In the century in which we live, technology presents so many opportunities for individuals such as accessing e-books regardless of the country they are published, learning in electronical environment, Access to open sources and free softwares, attending to interactive learning on the internet, electronical collaboration, actual learning environments and personal learning fields. Technological developments presents so many options with regards to education as well. And along with the increase in technological developments, stories also started to be told in virtual environments. Prensky (2001) suggests that today's students are quite different from the ones whom our educational system was designed to educate them. Teachers which are characterised as digital immigrants should improve themselves in order to be sufficient for students who are digital natives. They should direct to education models which digital native students could participate eagerly and actively. Otherwise it would be hard to direct attention of digital natives whose life style and perception has changed to lesson. The attention of digital native students can be focused on lessons by using digital stories. Even the digital storytelling requires so much active participation from students, the role of the teacher is equally important. Teacher must both interact with students in the process of storytelling and help them develop their storytelling skills. Digital stories becoming easy to produce and issue can be considered as an effective way in providing the motivation related to the lesson and teaching life lesson. Student motivation as an effective element in providing the attendance to lesson, following up the subjects with passion and

realising learning. Keller (1984) states that motivation is an important variable in the design of an effective teaching and students show higher achievement when they are motivated. The ACRS model which was presented by Keller (1987) was suggested to diagnose motivational problems and to present suggestions for eliminating them at the beginning. "Attention", "Relevance", "Confidence" ve "Satisfaction" elements which are determined within the scope of ARCS Motivation Model are combined and applied to teaching design processes widely (Keller, 1987). Conducted researches confirmed that the ARCS model can increase the learning motivation and efficiency of teaching designs significantly (Liu & Chu, 2010). It is required to plan "Attention" stage of the ARCS model within the framework of a process which draws the attention and curiosity of students and help them connecting to the lesson. The second stage "Relevance" is the design of teaching in direction of career plans and needs of learners in order to increase the learning motivation of students. Third stage is the process of designing the content in a way to support the students to enhance their self-confidence. The last stage "Satisfaction" provides students the opportunity to use the knowledge and skills they have just learned in a real or simulated environment (Shih & Mills, 2007).

In this study, the scale developed by Keller (2010) in order to measure the motivation of students based on the ARCS motivation model was used. Conducted studies show that usage of computers for education creates complexity in learning processes and increase the student motivation (Baker, Gearhart & Herman, 1990; Dwyer, 1994). Digital stories through their education aimed and free softwares help students to understand the complex learning content by increasing the attention and motivation of students and facilitating the students study together and organise ideas (Robin, 2008; Van Gils, 2005). Thus, the stories set in a meaningful manner move beyond the traditional storytellings and transform into a motivation tool through their education aimed usage (Yang & Wu, 2011). In this context, in this study the effects of digital stories which were set for "Realized Dreams" unit of the Primary School 5. Grade Social Studies lesson on students' motivation were examined. "Material Motivation Scale" was applied to experimental and control groups after the treatment in order to determine student motivations related to the materials used in the teaching process. In the study, Turkish version (Kutu & Sözbilir, 2011) of the ARCS motivation survey developed by Keller (1987) was used and the answers were searched for the research problem and sub-problems below:

Research Problem

What is the effect of digital stories on student motivation?

Sub Problems

- Is there a significant difference between the motivations of experimental and control groups with regards to attention-relevance dimension?
- Is there a significant difference between the motivations of experimental and control groups with regards to confidence-satisfaction dimension?

Method

In the research "Posttest Control Group Design" which is among true experimental designs is preferred. There are two groups which were formed by random assignment in the posttest control group design. One of them is used as the experimental group and the other as the control group. Only posttest is applied to groups. Measuring was done after experimental treatment (Karasar, 2005). This research was rendered by handling two groups. First the

subjects were seperated randomly and one of them was assigned as experimental group and the other as control group. While in the experimental group, the teaching of "Realising Dreams" unit in Primary School Fifth Grade Social Studies lesson conducted with a curriculum planned according to 5E learning model and by using digital stories as the material, in the control group it was conducted with the teaching prescribed by current Social Studies Teaching Programme and by using the videos in Eba (Eğitim Bilişim Ağı - Education Information Network) as the material. The reason why posttest control group design is preferred in the study is that the materials used in the treatment can just be evaluated within the process and there would be no need for any pretest at this point.

Study Group

A total of 72 students studying in 5/H and 5/I branches of Makbule Süleyman Alkan Ortaokulu (Middle School) in Buca Sub-province of İzmir Province in 2016-2017 school year constitute the study group of the research. According to this 36 students (5/I branch) form the control group of the research and 36 students (5/H branch) form the experimental group.

Data Collection Tools

In the study, "Material Motivation Survey" was used in order to measure student motivation relevant to digital story materials which was developed for curriculum content appropriate for 5E. The survey which was developed by Keller (1987) to measure the effect of teaching materials based on ARCS motivation model on motivations was adapted to Turkish by Kutu and Sözbilir (2011), its validity and credibility study was conducted. While there are four dimensions as attention, relevance, confidence and satisfaction in the original form of the survey, in the Turkish version there are two dimensions as attention/relevance and confidence/satisfaction and the scale consists of 24 items. Cronbach Alpha coefficient of internal consistency was determined as 0,83 for the whole survey and the sub-factors as 0,79 and 0,69 respectively. In ARCS model, for the motivating education, four basic strategies below were identified (Keller, 1984); Attention component includes the required strategies for increasing and maintaining interest and curiosity. Relevance component includes the strategies related to necessities, field of interests and objectives of students. Confidence component includes strategies helping students develop a positive expectation in reaching success. Satisfaction component provides internal and external support for the effort made by students.

Treatment Process

Treatment lasted for 4 weeks between 27 February - 24 March 2017. The lessons were taught in 12 course hours as 3 course hours per week by using digital story materials. Treatment processes of the lesson which was designed according to 5E model and supported with digital story materials are presented in items below.

1. Curriculum which can be a sample for 6 learning outcomes which are in the fifth grade social studies programme "Realising Dreams" unit and gaining the concepts in the unit and which is conformant to 5e model was formed benefiting from the sources of "Social studies for the preschool/primary child" (Seefeldt, Castle & Falconer, 2015), "The BSCS 5E Instructional Model: Creating Teachable Moments" (Bybee, 2005) which were in the literature.

2. Digital stories which take place in different steps of 5E were prepared by the process steps below:

- ***Scenario building step:*** In the first step, different digital story scenarios were prepared by researchers for each of them. In the process of scenario preparation, it was benefited from interviews made with teacher and students, teaching experience of the researcher and literature. It was decided in which step of 5e the prepared scenarios shold be used.
- ***Developing, loading and arrenging visuals step:*** The visuals related to the prepared scenarios was developed by means of web 2.0 tools such as story board, goanimate, toondoo, animaker, etc. Visuals related to the scenarios were loaded to the programme by using file loading windows of Photostory 3 computer programme.
- ***Sorting the visuals according to flow chart step***: In this step, loaded visuals are sorted according to the plans of the story. In addition according to the flow of the story the presentation time of the visuals were determined in computer environment.
- ***Writing and passing effect step:*** Researchers enriched their stories by adding passing effects between some visuals in computer environment.
- ***Story vocalization step:*** In this step, researchers vocalized scenario text related to visuals by means of computer.
- ***Background music adding step:*** In this step, researchers added background music to visuals in a way proper to the emotion in their story.
- ***Story building step:*** After all the steps were completed successfully, they were controlled by making the preview of the relevant stories. The relavant stories were kept as projects by using Photostory 3 programme, in situations where the enrichment of the story is wanted, the stories were rearranged.

3. In the first week, the lesson was taught by supporting with digital stories formed in accordance with the learning outcome "He/she links inventions with technological advancements." In the "enter" step of curriculum formed according to 5E model attention was drawn to lesson by means of digital stories. Students were directed to brain storm by asking the questions of "In your opinion how did the invention of fire affect our lives? Can you give examples from your own life?" In the "explore" step, digital story named "Adventure of Fire" was shared. The questions of "What is the most important invention till now? What is the place and important of this invention in the life?" were directed to six different groups formed by the teacher. Students were asked to express their opinions. In the "explain" step the explanation of invention, inventor, explorer concepts were made and students were asked to compare these with their own definitions. In the "elaborate" step students were asked to prepare posters and to write motto about the subject. These posters and mottos were archived in the treatment file. In the "evaluate" step, "What is in the envelope?" activity was done. Students drawing colour envelopes tried to answer the question inside the envelope and entitled a friend to draw envelope. Thirteen envelops were answered by the students this way. The lesson was finalized after talking about the required materials for the preparation of the next lesson.

4. In the "enter" stage of the lesson attention was drawn to lesson with a digital story formed within the scope of learning outcome "He/she discusses about the effects of inventions and technological products to our social life" and the lesson was started with the question of "What kind of effects do the technological tools have to human life?" In the "explore" stage, the groups were asked to scrutinize the question of "How do the usage of automobile, plane in transportation; cell phone, television, internet in communication;

technological products at home affect social life?" with 6 thinking hats method. The opinions argued by each group were gathered in written by the teacher and archived to treatment file. The positive and negative aspects of technological tools were explained by the teacher. This enabled the students to compare their ideas with the explanation. In the "elaborate" step, students were asked to prepare a Digital Story scenario in accordance with the concepts they have learned about the subject of "Technology and Human Life". The scenarios were gathered in the following lesson and the scenario of each student was transformed into a digital story with the support of the teacher. It was provided that the student become active and use his/her previous knowledge, experience. In the "evaluate" step they were asked to write short texts about the questions of "Where does the technology stand in human life? Can human stay away from technology?" It was observed to what extent students understand the subject. Digital stories formed by students with the help of teacher and the texts they wrote were archived to the treatment file.

5. In the second week of the treatment, the learning outcomes "He/she realises the common characteristics of the inventors and the scientists." and "He/she respects the scientific studies and the ones conducting these studies" were gained together. In the "enter" stage of the lesson, the lesson was started by watching digital story. Their attention was drawn to lesson by asking the questions of "What does the concept of scientist mean to you? With what do the scientists deal?" The questions of "Are the inventions made by scientists important?" and "Would any difference have been today, if there hadn't been the inventions of scientists?" were asked to six groups formed by the teacher within the scope of duel activity. 3 groups which selected their rivals were called to the board and they were asked to put their opinions forth. The argued opinions were expressed by the group spokesperson. In the "explain" step of the lesson the "Scientist" concept was explained in details by the teacher. In the "elaborate" step, the students were asked to perform a drama in accordance with the concepts they have learned within the content of "Scientists" subject. In the "evaluate" step, activity named "Let's match the concepts" was carried out.

6. In the third week, the lesson was started by watching digital story which was formed related to the learning outcome "He/she shows the importance Atatürk gave to science and technology on the basis of evidences." In the "explore" stage of the lesson, the class which was divided into 6 groups was asked to express their opinions through their spokespeople by asking the question of "If hadn't Atatürk been a foresighted leader, what would the situation of Turkey have been today?" and to submit them in written to the teacher. In the "explain" step, the mistakes and deficiencies of students related to the relevant subject were eliminated by the teacher. In the "elaborate" stage the activity named "Being a Leader" was carried out by using station technique. It was observed to what extent students understand the subject. Thus it was provided that the students become active and use their previous knowledge, experiences. In the "evaluate" step, pictures of Atatürk was delivered and this pictures were interpreted by students.

7. In the fourth week, the lesson was started by watching digital story which was formed in accordance with the learning outcome "He/she recognizes and follows up periodicals appropriate for his/her level related to science and technology." in the "enter" stage of the lesson. The digital story was interrupted and brain storm was conducted by directing the questions of "What is the magazine you follow up? Why did you prefer that magazine" and "Can you share one of your memories which you have experienced in the library?" After the attention of students had been focused to lessons, the students who were separated to six groups was asked to express their opinions by asking the questions of "Is it required for

every student to follow up a periodical?" and "Is the rule of being silent in the library logical or necessary?" In the "explain" step, after the teacher makes the necessary explanations, he/she enabled the students to take some important notes. In the "elaborate" step, the students were asked to design a magazine cover which they will prepare in collaboration with group members and prepare a bibliography. In the "evaluate" step, "What is in the envelope?" activity was carried out with students.

8. While in the experimental group the lessons were taught within the process above, in the control group lessons were taught through the teaching prescribed by current Social Studies Teaching Programme and by using the videos in Eba (Eğitim Bilişim Ağı - Education Information Network) as the material.

9. After the lesson instructions finished, "Material Motivation Survey" was applied to both groups on 24 Mart 2017.

Analysis of Data

In the direction of the study, the effect of digital stories in the study to student motivations were examined. The scale developed by Keller (2010) in order to measure learner motivation by taking ARCS motivation model which was developed as a definitive model for the diagnosis of the problems related to student motivation as basis was used for measuring the motivation. In this process, unpaired t-test was conducted in order to determine whether there is a significant difference related to their general motivations and sub-dimensions (attention-relevance and confidence-satisfaction) after the treatment or not. The data obtained from "Material Motivation Scale" are evaluated descriptively. Data was also evaluated under attention-relevance, confidence-satisfaction dimensions which are the factors of the scale. While the arithmetic average obtained from scale are interpreted the values; between 1.00-1.80 were regarded "very low", between 1.81-2.60 "low", between 2.61-3.40 "middle", between 3.41-4.20 "high" and between 4.21-5.00 "very high" (Kutu & Sözbilir, 2011).

Findings

Unpaired t-test was conducted in order to determine whether digital stories made a significant difference in students' general motivations and sub-dimensions (attention-relevance and confidence-satisfaction) after the treatment or not.

Findings related to General Motivation: As seen Table 1, a significant difference was found between the experimental and control groups with regards to general motivation in support of experimental group. [t(70)=1.88, p<.05].

Table 1. *Unpaired t-test results related to general motivation*

Group	N	$\bar{X}$	Sd	df	t	Sig.
Experimental	36	97.4722	3.85	70	1.88	.00*
Control	36	66.2778	10.62			

*p<.05

Findings related to Attention-Relevance Dimension of Motivation: As seen in Table 2, in the motivations of experimental and control groups, in the attention-relevance dimension, a significant difference was found in support of experimental group [t(70)=1.04,

p<.05]. With reference to this findings; it could be said that the student group which digital stories were used as material were more motivated in attention-relevance dimension when compared to the student group which videos in eba were used as material.

Table 2. *Unpaired t-test results related to attention-relevance dimension in motivation*

Group	**N**	$\bar{X}$	**Sd**	**df**	**t**	**Sig.**
Experimental	36	49.6111	2.06	70	1.04	.00*
Control	36	29.3889	5.91			

*p<.05

Findings related to Confidence-Satisfaction Dimension of Motivation: As seen in Table 3, in the motivations of experimental and control groups, in the confidence-satisfaction dimension, a significant difference was found in support of experimental group [t(70)=1.03, p<.05]. With reference to this findings; it could be said that the student group which digital stories were used as material were more motivated in attention-relevance dimension when compared to the student group which videos in eba were used as material.

Table 3. *Unpaired t-test results related to confidence-satisfaction dimension in motivation*

Group	**N**	$\bar{X}$	**Sd**	**df**	**t**	**Sig.**
Experimental	36	47.8611	2.50	70	1.03	.00*
Control	36	36.8889	5.71			

*p<.05

When the results above are examined, it is possible to say that digital stories increase student motivation. In the studies which the effect of digital stories to motivation is researched in the literature, the usage of different scales were encountered. For example; Yang & Wu used "The Motivated Strategies for Learning Questionnaire (MSLQ)" scale for measuring the motivation of the students in their research which they had maintened for a year aimed at the effect of digital story usage in English classes on success, critical thinking and motivation of 10. grade students. Aktaş and Uzuner-Yurt (2017) defined the effect of learning environment which digital stories are used as learning material on the motivation by using the Turkish version of the same scale which was adapted to Turkish by Büyüköztürk and others (2004). The data in the thesis study of Sever (2014) named "A Study on the Effects of Digital Storytelling on the Motivation Level of Students" was collected with qualitative and quantitive methods including two surveys and one interview which were directly taken or adapted from Attitude/Motivation Test Scale of Gardner (2004). In the consequences of all these researchs which were evaluated with different scales, it is seen that digital stories increase student motivation.

Materials are among the important factors which enable education to be successful. Although there are lots of measuring tools in the literature for the assessment of these materials, measuring tool which was prepared within the frame of a model is rarely encountered (Dinçer & Doğanay, 2016). It is considered that especially the measuring of the motivation created with digital story materials will contribute to the literature. It is thought that the continuous measuring of the variables which effects academic achievement directly or indirectly such as motivation is important.

Discussion, Result and Suggestions

Developments in technology, which has an important place in the lives of individuals, bring about many changes in education as well as in all areas of our lives. The changes in technology are not only facilitating the lives of individuals but also increasing the interaction with the computer and the internet, such as access to information and the use of information in different ways (Erdem, 2017:448). Today's children are born and grown with computer, internet, cell phone, camera and all other products of digital world. In today's world where classical schoolbooks are turned into interactive books, communication and even socialization are carried out mostly in digital environments, excluding educational environments from these technologies is unimaginable. It is required to provide the integration of these technologies to education for drawing the attention and motivation of the new generation to learning environments. In our country, the technological change in education which started with Fatih Project functions as a bridge in the realisation of integration of technology to education process. "Digital stories" can be used in realisation of integration of technology to class environment. Digital stories will be a guide to teachers in creating educational environment for digital natives of the digital world.

In this context, in this study, the effect of digital stories created for the "Realizing Dreams" unit of the 5. grade Social Sciences lesson on students' motivation is examined. "Material Motivation Survey" was applied to both experimental and control groups after the treatment in order to measure student motivation related to materials used during teaching process. In the study, Turkish version (Kutu & Sözbilir, 2011) of the ARCS motivation survey developed by Keller (1987) was used to measure the motivation. In the consequence of the study, it was seen that digital stories make a significant difference in support of experimental group in their general motivations and sub-dimensions (attention-relevance and confidence-satisfaction). In this context, it can be said that the student group in which digital stories are used as material is more motivated in terms of general motivation and sub-dimensions than the student group in which the videos in Eba are used as material. Studies conducted show that learning environments where technology is used are efficient in increasing the student motivation and achievement (Çakır, Solak & Tan, 2016; Keller & Sang, 2001; Reisoğlu, Yılmaz, Çoban, Topu, Karkuş & Göktaş, 2015; Di Serio, Ibáñez & Kloos 2013; Ersoy, Duman & Öncü, 2016).

In the researches performed related to usage of digital stories as teaching tool, it was specified that digital story is an efficient tool, strategy or method for learning and teaching process; it enabled students to improve their skills such as expressing themselves, problem solving, critical thinking, reflective thinking and literacy; it gave students an opportunity to put forth realistic products, to organize their thoughts consistently and to write in a creative way (Baki & Feyzioğlu,2017; Demirer, 2013; Gakhar & Thompson, 2007; Hung, Hwang & Huang, 2012; Lambert, 2002; Malita, & Martin, 2010; Ohler, 2013; Sarıtepeci, 2017; Yang, & Wu, 2012).

In this context, digital storytelling may be considered as a method which can also be used in order to improve the students' skills which are appropriate to our age, to arouse their perception, to encourage them and to increase their motivation about learning. Studies conducted put forth that motivation increases the possibility of students participate in the activities which helps them learn and thus they obtained a better performance. Hence, learning methods and strategies which draw students' attention and become integrated with them affects students' achievement and their connection to the subject deeply in a positive

way (Theall, 1999). Along with the usage of digital storytelling in education, connection was made between new generation students which are integrated with technology and traditional school environment (Ohler, 2008). This situation affect their motivations against lesson and school positively. Miller (2009) expresses that digital storytelling presents many potential learning benefits along with increasing student motivation and it is a perfect strategy in the telling of personal stories. Demirer (2013) specified that projects created with digital storytelling increased student motivation, enriched teaching with creative presentations which was supported by technology and improved communication skills. In the studies which research the effect of digital storytelling activity on educational outputs in the literature; it is seen that digital storytelling has positive effects on student motivation and academic achievement (Hung, Hwang & Huang, 2012; Yang & Wu, 2012; Aktaş & Uzuner-Yurt, 2017). Duveskog and his friends (2012) stated in their study that digital storytelling offers many advantages compared to traditional methods with regards to increasing motivations, creativity and imagination of students. In this regard, it is possible to say that research results show parallelity with the results ensued about digital stories increasing motivation.

Some suggestions were developed on the basis of this study. Digital story studies which can be used as a lesson tool for teachers and students could be applied for different courses. Thus, dissemination of technology usage in education will be provided. In addition, subjects that are hard to embody can be bared by using digital stories and this may help especially the students who are in the concrete operational stage understand the subject. Today's students and teachers who are considered as digital generation would prepare creative teaching materials by themselves using this method and they would ensure permanence in learning**.**

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The Challenges of Refugee Students Encountered in Science Courses: A Phenomenological Study

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Abstract

In recent years, because of some factors such as, wars and unemployment, refugee and migrant people population have been increasing in Turkey. The aim of this study is to investigate the factors effect refugee students' learning process within the scope of science course. It was focused on to gain the data deeply, which were taken from the refugee students within science course to understand the reason of failure in science. This study was conducted in a middle school, which is located in Ankara, and was carried out with middle school students, whose ages are from 11 to 14 years old. The study was conducted with seven refugee students in 2016-2017 education fall term, for six months. In this study, qualitative method was used, within this scope this study is a phenomenological study. To collect data of the study, interviews, observations and document analyse techniques were used. A triangulation was provided to vary the data of the study. Content analysis and descriptive analysis techniques were used to obtain of the results of the study. It has been understood from the observations that students could not understand science teachers' statements while they were in science lesson. Science teachers stated the reasons of students' failure in science that students do not know Turkish well (20%), they do not belong themselves to Turkey (20%), economic conditions (13,33%) and negative school climate (13,33%). Students pointed out some factors of their failure in science that they are language problems (11,66%), their family can not help to them within science course (11,66%) and so on. It can be recommended taking additional science courses after school will be more useful for refugee students in terms of effective learning science.

Keywords: phenomenological, refugee students, science course

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Mülteci Öğrencilerin Fen Bilimleri Derslerinde Karşılaştıkları Zorluklar: Fenemonolojik Bir Çalışma

Öz

Türkiye'deki mülteci ve göçmen nüfusu; savaş, işsizlik gibi faktörlerden dolayı son yıllarda artmaktadır. Bu araştırmanın amacı, mülteci öğrencilerin fen bilimleri dersini öğrenmeleri üzerine etkili olan faktörleri belirlemektir. Mülteci öğrencilerin fen bilimleri derslerinde başarısız olmalarının nedenlerini anlamak için bu öğrencilerden derinlemesine veri almaya odaklanılmıştır. Bu araştırma, Ankara'da bulunan bir ortaokulda, yaşları 11 ve 14 arası olan ortaokul öğrencileri ile birlikte yürütülmüştür. Araştırma 2016-2017 eğitim öğretim yılının güz döneminde yedi mülteci öğrenci ile altı ay sürede gerçekleştirilmiştir. Bu araştırmada yöntem olarak nitel araştırma yaklaşımlarından fenemonolojik araştırma kullanılmıştır. Araştırmada veri toplama aracı olarak görüşme, gözlem ve doküman analizi kullanılmıştır. Araştırmanın verilerini çeşitlendirmek için çeşitleme (üçgenleme) kullanılmıştır. Araştırmanın verilerinin elde edilmesinde içerik analizi ve betimsel analiz kullanılmıştır. Mülteci öğrencilerin fen bilimleri derslerinde, öğretmenlerinin söylediklerini anlayamadıkları gözlemler sonucu anlaşılmıştır. Fen bilimleri öğretmenlerine göre öğrencilerin fen bilimleri dersinde başarısız olmalarında; Türkçeyi iyi bilmemeleri (%20), kendilerini Türkiye'ye ait hissetmemeleri (%20), ekonomik nedenler (%13,33) ve olumsuz okul iklimi (%13,33) gibi faktörler etkilidir. Öğrenciler fen bilimleri ders başarılarının düşük olmasında dilsel problemlerin (%11,66) ve ailenin fen bilimleri dersine yardımcı olmaması (%11,66) gibi faktörlerin etkili olduğunu belirtmişlerdir. Öğrencilerin okul saati sonrasında, takviye fen bilimleri dersi almalarının mülteci öğrencilerin fen bilimleri derslerini etkili biçimde öğrenmeleri açısından daha yararlı olması bakımından önerilebilir.

Anahtar Sözcükler: fenemolojik, mülteci öğrenciler, fen bilimleri dersi

Introduction

To understand refugee people and being aware of their problems that they have been facing in their new countries is important to know who they are. UNHCR (2016), states that, a refugee is a person who fleeing conflict or persecution. USA for UNHCR (2016), expresses that refugee people leave their countries because of some problems such as race, religion, nationality, political thoughts. They leave their countries within the scope of given reasons above and National Association of School Psychologists (2016), also states that many families have been forced to flee their countries as refugees. It can be expected that refugee people have some problems when they arrive their new country and they can face with some challenges such as language difficulties, cultural barriers, economic rigours, healty problems etc. It is an important issue to adapt refugees to the society where they live. In addition this, it is important to provide refugee people to go on their education in their new countries. For this reason, children need to go on their education in schools or any educational organisation provided by goverment. As Taylor & Sidhu (2012) stated in their study, international movement of people and diversity of national populations posed challenges for education systems in recent years. Moro (2002), states that Sudanese refugee youth forced to leave school since violations of human rights and he also says a Sudanese secondary school student, he/she can not access his/her final results until he/she completes defense training. Refugee people come to Turkey and live in Turkish cities and bring their children to Turkey, as well. They can face some problems in the adaptation period because they come from different culture (Hutchison, 2006; Şeker & Aslan, 2015).

It is known that 150.000 Syrian students study in Turkish formal schools and 300.000 Syrian students study in temporary educational organisations in Turkey (Hürriyet, 2016). The number of the countries might change where 90% of the refugees live in Turkey are Afghan, Iranian, Iraqi, and Somalian (Unicef, 2016). It is important for refuguee students to adapt themselves to the place that they live out of their country. It is thought that schools have an important role to connect refugee young people in facilitating to belonging (Cassity and Gow 2005; Christie and Sidhu 2002; Taylor & Sidhu, 2012). They should be placed in the formal educational organisation to be trained well for their future. It can be thought that schools are like a bridge to connect refugee students to society of the country in which they live. When national reports and international exam reports are investigated it is seen that immigrant students and refugee students have some problems in mathematics, reading and problem solving (OECD 2015). It is known that the share of immigrant students in OECD countries increased from 9% in 2003 to 12% in 2012 (OECD, 2014b). It has been found that refugee students', who live off site Canada and US., PISA 2015 scores average is under refugee students who live in Canada and the US. (PISA, 2015). The US and Canada have refugee people for decades, although Turkey has been hosting big amount refugee people population since Syrian war started especially. It can also be said before Syria war, Turkey had already been hosted Afghan, Kırgız, Uzbek Pakistani refugees. However there are limitied studies conducted with refugees within science (Warren et al, 2001; Varma, 2002; Miller, 2009).

It is found that there have been carried out some studies related to refugees in the educational fields. Perrier (2004), analysed pilot studies to assessed the therapeutic benefit of active science for traumatised refugee children in Rwand and Nepal. Magnuson, Lahaie & Waldgofel (2006), investiged the links between preschool attendance and school readinee of children immigrants, in their study. Waters (2006), investigated meanings and consequences of international education carried out in Hong Kong. Windle, J. & Miller, J. (2012), presented of the approaches to teaching low-literacy refugee-background students reported

by 61 teachers in secondary schools. Wink (2015), investigated how chemistry educators have the opportunity to adress immigrant students. Within this scope, he stated four ways: by "considering pedagogical, systematic, and content responses to working with immigrant students", "educating for international connections", "including new countries and cultures in educational content" and "working with undocumented students". Areepattamannıl & Kaur (2013), investigated student level and school level factors which related to science achievement of immigrant and non-immigrant students among a national sample in Canada. When viewed from these aspects, the research can be seen as one of first scientific studies which conducted with refugee students within science course for the middle school students. In this context, it can be mentioned that the study is an important scientific study in terms of being an example.

The Significant and Aim of the Study

Education systems should provide all students to access equal science education. Barton and Yang (2000), state that current reforms in science education highlight science for all. Because of this basic aim, science education systems and its instruments also must support all students to access quality science education regardless of their race, ethnicity, religous and other factors. Although it is known that there have been prepared many studies which are carried out with refugee students in the context of general education, it is also seen that limited of them are related to science education. It can be claimed that, though, there are more than 500.000 refugee students in Turkish schools, there is no study conducted with refugee students based science course for the middle school students, in Turkey. This might be meant that refugee students' difficulties can not be sufficiently known by science educators. In this regard, this study can be claimed as a original research conducted with refugee students in the context of science education which will provide depth information, that refugee students face while they are at a science course. According to the obtained data of the study, it is given some significant recommendations for the refugee students' challenges during learning science process.

The aim of this study is to investigate what factors effect refugee students' science learning process within the scope of science course.

Research Problem

What kind of challenges refugee students have during learning science while they are in a science classroom.

Research Sub-Problems

1. What challenges refugee students face while they are in the process of learning science in classroom?

2. What are the main reason of the challenges that refugee students face within science course?

Method

Model of the Research

In this study, qualitative method was used, within this scope this study was conducted as phenomenological approach. It was focused on to gain the data deeply, which were taken

from the refugee students within science course to understand the reason of failure in science. Koch (1995), points out that a phenomenological study reveals participants' truth and give more information on their life world. Phenomenological studies aim to describe an experience deeply from the people who participate in the study (Ary, Jacobs, Razavieh, & Sorensen, 2006). Besides, phenomenological study defines of a concept or a phenomenon lived experiences (Creswell, 2007).

Participants of the Study

This study was conducted in a middle school, which is located in Ankara, and was carried out with seven middle school students, whose ages were from 11 to 14. The study was conducted with three Afghan, one Kirgiz and three Syrian refugee students in 2016-2017 education fall term, for six months.

Table 1. *Some information on participants' demographics*

Student	Gender	Class	Arriving Date to Turkey	Country of Origin
S1	Boy	5th grade	8 months	Afghanistan
S2	Boy	7th grade	8 months	Afghanistan
S3	Girl	7th grade	5 months	Afghanistan
S4	Boy	6th grade	4 years	Syria
S5	Girl	5th grade	9 months	Kyrgyz Republic
S6	Girl	5th grade	1 year	Syria
S7	Boy	5th grade	1 year	Syria

Data Collection Instrument

As it seen in table 1, while it has not been a year that Afghan and Kırgiz students came to Turkey, however, Syrian students had come to Turkey almost two years ago. The study was conducted with three girls and four boys who study from fifth grade to seventh grade in this middle school. Refugee students were named under codes as S1, S2, S3, S4, S5, S6 and S7.

The study was also conducted with three science teachers, who teach to these refugee students. All of three science teachers were female and it was thier first time that they studied with refugee students in their professional experince.

Data Collection Process

Three different data collection tools were used within the study. These are interview forms, taken both science teachers and students, observation forms and students science textbooks, which were brought from their country and their science exam papers. A triangulation was provided to vary the data of the study. This was done because to wealth and having deeply information of the study.

The Interview Forms

The interviews were carried out with students and with their science teachers. Two semi-structured interview forms were created, which have validity and reliability. To provide validity of the interview forms, first, related studies were investigated from the literature.

Then, six questions were prepared for the students and six questions were prepared for the science teachers. The questions prepared for the students sent to ten students to determine if there were any non understandable question or not. Having had students feedbacks, necessary corrections were done on the form and it was sent to field experts. The same processes were also carried out the interview form, which was applicated to science teachers. Finally, the interview form the students was created with six questions and the other one was created with five questions. Six questions were asked to refugee students and five questions were asked to their science teachers. The interviews that were held with the refugee students lasted approximately 30-45 minutes.

The Observations

All refugee students were observed by the researcher during eight science courses when they were in science courses. No camera was used while observing them. During observations, observation forms were used to identify the criteria. Some criteria were determined to identify whole science course process, such as structure of the class, the role of refugee students during learning science, their participation to learning process, their communication situtations with their teachers and their friends, adaptation statuses etc.

Document Analysis

Within document analysis students' science exam papers and their science textbooks were investigated. Within this scope, all of the students' one of science exam paper were investigated, and their science scores averages were taken from their science teachers. When is being looked at all the refugee students' science exam papers, it is seen that it is not possible to read them all very easily because of written Turkish language level. There are stylistic defects at letters, grammer mistakes on the exam papers. And it is thought that most of refugee students could not understand well what was asked to them exactly.

Data Analysis

The data of the study were obtained by using interview, observation and document analysis techniques. Content analysis and descriptive analysis techniques were used to have results of the study. A phenemonelogical study strategy was benefited in this study. To variety of the study within phenemological perspective, several analysis techniques were used such as interview, observation, and document analysis techniques that are called triangulation (Yıldırım & Şimşek, 2011). The data acquired from interviews and observations, first sent to field experts. They separeted them into codes, then themes were created by using codes.

The interview data were examined by two experts, themes and codes were formed independently from each other. "Compatibility percentage" formula suggested by Miles and Huberman (1994) was used to determine the reliability of the codes and themes obtained by the interview forms. It was expressed as; Compatibility percentage= (Agreement)/(Agreement + Disagreement)X100. According to this formula, the compatibility percentage in the interview form fort he student was found as 91.68 and it was found for the science teachers as 92.80. It is stated that if a compatibility percentage in studies is at .70 and on .70, interview data can be used in a study (Yıldırım, 2008).

The observation form was examined by two experts, themes and codes were formed independently from each other. “Compatibility percentage” formula suggested by Miles and Huberman (1994) was used to determine the reliability of the codes and themes obtained by the observation form. It was expressed as; Compatibility percentage= (Agreement)/(Agreement + Disagreement)X100. According to this formula, the compatibility percentage in the interview form was found as 88,90.

Ethics of the Study

Necessary information such as, content of the study, the reason and period of the study, what type of data would be obtained and where they would be used with purpose was given to the students. And needed permissions were taken from their parents and school administration, by parent approval forms. Beside, “volunteer participation form” was prepared for both science teachers and refugee students who joined the study.

Results

The results acquired based on the study data have been included in this section. The results have been scrutinized under headings of the results taken from interviews, observations and documents.

The Results Obtained from the Documents

Within document analyse there were carried out three different operations. First is to learn refugee students’ science exams average; second is to investigate refugee students’s science exam papers and their notebooks and last is to investigate refugee students’s science text books, which they studied in their respective country.

It has been found that refugee students’ science exam scores are behind Turkish students’ science scores. It was investigated three science exams scores within first fall educational term in 2016-2017 educational year. While refugee students’ average of the science exams was 34, Turkish students’s average of the science exams was 62.

All refugee students’ science exam papers were investigated within some criteria such as structure of grammer in Turkish langauge within their statements, using right/wrong letter in the statements, right writing of science concepts. According to these criteria, it was seen that all of refugee students did commit a solecisim in their science notebooks since they are not successul in terms of writing some statements in Turkish. Hovewer, S5’s science notebook is better than other students and it was found less mistakes in her notebook within grammer. Beside this, it was seen that science concepts were written right in S1, S2, S3 and S5 coded students’ science notebooks. Because some science concepts are written in English, as an explaination, in Turkish science textbooks. It is known that S1 and S5 coded students’ Turkish are better than others and because of this reason, their notebooks and science exam papers are better than others.

Their science textbooks were asked from refugee students to bring them, which they study in their respective country. S2 and S3 coded students could bring them into the science classroom and a seventh grade science texbook written in Syrian was found and investigated. Both S2 and S3 coded students brought seventh grade science textbooks into the science classroom. A seventh grade Afghan science textbook was investigated in terms of included

its issues, units and activities that it had. It has been determined that Afghan seventh grade science textbook has following issues; cell and its kinds, organelle, pressure, osmosis, photosynthesis, respiratory, mitosis and its sections, animal world and plants, ecology, substance cycle. Having investigated this book, it was understood that the issues in Afghan science textbook are more complicated than Turkish seventh grade science textbooks. In Afghan' science textbook there have been given deeply information. In Turkish seventh science textbook following units are given; "The Systems in our Body", Force and Energy", "Matter's Structure and Its Features", "The Reflections at the Mirrors and The absorption of the Light", The Human and Enviroment Relations", "Electric Energy" and "Solar System and Beyond". To have more information on science textbooks of Syria and to understand whether there is any relation between failures in science based science issues, a seventh grade Syria science textbook was investigated. It was learnt that Syrian seventh grade science textbook is comprised of two different textbooks. First science textbook is based chemistry-physics issues and second has biological issues. Within this study first science textbook was reached to be investigated. It was invesitaged in terms of its units and issues. It was found that science textbook contains following units;" Force and Energy, Chemical Factors and Compounds, Heat and Expansion of the Matters, The Live, The Classification of Lives, The Nature and The Ground". It is seen that the issues of those units are given at eight grade level: "Force and Energy, Heat and Expansion of the Matters and The Nature and The Ground". It has been understood that the issues of The Live and The Classification of Lives are given at sixth grade level. The issues of the "Chemical Factors and Compounds" is given at seventh grade level. Although much of this unit's issues are given at this level, it has been found out that "The Mine" is given at eight grade level. These results which have been taken from this science textbook has been showed us Syrian seventh grade science textbook's issues are quite different from the seventh grade Turkish science textbook's issues.

When we focus on both Turkish and Syrian seventh grade science textbooks, the most important distinctness between Turkish and Afghan science textbooks that two science textbooks are given in different subjects It means most of included into Afghan science textbooks are given in sixth grede Turkish science textbooks. Beside this, while Turkish textbook is being readed by left side of the cover, Afghan science textbook is being readed by starting right side of the cover.

The Results Obtained from Interviews

Some interviews were carried out with refugee students and their science teachers. Within this scope the interviews were conducted with seven refugee students and their science teachers.

The students, told that they could not understand their science teachers because their Turkish level was not enough. They also underlined their science teachers tell the issues so fast. Therefor they were not able to understand them very well. They also stated they sometimes can not understand the language of written paper, which was prepared to evaluate students's achivement such as science exams. Besides these, unable to reflect themselves during courses, comprehension difficulty of science concepts, textbooks, issues, experiments were given by students as reason of their failure in science. Although they take low science exam scores, neither they nor their science teachers and school administration do anything for the solving that challenge. Science teachers told that refugee students could not understand them and they are withdrawn while they are in class, they are shamed to ask any question to science teachers. Teachers think that the most important challenge on science learning of refugee students' is Turkish language, and following it some other factors such

as; differential science curriculum, differential culture and indifference of their family can be mentioned.

Within the scope of science achievement of the refugee students, it was found that only S1's science achievement is higher than both Turkish and other refugee students'. While S1 is more successful, hovewer, other refugee students's science achievement rate is under Turkish students'. It was determined that S1 has come Turkey four years ago with his family. His science teacher stated that S1 is very successful in science and he has very nice communication with his friends and teachers.

- How is your Turkish language? Where did you learn it?
- Are there any subjects or issues that you can not understand within science course?
- What challenges do you face at science exams?
- Have you ever faced that you could not understand your science teacher?

The reasons of failure in science course were asked refugee students and their responds are given in Table 2.

Table 2. *The reason of failure in science course according to refugee students*

Theme	**Code**	**f**	**%**
Language	*Turkish language is difficult*	5	8,33
	We have not any course to learn Turkish	7	11,66
Family	*Spoken in native language while with family*	6	10
	Family do not help on our science course	7	11,66
The out of school effects that I have lived	*I am not able to understand my friendes while playing*	4	6,66
	Challanges on social communication	5	8,33
Science textbook disadvantage	*Type of activties*	6	10
	The science issues	5	8,33
Facing problems within at science course	*Lack of material*	3	4,99
	Lack of technological tools	2	3,33
School environment	*Facing problems with friends while playing games*	5	6,66
	Family	7	11,66
	Negative friendships	4	6,66
Social environment out of school	*Lack of Money*	4	6,66
	Harbouring problem	3	4,99
Type of giving lecture of science course		2	3,33
Economic conditions		4	6,66

The reasons of failure in science course were asked refugee students and they indicated some responds to researcher. Their responds are classified under themes and codes. The themes are "Language, Family, the out of school effects that I have lived, Science textbook disadvantage, Science textbook disadvantage, facing problems at science course, School environment, Social environment out of school, Type of giving lecture of science course and Economic conditions. It is seen that some codes are responded more than others such as "we have not any course to learn Turkish (11,66%), family do not help us for our science course (11,66%). Family was used as seven times (11,66%) a code under Social environment out of school. Refugee students think the reason of their failure in science is arised following themes; family (spoken in native language 10%), textbook disadvantage (type of activities %10). There have been found some interesting results given by refugee students, as well. Most of them think that some reasons link to failure in science course. These are Turkish

language is difficult (8,33%), challenges on social communication (8,33%) and the science issues which are in Turkish science textbooks (8,33%).

When the researcher asked to S1's science teacher about reason of failure of S1's science achievement?

Science teacher responded; I see that S1 and his family can speak in Turkish very well. I sometimes observe him when he is in science class that he endorses to learn science concepts and he does his homework and shows when we before start to science course.

Although this science teacher states positive statements, she does not say the same positive thoughts about S4, who is also from Syria. She states her thoughts about S4 in following sentence: I have been studying with S4 for five months, he is failure in science course since he does not understand what I tell within science and he and his family talk to each other in their native language. Due to he can not understand in Turkish, he does not endorse science course and also he does not do his homework.

It was asked S4 and S7 coded students' science teacher the reason of failure of them. Their science teacher stated following: S4 and S7 coded students can not understand me during in the science course since their Turkish language level is not enough. Hovewer, these refugee students can adapt themselves in both classroom and school climate, I understand from my observations that if their Turkish level were enough they would be successful in science course.

This science teacher also pointed out about S6 coded student's failure within science course. She stated: S6 coded student witnessed many things such as, she lost her father in the Syrian War, her economical sititation is not well, she lives with 25 people in the same flat. I think she has no opportunity to study her science lesson, under these conditions. Other important problem is she and family members have been speaking in Arabic while they are out of school. This is also a big challenge for her to adapt herself to Turkish educational system. Beside, science course is anyway a difficult course to be learnt easily, we know that from our students, it is normal S4 coded student are not able to learn science very well.

Both science teachers' views and students' views confirm each other on refugee students' failure in science course. They almost indicated parallel statements within the reasons of failure of refugee students.

It was asked to science teachers about the participation of refugee students while they are at science course.

Science teacher answered that her students (S4, S6 and S7) have not been participating to science course. She also stated that I sometimes ask directly some questions to them but they do not want to response them and they are reluctant to participate to the science course. The other science teacher answered (S1 ve S5) that two of her refugee students are successful in science course and she indicated following statement. They are very willingly participating to the science course. They want to reply me; they want to learn new scientific facts. Beside, especially, S5 coded student has positive attitude and motivation towards science course and she is able to answer my questions in Turkish. The other science teacher said that her refugee students (S2 and S3) have not been participating to the science course willingfully. She said this following sentence. I want them to participate science course but I can not achieve this, unfortunately. I think S3 coded student can not adapt herself to Turkish educational system, yet. S2 coded student can not understand what have been told in science course, he just talks to his friends.

It was asked "science homeworks" which were given by teachers to their students.

All the science teachers told that most of refugee students (excluding S1 and S4) do not do their homework within science course. S4's science teachers stated that in my science

course S4 coded student endorses within the scope of science very much while she is at home she based on this thought according to an interview which she conducted with S4's mother.

It was asked science teachers that their refugee students bring materials within science course, which were asked to be brought by teachers.

It has been learnt that S1 coded student sometimes brings necessary materials and S5 coded student always bring materials within science course. S5 coded student's economic condition is not well and because of this reason he sometime can not bring needed materials, which are used in the activities, to the class. Others always do not bring any materials to the science course.

What do you think about your refugee students's failure reasons?

Table 3. *Teachers' answers*

Themes	**f**	**%**
Lack of Turkish language	3	20
Science issues are different	1	6,66
Negative class climate	1	6,66
Negative school climate	2	13,33
Economic conditions	2	6,66
They do not feel that they belong in Turkey	3	20
They have not any time for studying while they are out of school.	2	13,33

Science teachers' thoughts are given under some themes shown in table 2. According to science teachers that they think knowing Turkish is important to learn science (20%), they also indicated interesting statement that they think refugee students do not feel they belong (20%) in Turkey due to this they are not successful in science course. Economic conditions (13,33%) and negative school climate (13,33%) have also effect refugee students's failure.

The Results Obtained from Observations

It has been understood from the observations that refugee students (excluding, S1 and S5) could not understand science teachers' statements while they were in science lesson. It was seen that most of refugee students did not ask any questions to their science teachers after teachers finished to tell the related to science issues. However, S1 coded student was very willing to answer his teacher questions and he wanted to solve the problems, which were asked by his teacher. An interesting result can be said that five refugee students were reluctant to learning science during the courses. It can be claimed that the reasons of the reluctance learning science could be based on some causes such as missing their countries-friends-relatives, language problems, economic negative conditions they have, not have their own study room and living with many people in the same flat. S5 coded student was able to understand her teacher statements during in science classes. She tried to listen her teacher and endorse to what was told during the science course. It was also seen that S5 coded student first show her homework when her teacher had asked to show the homework from whole the class.

It was found out that S3, S4 and S6 coded students were so silent during science course, unless their science teachers had asked anything they were not giving any answers. However, S1, S2, S5 and S6 coded students adapted themselves to the class climate. But it was also seen that S2 and S7 coded students were just chatting with their friends. It is an interesting observation was found in science course while S2 and S7 coded students were trying to say

someting within the science course their friends started to laughed at them. Then S2 and S7 coded students started to laugh, as well.

Conclusion and Recommendations

To provide refugee students to learn Turkish language efficiently, support cooperation with their family, giving more science course them after schools and get them to informal science learning centres can be recommended to provide them to be more successful on learning science. Refugee students should be provided within science course by some activities such as science centre trips, science museum trips, doing science exercises and etc. after school.

In this study, it has been seen that a sixth grade student's science achievement is higher than other students. The intierviews with her science teacher confirm that her reading, writing and understanding of Turkish is very well and this is valid for her parents, as well. Her science score and the interviews indicate that based on her coming to Turkey five years ago, has reflect her science achievement. There are some studies which have parallel results with this study. It has been found that 15 year-old students', who are new in their new country, reading success are lower than other students who came their new country before the age of fifteen (OECD, 2013). The same result has also been found in this study. Two refugee students' science achievement, who came Turkey before others, are higher than other five refugee students. It is known that reading skill is related to science achivement. Turkish language is a big challenge for the refugee students. Hence refugee students first should be taught Turkish language much better than now to provide them in science course.

Refugee students's science scores are under non-refugee students' scores and as mentioned that there have not been doing any applications for them. It has seen that a refugee student's science scores are higher than other refugees, and he has been in Turkey for five years. It can be claimed when a refugee's school time could be enhanced his/her science achievement might be promoted. OECD (2014b), states that Israeli and Germany have designed programmes which offer more learning opportunities to immigrant students by supporting a longer school day. Israel creates small study groups to encourage them to courses. It's known that Turkish students, whose science exam scores are under class average, are trained within science course by their science teachers after school time. Students' science achievement is anticipated to reach higher amount via these additional courses.

Hannah (1999), stated that with the refugee student's agreement school and or organisation staff should be informed about a refugee student's background. Students' needs within science education might be consider, and science teachers who participated this study highlighted the same point, as well. In this study, it has been found that science teachers do not know very well their refugee students. For instance, they did not ask what issues and subjects their refugee students had read in their own country and they also do not know refugee students' family conditions. Science teachers should aware of their refugee students' life conditions to promote their science achievement. Spernes (2016) indicates that collaboration between immigrant students and teachers might produce valuable knowledge for students and research field. McBrien (2005) states that teahers and school staff should be instructed in cultural sensitivity for all children in their school. Refugee students might be supported with social services within provide language instruction for students and their parents, combat discrimination. It is known that temporary educational organisations have

opened for the refugee students, although they are not enough to reach every refugee student. If wanted to be successfull to accord refugee students to the Turkish educational systems, that organisations should be strengthened for the refugee students.

Schools have very important role to educate and integrate refugee students in which they live currently. It is seen that the integration of refugee students could not be done sufficiently in this school and it is thought that some factors can cause it. It can be said that the school is not able to solve the refugee students' problems without any professional helping provided by local authority or the national govermental organisations such as ministry of national education, ministry of family and social policy. Although schools are known that they can not solve big problems of refugee students, school administration can prepare some training acitvities/seminars for science teachers, refugee students and their parents to provide collaboration among them. Students, who have learning disability, are supported by their teachers within some lessons that they have difficulties to learn them, within a program that has been created by Ministry of National Education, at school times. Inclusive students have opportunity to have one to one science courses with their science teachers. It is aimed to promote inclusive students' science literacy via these trainings. These trainings can also be carried out for the refugee students to provide them within science courses while they are at the school. In addition to this, some special science programmes and science textbooks can be prepared for the refugee students. A similar result was found by Mathewws (2009), he states if schools are to provide refugee students they have to take their capacity to socialise and integrate. To promote integration of students towards school climate it should be recommended that it might be carried out some out of activities which covered by science issues such as science centres and science museum visits, planaterium visits, university visits and so on. It is thought that students could be integrated to the school climate within science course and they might be start to learn science more voluntarily. By doing this, it provides science teachers and school staff to facilate their students to school climate and this also supports them to enhance their students' science achivement. Refugee students can be provided by some science training courses which are aiming enhance their science achievement via small study groups that may be carried out after schools. It is important to integrate them to school climate since refugee students educational experience is shaped by their social, cultural conditions. Ngo (2006), educational experiences of southeast and South Asian American students are shaped by their social, cultural, and economic situtations.

In this study, it was found that there is not any special science programmes for the both refugee students and science teachers. It is found out that both Afghan and Syrian seventh grade science textbooks have different units and within this scope different issues, as well. Within this context, it can be claimed that that countries' sixth grade science textbooks have also different issues. As a result of this, it can be said that refugee students come to Turkish classes with different units and issues that they have learnt in their countries. Besides, refugee students try to learn science issues and topics with their limit Turkish language level. It is known that some studies point out programmes for refugee students can provide them within learning science. Refugee students' transitions into the mainstream may be more successful if refugee students have access to intensive one-on-one coaching over a period of time. A program which aims to refugee students delivers teachers to support their tutoring activities while they are in the school. (Ferfolja, 2008; Ferfolja & Vickers 2010). Weekes, Phelan, Macfarlane, Pinson & Francis (2011) state that in a student-centred Project-called by them as "Classroom Connect" the Project improves the capacity of refugee people to negotiate challenges of mainstream schooling.

PISA (2015), evaluates how immigrant students fare compared to their native peers and meausures the performance gap between countries. Share of immigrant students among all students is thought as a context factor. It is seen that Turkey share of immigrant ranking is under the OECD within 2015 PISA. Turkey has been hosting almost four million refugees and 600.000 of them are student in Turkish educational system. Although it has been found that refugee students live in Turkey are not successfull at expected level.

It was found that the science teachers in this school do not carry out any collaboration with each other. Although eight science teachers work in this school, only one of them is interested in refugee students but that science teacher has not any special education on refugee students, as well. It can be focused on the other science teachers to provide them sharing their experience with eachother. Refugee population has been especially increasing at high amount in Turkey, since 2011. As mentioned in the study that there are almost three million Syrian people and other nationalities refugee people live in Turkey for past decade. Although it has been increasing refugee people population in Turkey, Turkish universities have not created any lesson(s) for the candidate science teachers to support them with information and skills for the refugee students yet. McCall & Vang (2012), states that teacher educators must prepare new teachers to adress needs of Hmong refugee students. According to Sakız (2016), it is important to be success at nonhomogenous classrooms that well-trained teachers in the refugee field should share their experiences with other teachers that work in the schools. Science teachers can be supported to be trained in refugee field in the cscope of science course. Besides, the collaboration among teachers, families and students should be provided to get refugee students' science achievement higher level. It is seen refugee parents have not been including to school climate, as well. NASP (2016), points that schools can work with families to find ways to connect families and support tyey can have opportunities to participate in their students' schooling. To have much more quality in science education for refugee students and provide them to understand science course and its issues, adding new courses to their programmes for the refugee students can be recommended to universities. In this study, ıt was studied with seven refugee students. It can be recommended that it should be studied in a school which have many refugee students within science course.

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An Anthropological Analysis of the Knowledge on Graphics within Middle School Mathematics*

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Abstract

The aim of this study is to analyze the knowledge on graphics within middle school mathematics from an anthropological perspective. The study, which was carried out in framework of the Anthropological Theory of the Didactic, conducted a document analysis with the purpose of determining the institutional qualities of middle school mathematics. In this context, the study examined a variety of documents including mathematics curriculums that are used in Elementary Mathematics Special Teaching Methods institutions in addition to middle school mathematics course books, books on mathematics instruction, and the notes taken by faculty members. The data that were obtained from document analysis were analyzed with ecological and praxeological approaches. Based on the ecological approach, the study identified the qualities of institutional recognition by revealing the habitat and function (niche) of the graphic knowledge in its institution, while the praxeological approach revealed the mathematical organizations consisting the types of graphic-related tasks in the institution, techniques, the technologies that explain the technique, and the theories which explain and defend the necessity of the technology. The study concluded that the use of graphics as a goal, a tool, and both as goal and tool the institution was addressed to the instruction of subjects (ratio and proportion, percentage, curves, equations and inequalities, equation systems, functions, statistics, and probability) in numbers and operations, algebra and data processing learning fields, for the improvement of mathematics literacy, problem-solving, communication, association, and psycho-motor skills. The research institution employed three mathematical organizations (graphic reading and interpretation, graphic creating, making appropriate conversions between graphics) including 11 types of tasks in total.

Keywords: Anthropological Theory of the Didactic, ecological approach, graphic, praxeological approach

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Ortaokul Matematiği Grafik Bilgisinin Antropolojik Açıdan İncelenmesi

Öz

Bu araştırmanın amacı, ortaokul matematiği grafik bilgisini antropolojik açıdan incelemektir. Antropolojik Didaktik Teorisi çerçevesinde yapılan araştırmada ortaokul matematiği grafik bilgisinin kurumsal özelliklerini belirlemek için doküman incelemesi yapılmıştır. Bu kapsamda İlköğretim Matematik Özel Öğretim Yöntemleri kurumunda kullanılan matematik öğretim programları, ortaokul matematik ders kitapları, matematik öğretimi kitapları ve öğretim elemanlarının notlarından oluşan dokümanlar incelenmiştir. Doküman incelemesinden elde edilen veriler, ekolojik ve praksiyolojik yaklaşım kullanılarak analiz edilmiştir. Ekolojik yaklaşım doğrultusunda grafik bilgisinin kurumda bulunduğu habitatı ve işlevi (niş); praksiyolojik yaklaşım ile adaylardan kurumda talep edilen grafiklerle ilgili görev tipleri, bu görev tiplerini yerine getirme şekli (teknik), kullanılan tekniği açıklayan teknoloji ve teknolojinin niçin geçerli olduğunu açıklayan ve savunan teorilerden oluşan matematiksel organizasyonlar ortaya çıkarılarak kurumsal tanımaların özellikleri belirlenmiştir. Araştırma sonucunda ilgili kurumda grafiklerin; sayı ve işlemler, cebir ve veri işleme öğrenme alanlarında yer alan oran-orantı, yüzde, eğim, denklem ve eşitsizlikler, denklem sistemleri, fonksiyon, istatistik ve olasılık konularının öğrenilmesi ve öğretilmesinde; matematik okuryazarlığı, problem çözme, iletişim, ilişkilendirme ve psikomotor becerilerin geliştirilmesinde araç, amaç ve hem araç hem de amaç konumunda kullanıldığı tespit edilmiştir. İlgili kurumda toplam 11 görev tipini içeren "grafik okuma ve yorumlama", "grafik oluşturma" ve "grafikler arasında uygun dönüşüm yapma" olmak üzere üç matematiksel organizasyon olduğu sonucuna ulaşılmıştır.

Anahtar Sözcükler: Antropolojik Didaktik Teorisi, ekolojik yaklaşım, grafik, praksiyolojik yaklaşım

Introduction

A piece of knowledge earns a social status through its creation and development provides the interactions among the knowledge, the teacher, and the learner. However, not all structures of knowledge with conceptual structure and epistemology are conveyed to individuals as they are. In other words, the scientific knowledge that emerges from problem situations and human needs initially are transformed into the knowledge to be taught in the curricula by a community called 'noosphere' due to social and cultural needs (Chevallard, 1991). While this type of mathematical knowledge is offered to the community's service based on social and cultural values (Chevallard, 1992), it still has the prints of the nature and developmental process of mathematical knowledge. In other words; the transformation of scientific knowledge, which is isolated from the daily life, into social knowledge is affected by mathematical epistemology that aims to understand the science and environment where mathematical concepts and techniques emerge (Vergnaud, 1990).

The formation of knowledge and its transfer to individuals is included in the study field of the science of didactics (Therer, 1992). The science of didactics analyzes the elements that are employed in the process of transferring knowledge to individuals as well as the effects of the individual on learning (Brousseau, 2002; Chevallard, 1991). There are many theories proposed by the studies in this field. One of them is the Anthropological Theory of the Didactic (ATD) that was proposed by Chevallard (1991). This theory considers practice important, and examined the structure, function, and different uses of knowledge as the common understanding of practice and theory (Chevallard & Sensevy, 2014).

The anthropological theory, which is shaped by the structure of knowledge aimed to be acquired in the learning process, is established on the compounds of object, (knowledge), individual, and institution. Here is the explanation by Chevallard (1991) for these three concepts: The object is described as all of the structures of which the individual is aware, and it is symbolized by "O". A concrete item (e.g., a book) is accepted as an object, and the loving feeling for the book is an object as well. The persons that interact with the object are individuals, and the institution is a system of techniques and rules based on the individual's thoughts and knowledge in own field of study. The individual is symbolized by "X", and the institution is symbolized by "I". The presence of relationships amongst knowledge, individual, and institutions proves that knowledge is recognized by the individual or that it is present in the institution. In this regard, the relationship of X individual with O object is called individual recognition, and it is symbolized by S(X,O). If the structure of knowledge is capable of being present within an institution, then there is institutional recognition. The institutional recognition for institution I that is showed with RI(O) is not the same with the recognition of another institution (I'). Thus, $RI(O) \neq RI'(O)$. Because the properties of the same objects change depending on the structures of institutions (Sağlam-Arslan, 2004).

Graphic is a form of representation that is practiced in both mathematics institution and a variety of other institutions such as physics and chemistry. It is used as a mathematical tool for communication since it helps express scientific theories in course books and other printed materials (Kaput, 1987), and enables the individual to convey the knowledge internalized in mind to other people (Hiebert & Carpenter, 1992). In addition to using only one visual to present the knowledge that would be expressed with thousands of words with a verbal manner which provides to convey the knowledge to the reader simply and concisely (Roth & Bowen, 2003), it plays an important role in conceptual understanding (Duval, 1999; Friel, Curcio & Bright, 2001; Winn, 1991) by improving the skills of problem-solving (Cai & Lester, 2005; Schultz & Waters, 2000), building relations between variables, comparing the variables, and making estimations with a consideration of the variables. It also accelerates the process of making sense of knowledge because it concretizes abstract thoughts through

visual elements, and coveys complicated relations with a simple manner (Altun, 2016). Furthermore, graphic is one of the fundamental concepts used jointly in reading, and scientific and mathematical literacy (Long, 2000), and it is used in science, social sciences, and other lessons as well as mathematics, both of which prove that is has an interdisciplinary dimension. It is involved in a number of other field including health and economy which require specialty and concern the public in daily life, showing the necessity to raise individuals that are conscious and have a basic understanding of graphics. For this reason, the concept of graphic which is an important subject of both multiple representation and statistics is heavily included in mathematics curricula (NCTM, 2000). In middle school mathematics curriculum (MSMC), the concept of graphic is handled as a tool of communication to understand the problem and express mathematical thoughts, a form of representation that builds relations between arithmetical and algebraic representations, and a mathematical concept to be taught in the learning field of data processing (The Ministry of National Education, 2013, 2017).

Curricula and course books form the institutional background of the knowledge to be taught, and they are among the factors that affect the teaching and learning process. These sources are the teaching materials that include knowledge aimed to be taught and the teaching activities that are connected to this knowledge. They guide the teachers for determining what to teach, and how to teach it. Most teachers make an exact practice of the content of the curriculum and course books that they use as a guide for mathematics instruction (Skiersko, 1990). Institutional qualities and limitations of the knowledge to be taught can be determined by analyzing the curriculum, which is affected by the culture and understanding of the teaching system, and course books, which reflect the in-class practice of the curriculum (Ersoy, 2006). In this context, it is important to examine graphic knowledge, which has an important place in mathematics instruction, as the knowledge to be taught in framework of ATD, and determine institutional recognitions. Because studying a structure of knowledge within the basic qualities of the institution that involves it enables revealing the expectations of the institution from the individuals, and accordingly, evaluating the individual as the subject of the institution (Chevallard, 1991). In this respect, the aim of this study is to analyze the knowledge on graphics within middle school mathematics from an anthropological perspective. Considering this aim, the study made an effort to answer the following question: "What are the qualities of institutional recognition for graphic knowledge in middle schools that apply special teaching methods?"

Method

Model of the Research

This study conducted a document analysis with the purpose of doing an anthropological analysis of middle school mathematics' graphic knowledge as the knowledge to be taught. Document analysis is a very common data collection technique among all qualitative research methods, and it includes the analysis of the written and visual materials containing information about the phenomenon or phenomena to be researched. In addition to written materials such as course books, curricula, official papers and documents, plans, exam papers, worksheets, and diaries, the materials to be examined include other sources such as films, videos, and photographs (Yıldırım & Şimşek, 2013).

With document analysis, the study aimed to identify institutional recognitions. The institution is regarded as a system which has unique methods, and teaches unique knowledge and thoughts to the individuals involved in it (Chevallard, 1991). In the didactic transformation of knowledge, mathematical knowledge is transformed from academic knowledge into the knowledge to be taught, the knowledge that is taught, and the knowledge that is learned. Each type of transformed knowledge is involved in the institution. For

instance, the knowledge that is taught is instructed under the conditions and limitations of the classroom where instruction is performed (Bosh & Gascon, 2006). In this study, Special Teaching Methods for Elementary Mathematics (STMEM) was determined as the institution. Considering the lesson contents that are determined by Higher Education Board, STMEM lessons include field-specific concepts and the general goals of field instruction related to the instruction of these concepts; appropriate methods, techniques, tools-equipments, and materials to be used for concept teaching; problem-solving, the instruction of field-specific mathematical concepts, and preparing, presenting, and evaluating lesson plan (Higher Education Board, 2017). For the purpose of the study, the concept of graphic was analyzed considering the institution side in framework of ATD from ecological (the location and function of the concept) and praxeological (types of tasks, and their technical, technological, and theoretical background) perspectives. In this respect; the graphics were studied as mathematical concepts. Their location and function were examined considering all subjects, while task types and their technical, technological, and theoretical background were examined in framework of data processing.

For document analysis, the study examined four middle school mathematics course books (Bilen, 2017; Cırıtcı, Gönen, Kavas, Özarslan, Pekcan & Şahin, 2017; Güven, 2017; Üstündağ Pektaş, 2017) that were given by the Ministry of National Education (MoNE) in the 2017-2018 academic year and that were published on Education Informatics Institution addressed to Middle School Mathematics Curriculum (MoNE; 2013, 2017). The study also examined the course books (Altun, 2016; Baykul, 2014; Van De Walle, Karp & Bay Williams, 2010) that are used as reference for the STMEM lessons taught in education faculties in framework of Primary Education Mathematics Teaching Undergraduate Program (Higher Education Board, 2017) In addition, the instruction notes of faculty members were used as a data source.

Analysis of Data

The ATD examines the factors that interact with the level of knowledge in learning process, and aims the recognition of knowledge by individuals, analysis of the knowledge within the relevant discipline, and creation of a model for these knowledge structures. With this purpose, the ATD studies knowledge with ecological and praxeological approaches. The present study aimed to make an anthropological analysis of graphic knowledge within middle school mathematics as the knowledge to be taught. The data that were obtained from document analysis were analyzed with ecological and praxeological approaches.

Ecological Approach

Ecological approach questions the conditions required for the existence of an object (Chevallard, 1991). In ecological approach, knowledge can exist along with the environment it lives in. Ecological approach evaluates the location of knowledge by resembling knowledge to a living thing; the environment where knowledge maintains its existence is called *habitat*, and the function of knowledge in this environment is called *niche*. According to this model, the habitat of knowledge shows the places where knowledge is located. In framework of the institution that was examined in this study, the locations of graphics indicate the habitat of the graphics. The function of the graphics, that is, their purpose of use, indicate their ecological niche. To demonstrate the qualities of the institutional recognitions belonging to middle school mathematics' graphic knowledge, the study initially determined the locations of the graphic within the documents (habitat), and their functions in these locations (niche) in framework of ecological perspective.

The ecological approach, which was used with the purpose of identifying graphic-related institutional recognitions, provided information about the locations and usage purposes of graphics. However, it is insufficient in providing information about how the graphics were used. For this reason, the study used the ecological approach to reach the general information about why and where graphics are used with the purpose of determining institutional recognitions, and then, questioned how graphics are used in data processing using praxeological approach.

Praxeological Approach

Praxeology is used in ATD as an epistemological model which was developed to examine the knowledge or actions of humans (Winslow, 2011). A praxeology consists of two blocks which are practical (praxis) and theoretical (logos) blocks. The practical block of a praxeology includes the task type (T) which involves different kinds of tasks, and the technique (τ). Technique (τ) is the method which is used perform the type of task (T). The theoretical block includes the technology (Q) component which explains the technique used in the practical block as well as the theory (Θ) component which explains or defends this technology. The theoretical block mainly involves the types of knowledge that are used for explanation and justification. Therefore, the theoretical block is also called the knowledge block. A praxeology is expressed as $\wp = (T, \tau, \theta, \Theta)$ (Chevallard, Bosch & Kim, 2015). When describing these four components of praxeology in the study, two field experts encoded the contents of the components, and created mathematical organizations. In this respect, the reliability of the formula was calculated using Miles & Huberman (1994) formula which is Reliability= [Agreement / (Agreement+Disagreement)] x 100. The calculations revealed that the encoder reliability was 98%.

Results

The Findings Which were Obtained through Ecological Approach

The location (habitat) and function (niche) of middle school mathematics' graphic knowledge within STMEM was analyzed using ecological approach. The documents analyzed in the study showed that the habitats of graphics were sorted by the units and sections that were connected to fields of learning and sub-fields of learning. The sections and subject distributions that include sub-fields of learning in middle school course books showed that there were 12 sections and 39 subject headings in 5th grade mathematics course book (MCB5); 14 sections and 45 subject headings in 6th grade mathematics course book (MCB6); 134 sections and 57 subject headings in 7th grade mathematics course book (MCB7), and 13 sections and 42 subject headings in 8th grade mathematics course book (MCB8). Mathematics instruction books involved sections about different approaches to the structure and instruction of mathematics along with the teaching of subjects included in fields and sub-fields of learning. Regarding section and subject distributions; Primary and Middle School Mathematics (PMSM) book consisted of 23 sections and 143 subject headings, while Middle School Mathematics Instruction (MSMI) book included 25 sections and 183 subject headings, and Mathematics Instruction in Middle Schools (5th, 6th, 7th, and 8th Grades) (MIMS5-8) book included 11 sections and 60 subject headings (Altun, 2016; Baykul, 2014; Van De Walle, Karp & Bay Williams, 2010). Table 1 presents the subjects headings which involve the graphics within the analyzed documents.

An analysis of Table 1 shows that the MSMC (MoNE, 2013) involves graphics within 5th, 6th, 7th, and 8th grade acquisitions in framework of basic mathematical skills, numbers and operations, data processing, and algebra fields of learning as well as sub-fields of

learning. In the curriculum which was published in 2013, graphics contributed to the improvement of different skills such as problem-solving, communication, association, and psycho-motor skills. In the 2017 curricula, they were studied under the subject headings of mathematical competence and competence in science and technology in addition to cultural awareness and self-expression skills (MoNE, 2017) The 5th, 6th, 7th, and 8th grade acquisitions of the curricula were reflected under sub-fields of learning. Accordingly, the study found that the graphics were included in "producing research questions and the collection, organization, and presentation of data" sub-field of learning in the 5th grade while they were included in "producing research questions, collection and organization of data" in the 6th grade; "ratio and proportion", linear equations", and "producing research questions and the collection, organization, evaluation, and interpretation of the data" in the 7th grade"; and "linear equations", "equation systems", and "the organization, evaluation, and interpretation of data" in the 8th grade.

Table 1. *The subject headings involving graphics within the analyzed documents*

	MSMC	**MCB5**	**MCB6**	**MCB7**	**MCB8**	**MSMI**	**MIMS5-8**	**PMSM**
Problem solving, association, communication and psychomotor skills *	✓					✓	✓	✓
Mathematical literacy							✓	
5th, 6th, 7th and 8th class achievements	✓					✓		
Number and operations learning field*	✓					✓		
Algebra learning field	✓					✓	✓	
Data processing learning field	✓					✓		
Percentages		✓						
Ratio- proportion*	✓			✓				✓
Producing research questions, collection, organization, evaluation and interpretation of the data	✓	✓	✓	✓	✓	✓	✓	✓
Data analysis	✓		✓	✓	✓	✓	✓	✓
Linear equations and equation systems	✓			✓	✓	✓	✓	✓
Slope	✓				✓	✓	✓	✓
Analytical geometry							✓	
Possibility						✓		✓
NCTM standards								✓
Calculators								✓
Patterns and functions							✓	✓

*It is not included in the content of mathematics curriculum (MoNE, 2017).

The study determined that graphics in the relevant sub-field of learning were included in the subjects of bar graph, pie graph, line graph, proportion, histogram, slope, and the solution of equation systems (MoNE, 2013). However, the revised curricula (MoNE, 2017) did not refer to the graphics within the "proportion" subject which was included in "numbers and operations" learning field, and histograms were removed from the curriculum content in

"data processing" learning field. The mathematics course books for the 5th, 6th, 7th, and 8th grades (middle school) that were taught in line with the 2013 mathematics curriculum included a variety of graphics (e.g., bar graph, pie graph, line graph, and histogram). An analysis of mathematics instruction books showed that graphics were included in the sections about the instruction of the subjects within a number of learning fields which were the fundamental perspectives in the learning and teaching process of mathematics, current mathematical skills such as mathematical literacy, algebra, data processing, numbers and operations, and probability in addition to the introduction of the curriculum. The graphics were referred in 11% of the subjects in middle school course books that were analyzed in this study, while 7.3% of the subjects in the analyzed mathematics instruction books included them.

The documents analyzed within the study showed that graphics were included in the subject headings of basic skills (problem-solving, communication, association, psycho-motor skills), the acquisitions in the 5th, 6th, 7th, and 8th grades; the learning fields of numbers and operations, algebra, data processing, and the subject headings of percentages, ratio and proportion, linear equations, equation systems, producing research questions, collection-organization-evaluation-interpretation of data, data analysis, linear equations, equation systems, and slope. Also, the subjects of linear inequalities with two variables and probability in MSMI (Baykul, 2014); mathematics literacy, function graphics in algebra instruction, and analytical geometry in MIMS5-8 (Altun, 2016); National Council of Teachers of Mathematics [NCTM] standards, patterns with calculators, and functions in Primary School Mathematics Instruction book (Van De Walle, Karp & Bay Williams, 2010) included graphics. Based on the analyzed documents, the study concluded that the habitat of graphics were the learning fields of numbers and operations, algebra, and data processing; the subjects of ratio and proportion, percentage, slope, equations and inequalities, equation systems, functions, statistics, and probability within these learning fields; and the skills of mathematical literacy, problem-solving, communication, association, and psycho-motor skills.

The study analyzed the functions (niche) of the graphics in the determined habitats in framework of the analyzed documents, and found the documents mentioned that graphics increased mathematical competence by improving the skills of presenting mathematical thought, making decisions, associating, revealing cause and effect relationships, comprehending, and interpreting, and that graphics also affected the improvement of problem solving, associating, communicating, and psycho-motor skills (MoNE; 2013, 2017). The study also found that the graphic took over other roles since it is a form of multiple representations in the instruction of mathematical concepts and accordingly, a form of representation that is related to other mathematical concepts, while it was the target concept that was aimed to be learned in a variety of fields and sub-fields of learning. In this respect, the functions of graphics in their habitats may occasionally be at 'target knowledge' level, while they may be used in some cases as mediators for the acquisition of other mathematical knowledge and skills. For instance; graphic has the quality of target knowledge in the creation of bar graph, and it is used as the purpose. When calculating the openness of data, it serves for the development of 'graphic openness', and thus, used as a tool. Considering the analyzed documents, the position of graphics was evaluated to be a tool, a goal, and as tool-goal. Accordingly, the graphics were categorized as tools when they were used to teach knowledge, and as goals when the graphic type itself is the target knowledge. Table 2 presents the functions (niche) of the graphics in their habitats that were determined in document analysis as well as the categorization information on the positions of these functions.

Table 2

The Positions and Functions (Niche) of Graphics in the Data Which Were Obtained from Document Analysis

Graphs' Position	Functions of Graphs (niche)	MSMC		MCB5		MCB6		MCB7		MCB8		MSMI		MIMS5-8		PMSM		Total	
		f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
A. Tool	A1.Creation of frequency table / tallies	4	0.77	9	1.73	9	1.73	19	3.65	28	5.37	13	2.50	6	1.15	4	0.77	92	17.66
	A2.Calculation openness /average /mode / median	7	1.34	-	-	6	1.15	-	-	-	-	3	0.58	-	-	3	0.58	19	3.65
	A3.Association line graphs with slope	2	0.38	-	-	-	-	-	-	12	2.30	5	0.96	2	0.38	2	0.38	23	4.41
	A4.Determining any proportions between two quantities with given graphics *	3	0.58	-	-	-	-	7	1.34	-	-	-	-	-	-	2	0.38	12	2.30
	A5.Calculation of the proportionality constant *	1	0.19	-	-	-	-	3	0.58	-	-	-	-	-	-	1	0.19	5	0.96
	A6.Determination of the solution set for linear equation systems	1	0.19	-	-	-	-	-	-	12	2.30	2	0.38	4	0.77	-	-	19	3.65
	A7.Calculation of the surface area of a region limited by lines	-	-	-	-	-	-	-	-	6	1.15	-	-	-	-	-	-	6	1.15
B. Goal	B1. Interpretation data on bar graph	5	0.96	8	1.54	7	1.34	1	0.19	4	0.77	6	1.15	1	0.19	2	0.38	34	6.53
	B2. Interpretation data on pie graph	2	0.38	-	-	-	-	10	1.92	1	0.19	1	0.19	2	0.38	2	0.38	18	3.45
	B3. Interpretation data on line graph	5	0.96	-	-	-	-	11	2.11	1	0.19	3	0.58	3	0.58	1	0.19	24	4.61
	B4. Interpretation data on histogram*	2	0.38	-	-	-	-	-	-	11	2.11	1	0.19	-	-	1	0.19	15	2.88
	B5. Presenting data on bar graph	6	1.15	9	1.73	6	1.15	3	0.58	3	0.58	6	1.15	3	0.58	3	0.58	39	7.49
	B6. Presenting data on pie graph	4	0.77	-	-	-	-	11	2.11	1	0.19	2	0.38	2	0.38	1	0.19	21	4.03
	B7. Presenting data on line graph	4	0.77	-	-	-	-	9	1.73	1	0.19	2	0.38	1	0.19	3	0.58	20	3.84
	B8. Presenting data on histogram *	2	0.38	-	-	-	-	-	-	12	2.30	1	0.19	-	-	1	0.19	16	3.07
	B9.Making appropriate conversions of graphs into each other	3	0.58	-	-	-	-	9	1.73	7	1.34	1	0.19	1	0.19	1	0.19	22	4.22
C.Goal-tool	C1.Problem solving, association, communication and psycho-motor skills development	6	1.15	-	-	-	-	-	-	-	-	6	1.15	5	0.96	10	1.92	27	5.18
	C2. Interpretation of the data that include linear relations and associating them with algebraic representation	3	0.58	-	-	-	-	16	3.07	25	4.80	2	0.38	7	1.34	6	1.15	59	11.32
	C3. Presentation on graphic of the data that include linear relations	2	0.38	-	-	-	-	10	1.92	26	4.99	4	0.77	4	0.77	4	0.77	50	9.60
Total		**62**	**11.90**	**26**	**4.99**	**28**	**5.37**	**109**	**20.92**	**150**	**28.79**	**58**	**11.13**	**41**	**7.87**	**47**	**9.02**	**521**	**100**

As presented in Table 2, graphics in the analyzed documents were used for different functions (tool, goal, and tool-goal) considering their states of usage. Accordingly, the study determined that the was graphic was the tool in a number of calculating functions such as creation of frequency tables and tallies, calculation of openness/mean/mode/median, associating line graphs with slope, determining any proportions between two quantities with given graphics, calculation of the proportionality constant, determination of the solution set for linear equation systems, and calculation of the surface area of a region limited by lines. The graphic was used as the goal in different functions including the interpretation of the data based on bar graph, pie graph, line graph, and histogram; presenting the data on bar graph, pie graph, line graph, and histogram; and making appropriate conversions of graphs into each other. The graphic was used as both as a tool and a goal in problem-solving, association, improvement of communication and psycho-motor skills, interpretation of the data that include linear relations and associating them with algebraic representation, and the presentation on graphic of the data that include linear relations. In this context, the study observed that graphics have a variety of functions. These are the improvement of concepts in many subjects such as statistical information, curves, ratio and proportion, equations, solution of equations, and surface area when they are used as a tool; organization and presentation of data when they are used as a goal; and the teaching and learning of subjects by improving mathematical skills when they are used both as a tool and a goal. In the documents analyzed in the study, graphics were used as a tool in 33.78% of totally 521 tasks, while they were the goal in 40.12% and both the tool and the goal in 26.1%. In all the documents analyzed in the study, graphics were used for "A1. Creation of frequency tables and tallies" as a tool; for "B1. Interpretation of the data on a bar graph" and "B.5 Presentation of the data on a bar graph" as a goal.

The documents which were analyzed considering the habitats and niches of graphics in the relevant institution showed that they were jointly and mainly included in the documents as bar graph, pie graph, line graph, and histogram in framework of "data processing", and that the graphic types to be included in the content of middle school curricula were limited with these graphic types (MoNE; 2013, 2017). In relation to these graphic types, the analyzed documents generally mentioned the institutional qualities of graphics such as the meaning of the data type, similar of different aspects of graphic types, the graphic type suitable for the data, the methods used for drawing graphics, strengths or weaknesses of graphic types when compared to each other. These institutional qualities mention in the documents were explained within the findings which were obtained through praxeological approach.

The Findings Which were Obtained through Praxeological Approach

This study used the praxeological approach to determine the institutional recognitions related to the graphic knowledge which was used as a reference for the knowledge to be taught in STMEM institution apart from the ecology of graphics. In this respect, mathematical organizations were created with the praxeological approach. Mathematical organizations were determined based on the documents analyzed in the study.

Mathematical organizations

The mathematical organizations that represented institutional recognitions were expressed with this praxeology: $\wp = (T, \tau, \theta, \Theta)$. Initially, the study determined the task types (T) to create mathematical organizations. In the analyzed documents, there were a total of 232 tasks related to bar graph, line graph, and histogram in framework of data processing. These tasks were categorized into three task groups. For this reason, the study grouped the

232 tasks in three mathematical organization categories which were “graphic reading and interpretation”, graphic creation”, and “making appropriate conversions between graphics”. Table 3 presents the distribution of the determined mathematical organizations in the documents analyzed in the study.

Table 3. *The distribution in the analyzed documents of the mathematical organizations related to graphic knowledge*

	Mathematical Organizations							
	Graphic reading and interpretation		Graphic creation		Making appropriate conversions between graphics		Total	
	f	%	f	%	f	%	f	%
MCB5	9	3.88	10	4.31	-	-	19	8.19
MCB6	7	3.02	6	2.59	-	-	13	5.60
MCB7	26	11.21	25	10.78	8	3.45	59	25.43
MCB8	16	6.90	27	11.64	17	7.33	60	25.86
MSMI	13	5.60	11	4.74	3	1.29	27	11.64
MIMS5-8	8	3.45	13	5.60	1	0.43	22	9.48
PMSM	18	7.76	11	4.74	3	1.29	32	13.79
Total	97	41.81	103	44.40	32	13.79	232	100

According to Table 3, there were a total of 232 tasks in the analyzed documents that were related to graphics in framework of data processing. Of these tasks, 41.81% were in the mathematical organization of graphic reading and interpreting, while 44.40% were in graphic creation, and 13.79% were in making appropriate conversions between graphics. In this respect, graphic creation was regarded as the most required mathematical organization in graphic instruction. Making appropriate conversions between graphics was the least included mathematical organization in the analyzed documents. This mathematical organization was not mentioned in the 5th and 6th grade course books. An analysis of the distribution of mathematical organizations in course books revealed that 8.19% of the organizations were in MCB5 while 5.60% were in MCB6, 25.53% were in MCB7, 25.86% were in MCB8, 11.64% were in MSMI book, 9.48% were in MSMI5-8, and 13.79% were in PMSM. Accordingly, MCB8 was the resource that included the biggest number of tasks related to graphics. In addition to bar graph, pie graph, and line graph that were taught in the previous levels, it included 8th-grade-level tasks on the interpretation and creation of histogram, and the conversion of these graphics into each other. The tasks included in graphics were the task types which expect individuals to be informed about the concept of graphic and the qualities of graphics according to ATD. To reveal the institutional recognitions related to the concept of graphic, the study accepted these tasks as task types (T) among the praxeological components. The methods which are used to perform these determined task types form the technique (τ). To determine the techniques, the study used the example solutions, activity examples, and the strategies which are used in explanations. To explain the technology (θ) which explains the relevant technique used to perform the task as well as the reason for the necessity of this technology, and to defend the technique and technology based on justifications, the study accepted the theories in the relevant literature and scientific resources as the theoretical (Θ) component of the relevant organization. In this context,

Table 4 presents the praxeological components of the mathematical organizations that reflect the institutional recognitions related to graphic knowledge.

Table 4
Graphic-related Mathematical Organizations in Data Processing, and Their Praxeological Components

Mathematical Organizations	Task type (T)	Technic (τ)	Technology (θ)	Theory (Θ)
Graphic reading and interpretation	T1.Obtaining information from bar graph	τ1. Calculating the height of bars	θ1:Understanding of graphical representations (Bertin, 1967)	Θ1:Theory of graphs comprehension (Pinker, 1990)
	T2.Obtaining information from circle graph	τ2. Making proportional calculations using the central angle or percentage for the surface area of the pie slice		
	T3.Obtaining information from line graph	τ3. Determining the value of the relevant point on the line regarding the vertical or horizontal axis		
	T4.Obtaining information from histogram	τ4. Calculating the height and width of bars		
Graphic creation	T5.Creating abar graph	τ5.Drawing rectangles at the heights equal to the frequency of the data groups τ6. Using technology		Θ2:Basic Perceptional Tasks Theory (Cleveland&McGill, 1984)
	T6.Creating a circle graph	τ7. Slicing the pie graph using central angles or percentages in proportion to the frequency of the data groups τ6. Using technology		
	T7. Creating a line graph	τ8. Connecting the consecutive points that represent the data	θ2:Descriptions and appropriate uses of graphics	Θ3:Structural Components of Graphics (Friel, Curcio&Bright, 2001)
	T8. Cretaing a histogram	τ9. Showing the data groups at certain intervals and with adjacent rectangles		
	T9. Conversion of bar graphs into other grsphs appropriate for the data	τ10. Create a pie graph upon the required angle, area percentage and proportion calculations τ11. Create a line graph by determining the points that represent the relevant data on the axes and consecutively connecting these points to each other		
Making appropriate conversions between graphics	T10. Conversion of pie graphs into other graphs appropriate for the data	τ12. Create a bar graph by placing the variable values of the relevant data groups on the axes and drawing columns at the height equal to the frequency of these data groups τ11. Create a line graph by determining the points that represent the relevant data on the axes and consecutively connecting these points to each other		Θ4:Common Standards (American Statistical Association, 1915)
	T11. Conversion of line graphs into other graphs appropriate for the data	τ12. Create a bar graph by placing the variable values of the relevant data groups on the axes and drawing columns at the height equal to the frequency of these data groups τ10. Create a pie graph upon the required angle, area percentage and proportion calculations		Θ5:NCTM Standards (NCTM, 2000)

Table 4 shows that the analyzed documents included a total of 11 task types in relation to the determined mathematical organizations. There were 4 task types in the mathematical organization of graphic reading and interpretation, while there were 4 in graphic creation, and 3 in making appropriate conversions between graphics. An analysis of Table 4 shows that 12 techniques were used for the determined 11 task types. Two task types were performed with the technique of using technology (τ6). In this context, it is possible of create both bar graph and pie graph. The documents were analyzed in framework of converting them into each other appropriately, and it was determined that there were no conversions related to the histograms in the study.

An analysis of the theory blocks of the determined mathematical organizations showed that graphic reading and interpretation organization (MO1) was a theoretical component of θ1 (understanding graphical representations) technology and Θ1 (theory of graphs comprehension). The theory blocks of graphic creation (MO2) and making appropriate conversions between graphics (MO3) were common. In this regard, graphic creation and making appropriate conversions between graphics are local mathematical organizations (Chevallard, Bosh & Kim, 2015). It was found that θ2 technology (descriptions and appropriate uses of graphics) explained the techniques which were employed to perform the task types, and this technology was explained by the theories Θ2 (basic perceptional tasks theory), Θ3 (structural components of graphics), Θ4 (common standards), and Θ4 (National Council of Teachers of Mathematics [NCTM] standards). Here are the determined mathematical organizations and more comprehensive explanations for the praxeological components of these organizations:

The mathematical organization of graphic reading and interpretation (MO1)

In framework of graphic types; the organization of graphic reading and interpretation consists of four task types: T1. Obtaining information from bar graph, T2: Obtaining information from pie graph, T3: Obtaining information from line graph, and T4: Obtaining information from histogram. There are different techniques used to obtain information from each of the graphic types included in the study. In the analyzed documents, the respective techniques used to obtain information from bar graph, pie graph, line graph, and histogram are given below:

τ1. Calculating the height of bars

τ2. Making proportional calculations using the central angle or percentage for the surface area of the pie slice

τ3. Determining the value of the relevant point on the line regarding the vertical or horizontal axis

τ4. Calculating the height and width of bars

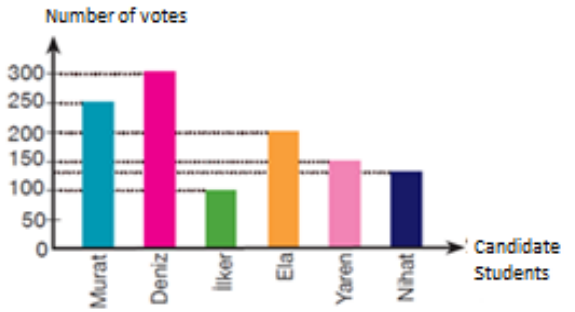
An analysis of the determined techniques indicates that the techniques vary by the structural qualities of graphics. For instance; the frequencies of data groups are determined based on the height of bars in bar graph since the categorical data are represented by bars in this graph. In graphic reading and interpretation organization (MO1), an example from MCB5 content for the task of obtaining information from bar graph (T1) was given in Figure 1 along with its solution.

Figure 1

Example for Obtaining Information from Bar Graph

The graph on the side shows the results of the election of the student representative in a school.

***Graphic** : Student Representation Election Results*



According to this

a) Which student received the most votes?

b) Which student received at least the vote?

c) The total number of votes is 1130. According to this, how many votes have Nihat received?

ç) At least how many people have to vote for Murat to be elected student representative.?

Solution

The high values of the columns on the graph indicate the number of votes of the candidates.

a) The highest column shows the number of 300 votes. For this reason, Deniz is the candidate who receives the most votes.

b) The shortest column shows the number of 100 votes. So it's İlker who gets the least votes.

c) To calculate the total number of votes, determine the votes of the candidates and create a frequency table

Table: Student representation election results

candidates	number of votes
Murat	250
Deniz	300
İlker	100
Ela	200
Yaren	150
Nihat	?

Let's find the total number of votes of the candidates except Nihat

250 + 300 + 100 + 200 + 150 = 1000

If the total number of votes is 1130, Nihat's number of votes is

1130 - 1000=130

ç) Murat needs to get the highest vote to be student representative. In that case, Murat should get more votes than Deniz. Because Deniz has 300 votes, Murat needs to get at least 301 votes in order to win the election. It is known that Murat has 250 votes. So

301 - 250 = 51 In this case, 51 students should vote.

(Cırıtcı et al., 2017, p. 254, 255)

Figure 1 shows that in the bar graph indicating the results of student representative election, the numbers of votes casted for each candidate student were shown through columns. While answering the questions asked to the readers to obtain information from the bar graph given in the example, the height of the columns showed the numbers of votes. The questions were answered considering the height of the columns.

Similarly, structures that represent frequency were used for the tasks of obtaining information from pie graphs (T2), line graphs (T3) and histograms (T4). The central angle and percentages, which digitize the areas of the graph showing the categorical data, were

used for the task of obtaining information from pie graphs (T2). However, it was found that the angle and percentages that correspond to the areas of the slices were not equal to the frequency of the relevant data. It was concluded that in the examples given for the T2 task, the slices determined through proportional calculations among the data were representing the areas of central angles, and were interpreted based on the size of the central angles of the graph data. The horizontal and vertical values of a certain point on the graph were used to obtain information from line graph (T3). For the task of obtaining information from histogram (T4), the heights and widths of the adjacent columns with a fixed width were considered. The MTMS indicates that group frequencies are represented by the columns' areas in histograms (Baykul, 2014, p. 490). Zigzag was used in the histogram for the intervals without data (Üstündağ Pektaş, 2017).

In the reviewed documents, columns in bar graphs and histograms, central angles or percentages in pie graphs and lines in line graphs indicate that these graphs are presented in different ways. Understanding the graphic presentations, which explain the techniques determined for the types of the tasks of obtaining information from graphs, forms the technology of this organization (θ1). Bertin (1967) categorizes understanding the graph presentations as external recognition, internal recognition and perception of correspondence.

External recognition: Recognition of the fact that the figures, numbers, labels, titles and lines that form a graph transfers the information in real-world.

Internal recognition: Determination of the changes in the graph, the dimensions of these changes, and to which conceptual variable the visual dimensions correspond. Noticing the information about the graph data.

Perception of correspondence: Association of the results scaled in the graph with visual dimensions to represent the real size. In other words, association of the visual dimension with the variable or scale to which it corresponds.

The literature review, carried out to find the theory that explain and defend the technology to understand the graph presentations in the graphic reading and interpretation organization, indicated the "A Theory of Graph Comprehension" suggested by Pinker (1990) based on Bertin's explanations. The Theory of Graph Comprehension (Θ1) explains how to read a graph and which cognitive processes to be carried out. External recognition, internal recognition and perception of correspondence enable readers to know that the objects in the graph are represented in a single way and to understand the dimensions of the visual components and the corresponding mathematical scale (Pinker, 1990). Readers can understand the meaning of the visual objects in the graph and interpret the graph. The theory of graph comprehension is used to generalize the predictions about what makes a graph better or worse at information transfer to the readers who read the graph. Graph comprehension is based on two mental representations called visual recognition and graphic scheme. Visual recognition is to understand the physical dimensions of the symbols on the graph. Graphic scheme indicates how to match these physical dimensions with mathematical scales (Pinker, 1990). Graphic scheme builds a bridge between the conceptual questions and the conceptual message represented by visual recognition.

Mathematical organization of graphic creation (MO2)

The types of tasks within the scope of the mathematical organization of graphic creation (MO2) are: T5. Creating a bar graph, T6. Creating a pie graph, T7. Creating a line graph, and T8. Creating a histogram. The techniques used in the reviewed documents to create a bar graph, pie graph, line graph and histogram were, respectively:

τ5. Drawing rectangles at the heights equal to the frequency of the data groups

τ6. Using technology

τ7. Slicing the pie graph using central angles or percentages in proportion to the frequency of the data groups

τ8. Connecting the consecutive points that represent the data

τ9. Showing the data groups at certain intervals and with adjacent rectangles

The techniques used for certain task types of mathematical organization of graphic creation included explanations that two techniques can be used for the tasks of creating a bar graph (T5) and a pie graph (T6). The first explanation is manually drawing the bar and pie graphs, and the second explanation is drawing through the spreadsheet programs such as Excel. Figure 2 shows an example of the event of manually drawing the pie graph in the MTB7.

Figure 2

The Event of Creating a Pie Graph

I create pie graph

Tools and equipments: cardboard, compass, quadrant, crayons.
The quantity of fruit that a farmer collected from the trees in the garden at the end of the year was given to the table on the side.

Fruit	Quantity collected (tonnes)	Ratio in Total (%)
Apple	90	30
Pear	75	
Quince	45	
Strawberry	60	20
Walnut	30	

1) Calculate the percentage of the total fruit quantity of the fruit quantities and complete the blank spaces in the table.

2) Draw a circle with a radius of 8 cm using a compass on a card.

3) If the fruit quantities are shown as circle slices, calculate the center angle measurements of the circle slices to be drawn for each fruit quantity and fill in the next table.

Fruit	Quantity collected (tonnes)	Ratio in Total (%)	Angle Measures of the Circle Slice
Apple	90		
Pear	75	25	90°
Quince	45		
Strawberry	60		
Walnut	30		

4) Draw the circle slices corresponding to the quantity of each fruit using an quadrant and paint in different colors

5) Write % of the fruit quantities and the center angle measures of the circle slices to the circle slices you have created. Looking at this graph, find out which fruit is 10% of total fruit quantity.

6) By looking at the slices of the circle you have created, find out which fruits are more than the quantity of strawberries.

(Bilen, 2017, p. 221).

Figure 2 shows that the request was to indicate the data about the quantity of fruits by associating them with percentages and the angle of the relevant slice. Then, it is requested that the slices be drawn using a protractor and colored to show the fruit quantities. The MTB7 included the following explanation for the task of creating a pie graph (T6) in line with the instructions in the event:

"… the ratio of each data to all data is calculated and the relevant slices are marked in the pie graph. These slices are indicated through central angles or percentages." (Bilen, 2014, p. 222).

While creating a pie graph using a computer program, the users enter the data into the cells in the same line or column in the Excel file, and click on the "pie" under the "Add" tab and then the relevant button under the relevant 2-D or 3-D section. (Bilen, 2017, p. 222). The same technique is also used to create a bar graph. However, while creating a bar graph using

technology, all of the data should be selected and bar buttons are used (Cırıtcı et al., 2017, p. 256).

Manual drawings of bar graphs are explained with examples in the MTB5 and MTB6. In the examples, the bar graphs are created by i) drawing horizontal and vertical axes; ii) naming the axes based on the variables; iii) scaling the axes with numeric data et equal intervals; iv) drawing columns vertical to the axis with the data groups, at equal intervals, and at the height equal to the frequency of the relevant data group; v) drawing adjacent columns with different colors or patterns and indicating the variables represented by the colors or patterns if a dual bar graph is created; vi) and naming the graph appropriately (Cırıtcı et al., 2017; Güven, 2017). In addition, the columns can be drawn vertically or horizontally, which goal that users can change the axes while creating bar graphs.

The reviewed documents indicate that line graphs are created by drawing horizontal and vertical axes, naming the axes based on the variables in the frequency table, writing the relevant variable values on the axes, determining the junction points of the values on the vertical and horizontal axes, and connecting these points consecutively. In the reviewed documents, the line drawn by connecting the points consecutively starting from the first point connected all of the junction points of the variable values in the axes. A linear graph was created using the technique for the task of creating a line graph, which shows the continuously increasing or decreasing, or fixed data. Function graphs are also regarded as line graphs (Altun, 2016). In this regard, a linear graph drawn for the data with linear relationships is also considered a line graph. The technique of connecting the consecutive points that represent the data (τ8) is used in the reviewed documents to create both graphs. However, differences exist between line graphs and linear graphs. For example, line graphs have breaking points, while linear graphs have a straight line. In addition, one of the variables may have non-numerical values in line graphs, whereas both variables have numerical values in linear graphs.

The reviewed documents include various instructions regarding the task of creating a histogram (T8). In these documents, first the number of the groups of data is determined and the group size is calculated. It is reported that to calculate the group size, the ratio of the interval to the number of selected groups should be lower than the group size; and the following inequality is included:

Then, the data groups allocated based on the natural number values for group sizes and the table formed by organizing the numbers of data in the groups are used to create a histogram (Üstündağ Pektaş, 2017). In the histogram examples in these documents, the numbers of groups are selected optionally, the group intervals are calculated by subtracting the smallest value from the biggest value, and zigzag is used for the intervals without data.

The documents explained the techniques used to create graphs with the definitions and appropriate uses of graphs. The technology explaining the techniques used for the types of tasks in the mathematical organization of graphic creation is indicated as the (θ2) "definitions and appropriate uses of graphs." The reviewed documents define graphs as:

"Pie graphs visualize the data of a research by appropriately dividing a circle into slices." (Bilen, 2017, p. 222).

"Line graphs are created by marking the junction points of the research data on the horizontal and vertical axes and connecting these points to each other with lines." (Bilen, 2017, p. 228).

"Bar graphs have two types: bar graphs and histograms. Two vertical axes are used in both graphs: the values or categories of the variables on one axis and the values pertaining to

the variables on the other axis... Bar graphs can be used for discrete variables." (Baykul, 2014, p. 487).

"Histogram means the classification of the changes in a data array and showing the distribution of these changes through bars." (Üstündağ Pektaş, 2017, p. 289).

The definitions of graphs include information on how to create a graphic and where they can be used. These definitions indicate that data values or distributions are shown through columns, slices and lines.

The literature shows that the theories of the mathematical organization of graphic creation are closely related to the theories of the organization of graphic reading and interpretation. In this regard, Cheveland and McGill (1984) suggested the narrower-scoped Main Perceptual Tasks (Θ2) have to test the Theory of Graph Comprehension suggested by Pinker (1990). These tasks were classified as "position with the same scale, unjustified position, height-direction-angle, area, volume-curvature, shading, and color vividness." Height-direction-angle, volume-curvature and shading-color vividness were addressed together in the tasks (Cheveland and McGill, 1984). Perceptual tasks are the components of different graph types.

Different types of graphs have similar structural components (Friel, Curcio and Bright, 2001). The first structural component (Θ3) is the graph's frame, which provide information about the way of assessment and the assessed information. A graph's frame consists of axis, scale, grid, symbol, and so on. The frames of the analyzed bar and line graphs consist of L-shaped axes. Pie graphs have polar coordinates instead of axes (Friel, Curcio and Bright, 2001). In polar coordinates, a point's location is identified by its directional distance and angle to the origin (r,θ) (Thomas, Weir and Hass, 2010). Bar and line graphs have axes while pie graphs do not have axes as their frames. The second common component of graphs is the determinants within the frame. The determinants are lines in line graphs, columns in bar graphs, and central angles or percentages that show the quantity of the areas in pie graphs. The third common component is the labels. The guides, which indicate the variables represented by the axis names, graph names, colors or patterns that name the data scaled on the axes, are used for information transfer in graphs. The last common component is the graphs' background. Backgrounds include the colors, grids, images, etc. added to the graphs. While every graph has a frame, determinant, label and background, each graph has a specific language. American Statistical Association (1915) developed a 17-item common standard to provide a general perspective for graph creation (Θ4). These standards include information about coordinate system, starting point, scale, axis features, and so on.

Except for these standards, NCTM (2000) emphasized that the required information should be collected and showed to answer the research questions in the standards of data analysis and probability. Students are asked to represent the data using concrete figures, images and graphs; to use different graphs such as tables, line graphs, bar graphs, and lines drawn with points, to present data; to recognize the differences in the representation of categorical and numeric data; and to select, create and use appropriate graphs for graph presentation including histograms, box diagrams, and scatter diagrams. The importance of the type, appropriateness, and whether the data are categorical or numeric, for graph presentation has been emphasized. The curricula also state that graphs should be created in a way to avoid misinterpretations and appropriate for the data (MoNE, 2013, 2017).

Mathematical organization of making appropriate conversions between graphics (MO3)

The mathematical organization of making appropriate conversions between graphics (MO3) includes the tasks of; T9. Conversion of bar graphs into other graphs appropriate for

the data, T10. Conversion of pie graphs into other graphs appropriate for the data, and T11. Conversion of line graphs into other graphs appropriate for the data. The reviewed documents include no tasks for transformation among histogram and other graph types. Therefore, appropriate conversion among histogram and other graphs is not included in the organization. The task of conversion of bar graphs into other graphs appropriate for the data (T9) is fulfilled using the techniques to create a pie graph upon the required angle, area percentage and proportion calculations (τ10) or to create a line graph by determining the points that represent the data on the axes and consecutively connecting these points to each other (τ11); the task of conversion of pie graphs into other graphs appropriate for the data (T10) is fulfilled using the techniques to create a bar graph by placing the variable values of the relevant data groups on the axes and drawing columns at the height equal to the frequency of these data groups (τ12) or to create a line graph by determining the points that represent the relevant data on the axes and consecutively connecting these points to each other (τ11); and the task of conversion line graphs into other graphs appropriate for the data (T11) is fulfilled using the τ11 or τ12 techniques. These techniques are indicated as follows in praxiological components: In the reviewed documents, conversions are made among bar, pie and line graphs using these techniques. Although the documents include appropriate conversions among bar pie and line graphs, a graph cannot be transformed into all graph types. For example, bar graphs use categorical data while line graphs use continuous data. The phrase “relevant data” is used while determining the techniques considering the data types.

Figure 3 shows the example given in the MTB7 for the task of conversion of pie graphs into other graphs appropriate for the data (T10) within the scope of the mathematical organization of making appropriate conversions between graphics.

Figure 3. *Conversion of the graphs with the same data into each other*

Example

Haluk, has researched the amount of Turkey's hazelnut exports in the year 2010-2013 and obtained the information that has created the following table.(www.giresuntb.org.tr)

Table : The years of 2010-2013 hazelnut export

Years	2010	2011	2012	2013
amount of nuts	282	228	300	270

Draw a circle graph showing data in the table. When we draw the graph, we use center angle measures of circle segments

Solution

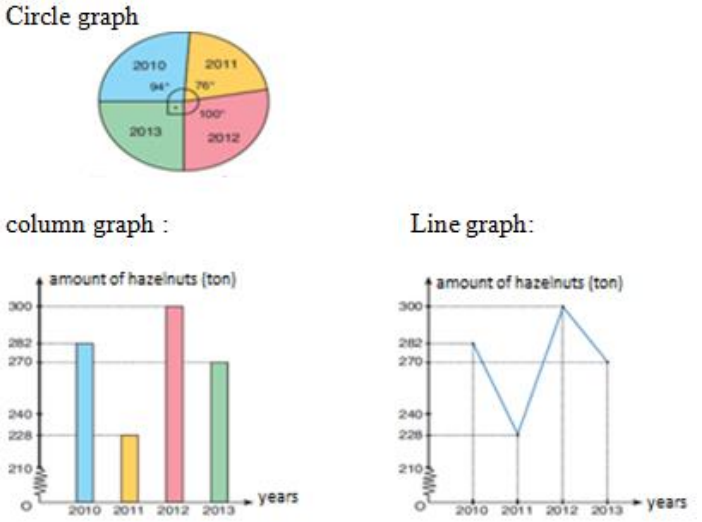
The total exports of hazelnuts;

$282 + 228 + 300 + 270 = 1080$

Let's find measure of the central ages first

for 2010; $a = \frac{282.360}{1080} = 94$ for 2011; $b = \frac{228.360}{1080} = 76$

for 2012; $c = \frac{300.360}{1080} = 100$ for 2013 ; $360 - 270 = 90$



(Bilen, 2017, p. 239, 240).

In Figure 3, a pie graph, a bar graph and a line graph were created for the same data set. The bar and line graphs are similar in terms of their axes and the data on them, and the columns' height are the same as the junction points in the line graph. It is explained that pie graph can be used to determine the share of years in the total export, bar graph can be used to compare the quantities of export in years, and line graph can be used to see the increases or decreases in the export quantity.

For the organization of making appropriate conversions between graphics (MO3), the aims of showing the changes, making comparisons or determining the proportions are considered to select the graph type. The reviewed documents indicate that line graphs are useful to compare the changes (increase or decrease) in a certain period and the changed values; bar graphs are useful to compare different data types; and pie graphs are useful to compare the parts of a whole data set with each other and with the entire data set (Altun, 2016; Baykul, 2014; Bilen, 2017; Üstündağ Pektaş, 2017). Regarding the intended uses of the graphs, the documents generally focused on the aim of comparison. All of the three graph types (bar, pie, and line) can be used to compare data. In this case, the students should determine the appropriate graph type for the obtained data. The features of the data are as important as the intended use of the graphs when selecting the graph type. Bar and pie graphs use grouped (categorical) and discrete data, and line graphs use continuous numeric data (Baykul, 2014; Van de Walle, Karp and BayWilliams, 2010).

Bar, pie and line graphs are created for the tasks of making appropriate conversions between graphics. The theoretical part of the task of graphic creation may explain how to make appropriate conversions. This implies that the mathematical organization of appropriate conversions between graphics (MO3) has common theoretical components (technology, theory, etc.) with the mathematical organization of graphic creation (MO2). The theories of the organization of making appropriate conversions between graphics include the definitions and proper uses of the graphs (θ2), technology and the theory of main perceptual tasks (Θ2), structural components of the graphs (Θ3), common standards (Θ4), and the NCTM standards.

Analysis of the praxiological components (Task type (T), Technique (τ), Technology (Q), and Theory (Θ)) that constitute the content of the three mathematical organizations identified in the study and the relationships between these components show that a single mathematical organization that comprise all mathematical organizations does not exist.

However, the organization of graphic creation is related to other organizations. The graph type should be determined according to the data, the variables should be associated with each other and placed in the graph, the graph should be created using cognitive and psycho-motor skills, and accurateness of the graph should be assessed. In this regard, it can be concluded that the organization of graphic creation (MO2), which requires almost all mathematical skills, form a basis for the organizations of graph reading and interpretation (MO1) and making appropriate conversions between graphics (MO3). In addition, the praxiological components other than the task types included in the organization of making appropriate conversions between graphics can be explained by the organization of graphic creation. This indicates that the most general mathematical organization is the organization of graphic creation.

Discussion, Conclusion and Recommendations

This study provides the definitions of graphs as a teaching subject in the STMEM institution. During the document review, the characteristics of institutional recognitions are analyzed through ecological and praxiological approaches. Ecological approach identifies the place of graphs in the institution; in other words, their habitat and function (niche). The reviewed documents show that graphs are used in the fields learning of numbers and operations, algebra, and data processing; the subjects of ratio and proportion, percentage, slope, equations and inequalities, systems of equations, function, statistics and probability in these fields; mathematical literacy, technological tools in graph teaching, problem-solving, communication, association, and psycho-motor skills. In the identified habitats, graphs function as a goal, a tool, and both. In this regard, graphs are used as a tool to create a frequency/tally table, calculate the intervals/means/mode/medians, associate the line graphs with slopes, determine whether two quantities in the graph are in proportion to each other, calculate the proportionality constant, determine the solution set of the system of linear equations, and calculate the area of the zone limited by lines; as an goal to show and interpret the data on bar graphs, pie graphs, line graphs and histograms, and make appropriate conversions of these graphics into each other; and as both an goal and a tool to improve the problem-solving, association, communication and psycho-motor skills, present the data with linear relationships and interpret these graphs, and associate these graphs with algebraic presentation. In addition, the 2013 and 2017 mathematics teaching curricula updated in line with social and cultural needs (Chevallard, 1991) have been analyzed and differences have been revealed.

Within the scope of praxiological approach, the task types of the graphs, the techniques used to fulfill these task types, the technologies that explain these techniques, and the theories that explain and defend these technologies have been determined to form the mathematical organizations. In line with the reviewed documents, three mathematical organizations have been identified with a total of 11 task types: Graphic reading and interpretation (MO1), Graphic creation (MO2), and making appropriate conversions between graphics (MO3). The mathematical organization of graphic reading and interpretation (MO1) includes four task types within the scope of the relevant institution. Column heights are calculated ($\tau 1$) to obtain information from bar graphs (T1); the slices' area is proportionally calculated using central angles or percentages ($\tau 2$) to obtain information from pie graphs (T2); a certain point's values on the horizontal and vertical axes is determined ($\tau 3$) to obtain information from line graphs (T3); and column heights and widths are calculated ($\tau 4$) to obtain information from histograms (T4). The literature explains the technologies ($\theta 1$) of the graph presentations using these techniques through the cognitive skills of external recognition, internal recognition, and perception of correspondence (Bertin, 1967). Pinker

(1990) explains and defends this technology through the Theory of Graph Comprehension (Θ1).

In the organization of graphic creation, bar graphs are created (T5) by drawing rectangles at the height equal to the frequency of the data groups (τ5) and using technology (τ6); pie graphs are created (T6) by the (τ6) technique and slicing the circle based on central angles or percentages in proportion to the frequency of the data groups (τ7); line graphs are created (T7) by connecting the consecutive junction points that represent the data (τ8); and histograms are created (T8) by showing the data groups through adjacent columns at certain intervals (τ9). Definitions and appropriate uses of graphs explain these techniques and constitute the technology (θ2), and main perceptual tasks (Θ2), structural components of graphs (Θ3), common standards (Θ4), and the NCTM standards (Θ5) explain and defend this technology.

The organization of making appropriate conversions between graphics has three task types. The task of conversion of bar graphs into other graphs appropriate for the data (T9) is fulfilled using the techniques to create a pie graph upon the required angle, area percentage and proportion calculations (τ10) or to create a line graph by determining the points that represent the data on the axes and consecutively connecting these points to each other (τ11); the task of conversion pie graphs into other graphs appropriate for the data (T10) is fulfilled using the techniques to create a bar graph by placing the variable values of the relevant data groups on the axes and drawing columns at the height equal to the frequency of these data groups (τ12) or the (τ11) technique; and the task of conversion of line graphs into other graphs appropriate for the data (T11) is fulfilled using the (τ10) or (τ12) techniques. Creation of bar, pie and line graphs using the techniques in the organization of making appropriate conversions between graphics is explained by the technologies and theories identified in the organization of graphic creation. This implies that the organizations of graphic creation and making appropriate conversions between graphics are the local organizations with the same technology and theory.

The information structures differentiated from academic information based on the institutional needs within the scope of the didactic transformation of information are not the simplified forms of academic information (Artigue & Winslow, 2010). Therefore, the information of graphs, discussed as a teaching subject in the study, should be addressed together with its theory. However, the component of theory has been provided from the literature while the components of task type, technique and technology have been produced for through the reviewed documents the mathematical organizations that institutionally define the information of graph. In this regard, theories that form the basis of the teaching subject can be included in the documents regarding mathematics education which will guide teachers in the didactic period. This may enable teachers to have an in-depth and holistic view (Cohen, McLaughlin & Talbert, 1993). In parallel, teachers may achieve a more effective and consistent teaching process, knowing what to do for what reason in the classroom (Skemp, 1976).

Ecological and praxiological analysis of the documents used for teaching, which include the information of graphs as a teaching subject, has revealed the institutional recognitions in the relevant institution. Ecological and praxiological approaches enable the theoretical and practical analysis of the institutional recognitions within the teaching and learning process of graphs. In addition, they provide a large framework for the duties and responsibilities of both the teacher and the learner regarding information throughout the educational process. This enables the assessment of the didactic process, as well as teaching activities, in terms of information, learners and teachers (Chevallard, 1991), while revealing the institutional recognition. Studies on teaching mathematical information during mathematics education

should analyze the information in relation to the institution. These studies will provide different perspectives to the learning-teaching activities that focus on the interdisciplinary approach, which addresses the interactions between the didactic, mathematics, epistemology, or education disciplines of information teaching. The results of such studies conducted on mathematics education will contribute to the improvement of learning.

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Investigating the High School Students' Cognitive Structures about the Light Concept through Word Association Test

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Abstract

Cognitive structure is a structure exhibiting the mutual associations of concepts recorded in the long-term memory. Students set up cognitive bridges between their previous knowledge and new knowledge during the creation of the cognitive structure. Learning a concept does not mean learning what a concept is called or learning only its definition, but it also means being able to set up the associations between the concept and the whole. This study determines high school students' cognitive structures about the concept of light by using a two-stage word association test. Content analysis was used in analysing the data collected. Content analysis is a very effective method yielding accurate results in reaching the concepts, correlations and logical patterns which can describe the data. The data obtained were analysed by using the technique of semantic relations in order to be able to set up logical ties between the number of words and words. 136 high school students (88 female and 48 male) were included in the research. The words having semantic proximity were divided into five categories by analysing the data through word association test. Consequently, the most used categories were as in the following, respectively: Structure of Light (223), Propagation of Light (143) and Properties of Light (142). The findings obtained in this study indicate that high school teachers and university instructors should take special care with some points in the teaching of subjects related with light. Besides, the formation of scientific knowledge about the concepts in individuals' minds will also encourage the emergence of complex organised knowledge about the phenomena.

Keywords: cognitive structure, high school students, light, word association test

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Lise Öğrencilerinin Işık ile ilgili Bilişsel Yapılarının Kelime İlişkilendirme Testi ile Araştırılması

Öz

Bilişsel yapı, uzun süreli belleğe kayıt edilen kavramların birbirleriyle olan ilişkilerini ortaya koyan bir yapıdır. Bilişsel yapının oluşturulması sırasında öğrenci eski bilgileri ile yeni bilgileri arasında bilişsel köprüler kurar. Bir kavramı öğrenmek o kavramın adını ya da sadece tanımını öğrenmek anlamına gelmez, aksine bu kavram ile bütün arasındaki ilişkileri de kurabilmek demektir. Bu çalışmada iki aşamadan oluşan kelime ilişkilendirme testi kullanılarak lise öğrencilerinin ışık ile ilgili bilişsel yapıları tespit edilmiştir. Araştırmaya kaynak oluşturacak verilerin çözümlenmesinde içerik analizi kullanılmıştır. Verileri açıklayabilecek kavramlara, ilişkilere ve bunlara bağlı olarak mantıklı örüntülere ulaşmak için içerik analizi oldukça etkili ve doğru sonuçlar veren bir yöntemdir. Çalışma sonunda elde edilen veriler, kelime sayısı ve kelimeler arasında mantıklı bağlantılar kurulabilmesi amacıyla anlamsal ilişki tekniği kullanılarak incelenmiştir. Çalışmaya lisede öğrenim gören 136 (88 kadın, 48 erkek) öğrenci katılmıştır. Kelime ilişkilendirme testi kullanılarak elde edilen verilerin analizi ile anlamsal yakınlığı bulunan kelimeler beş kategori altında toplanmıştır. Çalışmada sık kullanılan kategoriler sırasıyla Işığın Yapısı (223), Işığın Yayılması (143) ve Işığın Özellikleri (142) olmuştur. Bu çalışma ile elde edilen bulgular, lisede öğretmenlik yapanlar veya üniversitedeki öğretim üyelerinin ışık ile ilgili konuların öğretiminde bazı noktalara özellikle dikkat etmeleri gerektiğini göstermektedir. Ayrıca bireylerin zihinlerinde kavramlarla ilgili bilimsel bilgilerin oluşması, onların olgular hakkında karmaşık organize bilgilerin ortaya çıkmasını teşvik edecektir.

Anahtar Sözcükler: bilişsel yapı, lise öğrencileri, ışık, kelime ilşkilendirme testi

Introduction

Physics is a branch of science trying to describe all the structures from macro scale to micro scale and studying the incidents we encounter in daily life and the laws between sub-atom particles. It employs a series of theories and laws to describe the existing situations in relation to those structures. Knowledge about these theories and laws used is presented to students by using rich learning environments to facilitate their acquisition. When seen from learners' perspective, it is certain that the situation is not so clear and understandable because students see physics as a boring and difficult course containing formulas needing memorisation (Temiz, 2001). Physics lessons contain several abstract concepts as well as concrete concepts according to the specific nature of each subject. Those abstract concepts in particular cause students to form many incorrect/incomplete concepts and they stand as a problem in front of both students and teachers (Yağbasan & Gülçiçek, 2003). Therefore, students have difficulty in forming the cognitive structure about the concepts learnt in lessons, and thus they have learning difficulties. Those learning difficulties cause students to have different alternative conceptions about physics concepts and to have misconceptions about some of the concepts.

Cognitive structure is a structure exhibiting the mutual associations of concepts recorded in the long-term memory. Students set up cognitive bridges between their previous knowledge and new knowledge during the generation of the cognitive structure (Gilbert & Watts, 1983). Learning a concept does not only mean learning what a concept is called or learning its definition, but it also means being able to set up the associations between the concept and the whole. In other words, when the newly learnt knowledge can be associated with the previous knowledge available, cognitive structure about the concept in question is formed (Skemp, 1971). In this context, if the newly learnt concepts and the concepts available are associated in students' cognitive structure and scientific ties are set up between them; meaningful learning will occur (Ausubel, 1968).

Modifications were made in recent years in the curricula of physical sciences, and context-based learning which was based on constructivist learning was considered essential. Thus, it has become important that students configure knowledge in their mind, interpret it and set up ties with daily life (Güneş & Gözüm, 2013). Regulations made to constructivist approach-based curricula also made modifications to the conception of measurement and evaluation necessary (Taşdere, Özsevgeç & Türkmen 2014). Thus, alternative measurement tools in addition to traditional measurement tools were used in the curriculum of physical sciences course (MEB, 2013). One of those measurement tools is word association test. Word association test, suggested first by Galton (1880), was developed by Carl Gustav Jung so as to investigate conceptual systems and it has been used for a long time (Kostova & Radoynovska, 2008). The majority of teachers liken students' mind to a clean blackboard and they want to organise it as they wish (Yağbasan & Gülçiçek, 2003). However, students have a considerable amount of prior knowledge. This prior knowledge is the greatest factor influential in their meaningful learning (Ausubel, 1968). For this reason, it is important to determine prior knowledge students have and the associations between concepts shaped by this knowledge (Hewson & Hewson, 1981). In this context, revealing students' cognitive structure will be the determiner of techniques and methods teachers use in teaching a lesson. Today, learning is regarded as a conceptual rather than a procedural process. In addition to that, knowledge students obtain in their daily life and through experiences are inaccurate or incomplete. Students' misunderstanding in relation to their previous learning is likely to have negative impacts on new knowledge. Therefore, complete learning in scientific sense cannot occur without eliminating students' misunderstanding (Çepni, Ayaş, Johnson & Turgut,

1997). A way to understand this is to uncover students' cognitive structures. A way to achieve this is to analyse the ties between concepts formed in students' minds through key words (Gilbert, Boulter & Rutherford, 1998a; 1998b).

The concept of light is a concept about which students of every level from primary school to university have incomplete knowledge and misconceptions (Bendall, Goldberg & Galili, 1993; Cansüngü, 2000; Cansüngü & Bal, 2002; Yeşilyurt, Bayraktar, Kan & Orak, 2005; Şahin, İpek & Ayas, 2008; Kara, Avcı & Çekbaş, 2008). Hubber (2006) researched primary school students' mental models about the nature of light. Accordingly, the researcher obtained findings on how students described the behaviours of light displayed in nature in wave-particle duality models, on the origins of their mental models, on the levels of the models, and on whether or not any changes occurred in the models as a result of education they had received. Another study investigated 99 pre-service science teachers' levels of knowledge about the concept of light (Kara et al., 2008). In consequence, the study found that the majority of the pre-service teachers had misconceptions. In their study performed with first year university students Blizak, Chafiqi and Kendil (2009) found that those students had learning difficulties about the concept of light.

Several techniques and methods such as word association tests, concept maps, structured grids, analogy, and prediction-observation were used in revealing students' cognitive structures. Word association test (WAT) is one of the oldest methods and it has the widest range of use (Kostova & Radoynovska, 2008). This technique, which was used in many studies (Deese, 1962,1965; Johnson, 1964; 1965; 1967; 1969; 1970; Kiss, 1969; Rothkopf & Thurner, 1970; Shavelson, 1973, 1974; Geeslin and Shavelson, 1975; Preece, 1976, 1978; Johnstone & Moynihan, 1985; Carrie, 1984; Cachapuz & Maskill, 1987; Bahar, Johnstone & Sutcliffe, 1999; Cardellini & Bahar, 2000; Bahar & Özatlı, 2003, Nakiboğlu, 2008; Ercan, Taşdere & Ercan, 2010) is also used in this study. Thus, this study aims to analyse high school students' cognitive structures about the concept of light by using WAT. In this context, the high school students' conceptual framework about the concept of light was examined by using word association test and the following research questions were intended to be answered:

- How is the cognitive structure of high school students related to the concept of light?
- How do the high school students configure the concept of light in their mind and which words evoke the concept of light to them?

Method

This study employs phenomenology, one of the methods of qualitative research. Phenomenology is very influential in studies investigating the phenomena of which we are aware but which we cannot fully comprehend. Research using this method may not present certain and generalizable results compatible with the nature of qualitative research but it can present examples and descriptions to help us recognise and understand a phenomenon better (Yıldırım & Şimşek, 2008). In this context, this study determines high school students' cognitive structures by putting the data collected through word association test to content analysis.

Participants

The participants in the research were the 11th and 12th graders attending an Anatolian high school in Balıkesir. All of the participants learnt subjects including basic knowledge

about light successfully. Word association test prepared was administered to 136 students (88 of whom were girls and 48 of whom were boys). The students participating in the research on the basis of volunteering were in 15-17 age range.

Data Collection Tool

This study uses a two-part word association test as the tool of data collection. Part one of the test included the key concept. First, students were asked to write down what the key concept evoked. In part two, they were asked to write a sentence about the key concept. The students were allowed 40 seconds to write the words evoked in their mind and 20 seconds to write the sentence about the key concept. The concept which is the subject matter of research is written several times one under another in word association tests. The reason for this is to minimise the likelihood of chain answers. Even though writing the key concept only once seems to be easier in application, students can move away from the key concept with each word they write in relation to the key concept (Bahar & Özatlı, 2003). The students were asked to write a sentence about the key concept in 20 seconds. The reason for this is that the words related with the key concept remain at the level of remembering unless there are semantic ties with the key concept (Kurt, 2013). In this case, the words written will not form a meaningful whole with the key concept. At this point, students' sentences about the key concept will come into play. Analysing students' sentences about the key concept will suggest a clearer result about students' cognitive structures because the sentences will be more complex than only one word.

Data Analysis

Content analysis was used in the analysis of the research data. Content analysis is a very effective method in reaching the concepts, correlations and resultant logical patterns and it yields accurate results (Patton, 2002; Yıldırım & Şimsek, 2008). The data obtained were analysed by using the technique of semantic relations in order to be able to set up logical ties between the number of words and words (Atasoy, 2004). The words written by students in relation to the key concepts were brought together according to semantic proximity and thus categories were distinguished. In addition to that, the words which were considered to be unrelated, which were not relevant to the main concept and which were repeated two times or below two times were excluded from the analysis.

Findings

The data collected with word association test were put to analysis and the words having semantic proximity were divided into five categories. Table 1 shows the words and the categories to which the words belong. According to the results of WAT, 681 words in total were obtained, and the first category distinguished after data analysis was labelled as "Structure of Light". This is also the category with the highest frequency in this study (f=223). In this category, the students concentrated on the words alpha rays, wave, wavelength, linear, photon, frequency, velocity, speed of light, colour, spectrum, intensity and particle. The second category distinguished was the category of "sources of Light" (f=95).

Table 1. *The categories and the words in high school students' minds related to the concept of light*

Categories	Concepts Frequencies in the Categories	Total Frequencies
Structure of Light	Alpha rays (7), Wave (23), Wavelength (22), Linear (9), Photon (24), Frequency (13), Velocity (18), Light speed (23), Color (35), Spectrum (24), Intensity (11), Particle (14)	223
Sources of Light	Sun (40), Lamp (41), Candle (6), Lightning (3), Star (5)	95
Propagation of Light	Angle (3), Moon (4), Bright (38), Mirror (14), White light (12), Space (5), Einstein (6), Rainbow (8), Shadow (9), Light flux (3), Beam (6), Darkness (9), Quantum (5), Brightness (8), Prism (13)	143
Properties of Light	Double slit experiment (8), Energy (15), Photoelectric effect (4), Candela (8), Refraction (29), Diffraction (13), Lens (10), Optic (27), Rutherford (4), Scattering (3), Blackbody (4), Absorption (4), Reflection (13)	142
Interaction of Light	Resistance (3), Electric (7), Photo (3), Photolysis (5), Photosynthesis (33), Phototroph (4), Eye (6), Eye glasses (3), Temperature (6), Chloroplast (5), Chlorophyll (3)	78
Total	**56 words**	**681 words**

The words in this category were sun, lamb, candle, lightning and star. The third category was the category of "Propagation of Light" (f=143). This category included the words angle, moon, bright, mirror, white light, space, Einstein, rainbow, shadow, light flux, beam, darkness, quantum, brightness and prism. The fourth category was labelled as "Properties of Light" (f=142). The words in this category were double slit experiment, energy, photoelectric effect, candela, refraction, lens, optic, Rutherford, scattering, black body, absorption and reflection. The fifth category, the one with the lowest frequency, was the category of "Interaction of Light" (f=78). The words in this category according to students' answers were resistance, electric, photo, Photolysis, photosynthesis, prototroph, eye, eye glasses, temperature, chloroplast and chlorophyll.

The sentences students had written about the concept of light were also analysed, and the ones related with the themes distinguished are shown as in the following. On examining the distribution of frequencies according to the words written by students, it was found that the most dominant category was "Structure of Light" whereas the category containing the biggest number of sentences was "Interaction of Light". This was because of the fact that the category of "ınteraction of Light" was also closely related with the concept of light in other courses (such as biology and chemistry). Some of the sentences about each category are cited below. Accordingly, the sentences about the category of "Structure of Light" were as in the following:

St 31: *Light is the ray coming from the Sun. It carries energy. It has the properties of both waves and particles.*

St 50, 55, 56, 61: *Light is an electromagnetic wave.*

Sample sentences written by students in the category of "Sources of Light" were as in the following:

St42, 44: *The sun is a source of light.*

Two sample sentences in the category of "Propagation of Light" were as in the following:

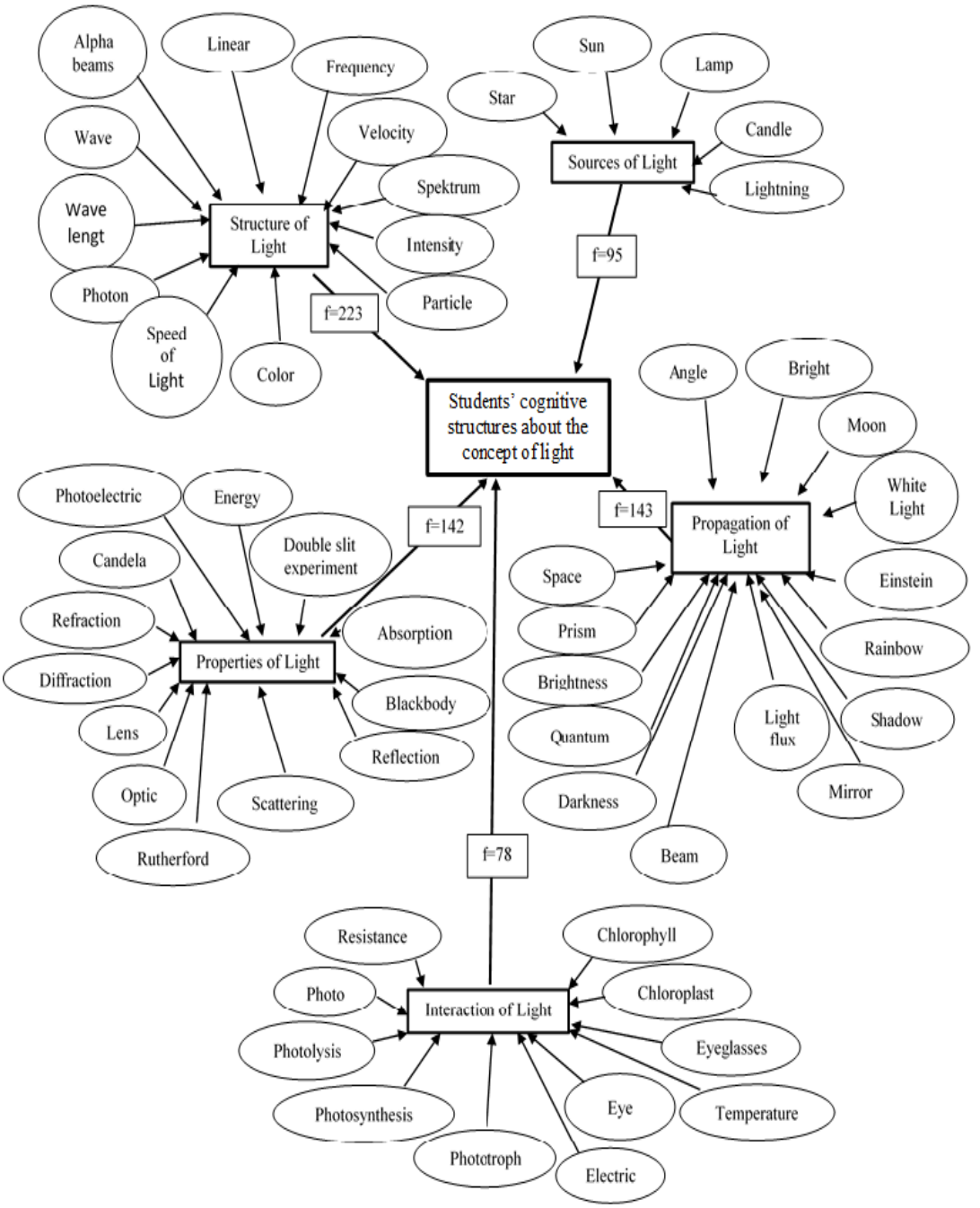
St 14: *Light propagates in space.*

St 26, 37, 69, 118: *Light moves in linear direction.*

Sample sentences in the category of "Properties of Light" were as in the following:

St 52: *It has the property of refraction and reflection.*
St 35, 79, 104, 133: *Light is energy.*
St 8, 22: *The unit of light is candela.*

Figure 1. *The model of high school students' cognitive structure of light concept*



And finally, the sentences in the category of "Interaction of Light" were as in the following:

St 17, 21, 28, 43, 54, 128, 129: *Light makes it possible for use to see (in darkness).*
St 97, 105, 110, 121, 135: *Light is necessary in photosynthesis.*
St 98: *Light is necessary in photosynthesis in reactions which are dependent on light.*

Apart from the above mentioned findings, it was also found that some high school students had incomplete or alternative concepts about light. The students' statements cited below are some of the examples for this.

St 11: *Light is the luminousness protecting us from darkness.*
St 10: *The moon and the sun illuminate our world.*

Although "the moon" in the final sentence was reported as a source of light, it is indeed not a source of light. In another sentence, as in the following, an incorrect relationship was established between light and wave length.

St 101: *Light intensity is inversely proportional to wavelength.*

A network of concepts having themes and words clustering around the themes was created so that the research findings could demonstrate students' cognitive structures more clearly. An examination of Figure 1 indicates that high school students' cognitive structures about the concept of light are basically connected with the five categories.

Conclusion and Discussion

This study analysed high school students' cognitive structure through word association test. The students wrote both words and sentences about the concept of light. At the end of the study, 5 categories were distinguished in relation to the key concept "Light". The categories contained 57 concepts. On examining the frequency distributions of the categories, it was found that the theme of "Structure of Light" had the highest frequency. The five concepts repeated most frequently in this category were wave (23), wave length (22), photon (24), light velocity (23), colour (35) and spectrum (24). The property these words had in common was that they were all directly related with the concept of light; because these concepts appeared very often in classes and in other published and visual materials about physics that students used. In other words, they are the indispensable key concepts in describing the concept of light, and thus they are often used in explaining the concept. The most frequently used concepts in the category of "Sources of light" were "the sun" (40) and "lamp" (41) respectively. However, this was the category with the lowest frequency. This indicated that even though students had fundamental knowledge about the sources of light, they could not diversify the sources. The category having the lowest frequency was the category of "Interaction of Light". The category included concepts in the field of biology such as Photolysis", "Photosynthesis", "phototroph", "Chloroplast" and "Chlorophyll. Thus, the words students reported in relation to "Interaction of Light" were related with biology course rather than physics. The reason for this could be the effects of practice activities in biology course. That is to say, the fact that the words included in this category are also used in other disciplines caused this. The words written by students were mostly at the stages of knowledge and comprehension. In the light of these results, it may be said that students do not have in-depth knowledge about the concept- that is to say; they do not have meaningful learning in this respect. Examining the results, it could be stated that word association test was effective in revealing students' cognitive structures (Bahar, Johnstone & Sutcliffe, 1999; Bahar & Kılınç, 2001; Bahar & Özatlı, 2003; Aydemir, 2014). Associations that this concept, which we frequently encounter in daily life, causes in students are large. In other words, students tried to describe this concept with many words (see Table 1). The fact that the concept of light triggers differing words in students also explains the fact that they have different mental models about this concept. Studies on light in the literature

also confirm this result (Hubber, 2006; Özcan, 2015; Şengören, 2010). The emergence of such mental models in students' mind could be attributed to the fact that they try to explain the incidents they encounter in daily life in relation to light in a wrong and unscientific approach. All of the approaches students adopt cannot of course be said to be wrong or incomplete. It was found in research that the mental models of students having a scientific approach were scientific models (Hubber, 2006; Özcan, 2015; Şengören, 2010). In order for connections made about this concept to be scientific and correct, it would be useful if teachers gave more real life examples in their lessons.

The findings obtained in this study showed that students used scientific and unscientific knowledge fragments together in explaining the concept of light. That is to say, students made explanations by setting up connections between these two types of knowledge fragments and they gave incorrect examples for the concept. Thus, the inappropriate use of unscientific knowledge structure about light resulted in unscientific explanations and examples. Therefore, the cognitive structures and word choice of students using correct and scientific words in their explanations about this concept differed considerably from those who used unscientific words.

Implications for Teaching

The findings of study indicated that high school teachers and university instructors should take special care with some points in the teaching of subjects related with light. Students should be exposed to content about light or about subjects containing the concept of light in classes to facilitate learning scientific knowledge; or different contexts should be designed in relation to light. Advance organisers such as concept maps or conceptual frameworks should be used in preparing such content. In this way, whether or not the connections students set up between concepts can also be found. Besides, such content would also encourage students to set up relevant connections with the concept. Determining students' prior knowledge is very important at this point. Their prior knowledge should be determined before starting a lesson by using concept maps or word association tests. This will ensure that students construct connections between concepts in a coherent way and thus will help them to organise the knowledge in their mind. The formation of scientific knowledge about concepts in individuals' minds will incite the emergence of complex organised knowledge about phenomena.

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Innovative Redesign of Teacher Education ICT Courses: How Flipped Classrooms Impact Motivation?*

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Abstract

The purpose of this study is to determine the impact of the flipped classroom method on student motivation and what related factors increase and decrease motivation. The study followed the mixed research method and the sample of the study consisted of 116 first grade early childhood education undergraduate students at a university in Turkey. This study was conducted in an introductory computer course. The flipped classroom method is compared to traditional techniques in this study. Data were collected through semi-structured interviews and a course interest survey in this 10-week mixed method study. Inferential and descriptive analysis methods were applied to the data. An independent samples t-test was used to determine the difference between experimental and control groups in terms of motivation. The interviews were analyzed with descriptive analysis method. Results showed that students who were trained with the flipped classroom method had more motivation than students who were trained with traditional methods. Students reported that hands-on in-class activities, group work, and gamification activities increased their motivation. Additionally, students reported that the difficulty level of in-class activities, watching videos, and dealing with the course outside of the classroom decreased their motivation. Consequently, when designed effectively, the flipped classroom method can increase the students' motivation towards the course. Also, suggestions for practitioners were discussed in this study.

Keywords: flipped classroom, teacher education, blended learning, flipped learning

* This study is derived from the first author's PhD dissertation.

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Öğretmen Eğitiminde Bilişim Teknolojileri Derslerinin Yenilikçi Şekilde Yeniden Tasarımı: Ters Yüz Sınıf Yöntemi Motivasyonu Nasıl Etkiler?

Öz

Bu çalışmanın amacı, ters yüz sınıf yönteminin öğrenci motivasyonuna etkisini ile yöntemin kullanımında motivasyonu artıran ve azaltan etkenleri belirlemektir. Çalışmada karma araştırma yöntemi kullanılmıştır ve çalışmanın örneklemi Türkiye'de yer alan bir üniversitede öğrenim görmekte olan, 116 birinci sınıf okul öncesi öğretmenliği bölümü lisans öğrencisinden oluşmaktadır. Bu çalışma bilgisayar dersi kapsamında yürütülmüştür. Çalışmada, ters yüz sınıf yöntemi geleneksel yöntemle karşılaştırılmıştır. 10 hafta boyunca yürütülen bu karma çalışmada, veriler yarı yapılandırılmış görüşme formu ve ders ilgi anketi aracılığıyla toplanmıştır. Çıkarımsal ve betimsel analiz yöntemleri kullanılarak veri analizi yapılmıştır. Bağımsız gruplar t-testi kullanılarak deney ve kontrol grupları arasında motivasyon açısından oluşan farklılık belirlenmiştir. Yarı yapılandırılmış görüşmeler ise betimsel analiz yöntemi kullanılarak analiz edilmiştir. Bulgular; ters yüz sınıf yöntemi ile eğitim gören grubun geleneksel yöntemle eğitim gören gruba göre motivasyonunun daha yüksek olduğunu göstermiştir. Öğrenciler, sınıf içi uygulamalı aktivitelerin, grup çalışmasının ve oyunlaştırma aktivitelerinin motivasyon düzeylerini artırdığını belirtmişlerdir. Bunlara ek olarak, öğrenciler, sınıf içi uygulamalı aktivitelerin zorluk düzeylerinin, videoları izlemenin ve ders dışında da ders ile ilgilenmenin motivasyonlarını azalttığını belirtmişlerdir. Sonuç olarak, ters yüz sınıf yöntemi, etkili bir şekilde tasarlandığında, öğrencilerin derse karşı motivasyonlarını artırabileceği söylenebilir. Ayrıca bu çalışmada, uygulayıcılar için öneriler de tartışılmıştır.

Anahtar Sözcükler: ters yüz sınıf yöntemi, öğretmen eğitimi, karma öğrenme, ters yüz öğrenme

Introduction

Parallel to the rapid changes in the field of information technology, the role of people in society has been transforming, too. Access to information has become widespread, requiring more meaningful environments and focused use of instructional technologies in school education (Kong, 2014). Education, also affected by these technological changes, plays a crucial role in raising productive members of contemporary society. These changes have prompted new instructional approaches and improved technology integration in education from preschools to universities. In order to train students for the future, preservice teachers need modern education, since they are the key to technology integration (Krueger, Hansen, & Smaldino, 2000). In this respect, teachers should be well educated and use technology in a professional manner (Cavanaugh, 2003; Koh, 2011). Mishra and Koehler (2006) reported that computer using competencies of teachers is the main component required for technology integration. Studies in the literature have revealed that technology use in schools is inadequate and that teachers do not use tools appropriately (Akarawang, Kidrakran & Nuangchalerm, 2015). The inability of teachers to use emerging technologies has brought teacher education to the center of attention. In their studies, Ertmer, Evenbeck, Cennamo, and Lehman (1994) showed that class activities, experiences applied in the classroom to improve computer skills, were more effective than time spent working with a computer independently. Additionally, Akarawang, Kidrakran, and Nuangchalerm (2015) stated that ICT training should contain more practical applications and blended training. Increasing activities in the classroom and applying a constructivist learning approach, the flipped classroom method can be beneficial for ICT courses in teacher education. In addition, even though the demand for student-centered education has become widespread, inefficient and antiquated teaching methods are still being promoted in teacher education and utilized in schools (Sykes, Bird, & Kennedy, 2010). Accordingly, it is important to analyze the use of the flipped classroom in teacher education alongside active and effective learning methods.

The flipped classroom is an instructional approach that differs from the traditional lecture by switching the places and times of homework and lectures and by providing the opportunity to study more actively and collaboratively (Abeysekera & Dawson, 2014; Chen, Wang, Kinshuk, & Chen, 2014; Fraga & Harmon, 2014; Street, Gilliland, McNeil & Royal, 2015). The flipped classroom is not a new teaching method but a subset of blended learning (Staker & Horn, 2012). Staker and Horn (2012) stated that blended learning has four different subcategories, including rotation, flex, self-blend and enriched virtual, and flipped classroom method fall into the rotation category.

Insufficient studies were found in the literature on flipped classrooms in teacher education. Despite its popularity, experimental studies related to the topic is quite limited (Abeysekera & Dawson, 2014; Chen et al., 2014; Fraga & Harmon, 2014; Kong, 2014; Roach, 2014). While flipped classrooms can be created in many ways, the general process includes recording course content as a video, sharing the video with students, and doing classroom activities under the guidance of the teacher (Tucker, 2012).

Several factors affect the success of students within the learning process. One of these factors is motivation, which may be the most important factor of instructional design (Keller, 1979). Studies on motivation in the literature have identified a positive correlation between motivation and learning (Means, Jonassen, & Dwyer, 1997). Keller (1983) defined motivation as a concept that affects the direction and magnitude of behavior, which later affects revealed effort. In this study, motivation was analyzed pursuant to the ARCS theory

of Keller, who identified four critical components that affect motivation during learning: attention, relevance, confidence and satisfaction.

Newby, Stepich, Lehman, and Russel (2006) have underlined how the usage of technology in a learning environment may have both positive and negative effects, depending on the teaching method. Therefore, it is important to analyze the effects of the flipped classroom method on motivation in order to decrease concerns about the method and extend its usage.

This study aims to determine the effects of the flipped classroom, which is considered an effective teaching method, on motivation. This study is important in terms of accelerating research on teacher education and directing transformations to programs and curriculums in this area. Additionally, this research will contribute the literature related flipped classroom. Four research questions led the study:

1. What are the attention (A), relevance (R), confidence (C), and satisfaction scores of experimental and control group students at the end of this learning process?
2. Is there a meaningful difference between the general motivation (ARCS) of the experiment and control group students at the end of the learning process?
3. What are the opinions of students about the factors that trigger motivation in a flipped classroom?
4. What are the opinions of students about the factors that adversely affect motivation in a flipped classroom?

Method

Mixed research methods were applied in this study, which analyzed factors that increased or decreased motivation in the flipped classroom method and the effect of this method on student motivation. More specifically, mixed research classification was used, as explained by McMillan and Schumacher (2010). Concurrent triangulation was also applied since there were research questions for both qualitative and quantitative paradigms and since qualitative and quantitative data were collected with equal priorities, simultaneously and without considering any order. Posttest control group quasi-experimental design was used for the quantitative dimension of the study. For the qualitative dimension, interviews were conducted with students to determine their views on factors that affected their motivation.

Sampling

This study was conducted in an introductory computer course class with 116 first grade early childhood education students at a major university in Turkey. Participants were divided into experimental and control groups, with 58 students receiving education via a flipped classroom and the remainder receiving traditional lessons.

Data Collection Tools

For the quantitative dimension of the study, the Course Interest Survey (CIS) scale of Keller and Subhiyah (1987) was used. The survey was used to measure the motivation of students toward the course. The five-point Likert scale consists of 34 items and 4 dimensions: attention, relevance, confidence, and satisfaction. The scale was translated to Turkish by Acar (2009). The reliability of scale was found as 0.93. Data were collected via semi-structured interviews for the qualitative dimension of the study.

Application Process

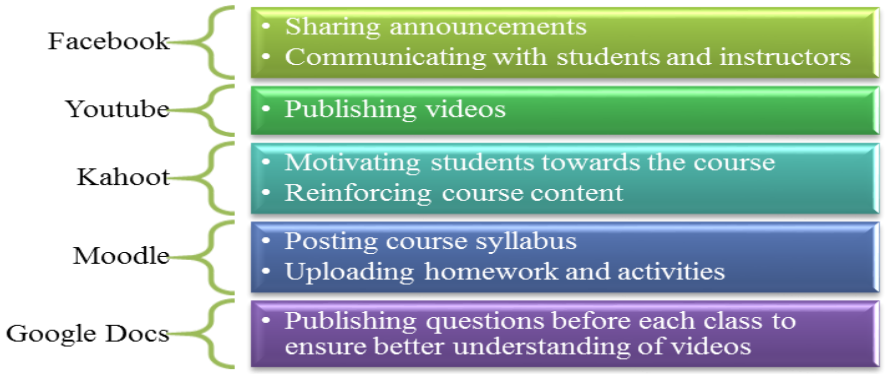
The study was conducted in a teacher education computer course designed to enhance fundamental computer skills of preservice teachers such as use of presentation applications, spreadsheet applications, and general Internet and teaching technologies. The application lasted 10 weeks. The students in the control group covered course topics in traditional ways, whereas the experimental group covered the same content using the flipped classroom method. In the flipped classroom, videos were given to students before classes and homework was done during class time. In traditional teaching, content was covered during class and activities were assigned as homework. Surprise questions were placed in the videos to encourage students in the experimental group to watch them. The same questions were asked to control group students and gave the same reinforcements to control external variables between control and experimental groups.

Separate Facebook groups were created for the experimental and control groups. The flipped classroom videos and worksheets were posted on Facebook group, as well as announcements regarding course content. In addition, a YouTube channel was created to publish videos. Before each lesson, the videos prepared by the researchers were uploaded and announced on the Facebook group. Worksheets were prepared using Google Docs and given to experimental students before class to reinforce important parts of the videos. The same questions were asked of the experimental and control group students on worksheets and end-of-course evaluations, respectively, to control the external variables in two groups.

In the flipped classroom application, students were asked whether they understood the whole content of the videos, and questions about the videos were answered before starting the lesson. Later, a question-answer activity about course content was conducted using an online website called Kahoot. The Kahoot activity was also applied to the control group students at the end of the lessons. This application generated a Top 5 list of successful students, which was shared in both of the Facebook groups with the aim of increasing student motivation.

In the flipped classroom method, the new directive for the week was uploaded to the learning management system Moodle after completing the Kahoot activity. The course syllabus was also posted on Moodle, and students in the experimental group used it to submit in-class activities, while control group students uploaded their homework answers to Moodle. All online websites and applications used in the study are shown in Figure 1.

Figure 1. *Tools used in experimental and control groups and their aims*



Data Analysis

An independent samples t-test and descriptive analysis methods were used to determine whether there was a difference between the experimental and control groups in terms of the motivation variable. Descriptive analysis was applied to interview responses to determine the motivation scores of experimental group students. All statistical analysis was based on a 0.05 significance level.

Role of the Researchers

In order to avoid potential effects of teacher differences, all lectures of both groups were conducted by the one of the researchers. Qualitative interviews were conducted by different PhD students to encourage frankness in participants. The analysis of all qualitative and quantitative data was done by the researchers.

Findings

Motivation Levels of Experimental and Control Groups Students

This section reveals the descriptive analysis of answers from students trained with the flipped classroom method and traditional method based on the CIS scale in dimensions of attention, relevance, confidence, and satisfaction. The CIS scale is a five-point Likert scale (1 is agree least and 5 is agree most).

Descriptive data related to attention for the experimental and control groups

The descriptive analysis of answers given by students in the experimental and groups to questions in the attention dimension of the scale is shown in Table 1.

Table 1. *Descriptive data for experimental and control groups students related to attention*

		Experimental Group		Control Group	
Item No	**Item**	**M**	**Sd**	**M**	**Sd**
24	The instructor uses an interesting variety of teaching techniques.	4.10	1.266	2.81	1.277
21	The instructor does unusual or surprising things that are interesting.	3.41	1.451	2.22	1.402
1	The instructor knows how to make us feel enthusiastic about the subject matter of this course.	3.38	1.268	2.66	1.001
29	My curiosity is often stimulated by the questions asked or the problems given on the subject matter in this class.	3.16	1.348	2.50	1.260
15	The students in this class seem curious about the subject matter.	3.12	1.186	2.48	1.080
4	This class has very little in it that captures my attention.	2.28	1.152	2.79	1.281
10	The instructor creates suspense when building up to a point.	1.55	.976	1.62	.895
26	I often daydream in this class.	1.33	.846	4.36	1.195

As shown in Table 1, outstanding findings showed that the students found the methods and techniques used in the flipped classroom interesting (Items 24, 21, and 1) and thought that the questions and problems sparked curiosity in the experimental group. In addition, the students agreed least that the instructor created suspense while teaching or that they daydreamed in class. However, the students who were in control group agreed most the they daydreamed in class. Additionally, the motivation means of control group students generally lower than experimental group students'motivation levels.

Descriptive data related to relevance for the experimental and control groups

The descriptive analysis of answers given by students in the experimental and groups to questions in the relevance dimension of the scale is shown in Table 2.

Table 2. *Descriptive data for experimental and control groups students related to relevance*

		Experimental Group		**Control Group**	
Item No	**Item**	**M**	**Sd**	**M**	**Sd**
2	The things I am learning in this course will be useful to me.	4.12	.993	3.81	1.221
28	The personal benefits of this course are clear to me.	4.03	1.108	3.55	1.314
22	The students actively participate in this class.	3.55	1.079	2.67	1.098
5	The instructor makes the subject matter of this course seem important.	3.36	1.224	2.79	1.361
23	To accomplish my goals, it is important that I do well in this course.	3.34	1.505	2.86	1.357
20	The content of this course relates to my expectations and goals.	3.16	1.089	2.67	1.316
13	In this class, I try to set and achieve high standards of excellence.	3.10	1.483	2.59	1.439
25	I do not think I will benefit much from this course.	1.59	1.243	4.03	1.376
8	I do not see how the content of this course relates to anything I already know.	1.29	.795	4.28	1.268

As shown in Table 2, students gave the highest scores to "The things I am learning in this course will be useful to me," "The personal benefits of this course are clear to me," and "The students actively participate in this class." On the other hand, students gave the lowest scores to the following items: "I do not think I will benefit much from this course" and "I do not see how the content of this course relates to anything I already know."

However the students who were in control group gave the highest scores to "I do not see how the content of this course relates to anything I already know" and "I do not think I will benefit much from this course".

Descriptive data related to confidence for the experimental and control groups

The descriptive data of the answers given by the students in the experimental group to questions in the confidence dimension of the scale are shown in Table 3.

As shown in Table 3, students who were in the experimental group gave the greatest scores to "As I am taking this class, I believe that I can succeed if I try hard enough," "I find

the challenge level in this course to be about right: neither too easy nor too hard," and "Whether or not I succeed in this course is up to me."

The lowest scores were given to the following items: "You have to be lucky to get good grades in this course" and "The subject matter of this course is just too difficult for me." In contrast, students who were in the control group gave the highest score to "The subject matter of this course is just too difficult for me" and "You have to be lucky to get good grades in this course".

Table 3. *Descriptive data for experimental and control groups students related to confidence*

		Experimental Group		Control Group	
Item No	**Item**	**M**	**Sd**	**M**	**Sd**
27	As I am taking this class, I believe that I can succeed if I try hard enough.	3.81	1.191	3.28	1.436
30	I find the challenge level in this course to be about right: neither too easy nor too hard.	3.48	1.246	3.17	1.230
9	Whether or not I succeed in this course is up to me.	3.45	1.287	3.60	1.324
3	I feel confident that I will do well in this course.	3.41	1.364	3.05	1.220
17	It is difficult to predict what grade the instructor will give my assignments.	3.33	1.456	2.47	1.477
34	I get enough feedback to know how well I am doing.	3.21	1.239	2.81	1.370
6	You have to be lucky to get good grades in this course.	2.22	1.612	3.57	1.488
11	The subject matter of this course is just too difficult for me.	2.00	1.124	3.66	1.264

Descriptive data related to satisfaction for the experimental and control groups

The descriptive data of answers given by the students in the experimental group to questions in the satisfaction dimension of the scale are shown in Table 4.

Table 4. *Descriptive data for experimental and control groups students related to satisfaction*

		Experimental Group		Control Group	
Item No	**Item**	**M**	**Sd**	**M**	**Sd**
33	The amount of work I have to do is appropriate for this type of course.	3.62	1.335	3.40	1.297
7	I have to work too hard to succeed in this course.	3.50	1.246	2.83	1.216
19	I feel satisfied with what I am getting from this course.	3.38	1.485	2.83	1.546
18	I am pleased with the instructor's evaluations of my work compared to how well I think I have done.	3.05	1.480	2.52	1.405
32	I feel that I get enough recognition of my work in this course by means of grades, comments, or other feedback.	2.97	1.414	2.81	1.486
16	I enjoy working for this course.	2.86	1.382	2.22	1.243
12	I feel that this course gives me a lot of satisfaction.	2.83	1.403	2.22	1.093
14	I feel that the grades or other recognition I receive are fair compared to other students.	2.38	1.211	2.79	1.166
31	I feel rather disappointed with this course.	2.22	1.51	3.83	1.523

As shown in Table 4, the highest scores were given to "The amount of work I have to do is appropriate for this type of course," "I have to work too hard to succeed in this course," and "I feel satisfied with what I am getting from this course." The lowest scores were given to the following items: "I feel that the grades or other recognition I have received are fair compared to other students" and "I feel rather disappointed with this course." In contrast, control group students gave the highest score to "I feel rather disappointed with this course".

Effects of the Flipped Classroom on Motivation of Students

In the study, an independent samples t-test was applied to determine whether there was a difference between the motivation scores of the experimental and control group students. The Kolmogorov Smirnov test was also conducted; the data were distributed normally, p = .200. As shown in Table 5, the score of the experimental group, $\overline{X}$ = 116, was greater than that of the control group, $\overline{X}$ = 101 (t = 3.190, p = .002 < . 005).

Table 5. *Differences between general motivation scores of the two groups*

Group	**N**	$\overline{X}$	**Sd**	**t**	**p**
Experimental	58	116.08	24.34	3.190	.002
Control	58	101.75	24.03		

Student Views on Factors That Affect Motivation

Students were asked about factors that increased and decreased motivation in the flipped classroom method (see Table 6).

Table 6. *Views on factors that increased and decreased motivation in flipped classroom*

Category	**Code**	**f**
Increasing Factors	Hands-on in class activities	13
	Group work	8
	Kahoot	7
	Surprise questions	3
	Guidance of the instructor	2
	Being active in-class	2
Decreasing Factors	Difficulty level of in-class activities	7
	Videos	5
	Dealing with the course outside the classroom	1

As shown in Table 6, the factors that increased motivation the most were application of in-class activities (N = 13), group work (N = 8), and the gamification activity Kahoot (N = 7). Other factors that increased motivation were surprise questions (N = 3), videos (N = 2), help received from teachers (N = 2), and complete lessons. Some students made more specific observations:

> *"It feels better and increases my motivation as I do better in the applications. I feel better when I help the others since it shows that I have learned more." (Student15, female)*

> *"Various activities, group works and the applications increased my motivation." (Student22, female)*

> *"The in-class activities motivated me and I even made a crosscheck for the activities at home to be prepared for the lesson. That really motivated me. Also the Kahoot activity motivated me, I thought that I should study and I should become the first in the class." (Student24, female)*

As shown in Table 6, Factors that decreased motivation towards the lesson were difficulty (N = 7), watching the videos (N = 5), and "Dealing with this course outside the classroom" (N = 1). Students had the following to say:

> *"I got bored when I could not achieve. I got bored when it was hard. Also when I saw things that were not related to my department, I did not want to do the activity anymore." (Student20, female)*

> *"Mine were the videos. Sometimes I got pushed for time to watch the videos. I was watching the videos probably 5-6 hours before class. I could not understand well. This time my motivation became very low. I was always saying that I will not be able to do it." (Student24, female)*

> *"Everyday dealing with this, I was full of apprehension, wondering whether they shared anything on Facebook about the course when I could not log on to Facebook." (Student12, female)*

Conclusion and Discussion

The motivation of the experimental and control group students toward the course was determined by the aid of a motivation survey (CIS). The motivation for students in the experimental group was greater than that of the control group. Only a limited number of studies on effects of the flipped classroom on motivation have been undertaken, but Davies, Dean, and Ball (2013) found in their quasi-experimental study that it increased student motivation. In addition, other studies in the literature have indicated that the flipped classroom method increases student participation and satisfaction (Chen et al., 2014; Missildine et al., 2013; Musib, 2014). Therefore, the flipped classroom can be said to have positive effects on motivation.

Motivation was analyzed in the current study within the scope of the ARCS motivation theory: attention, relevance, confidence, and satisfaction. When the motivation scores of experimental group students were analyzed in terms of attention, it was seen that the students found the methods applied by the teacher interesting and thought that the teacher knew what should be done to increase their attention. The attention level of students toward the course was clearly high. Based on these findings, course content covered via the flipped classroom method may be more successful at capturing students' attention. This finding is important because sustaining student attention to instruction is considered critical for learning (Proske, Roscoe, & McNamara, 2014). When motivation levels of students in the experimental group were analyzed according to relevance, students were seen to recognize the advantages and benefits that they would gain from what they learned. Thus, students who use the flipped classroom method may find course content more useful. For confidence, as long as students studied regularly, they could successfully complete the course, and the degree of difficulty of the course was rated at the optimum level. The students expressed positive feelings about confidence and the course. Finally, for the satisfaction dimension, the homework and

activities were deemed suitable for this course type, and students mentioned studying a lot to pass. Overall, the students found the flipped classroom suitable for the computer course.

The leading positive motivational factor in the flipped classroom method was hands-on activities, which may stem from the interest of the students in the course. Other important factors that increased motivation were group work and the gamification activity Kahoot. Concordant to this finding, Musib (2014) has stated that giving quizzes can increase student motivation. The leading negative motivational factor was difficulty. Applications used in lessons should be planned carefully. In parallel with this finding, Kim, Kim, Khera, and Getman (2014) have indicated that enough time should be reserved for activities during the lesson. Difficulty levels should be consider the limited amount of time during class. Based on the findings and discussions presented here, the several recommendations are offered for practitioners.

Suggestions for practitioners:

- Activities in which students create and release a product could be used during lessons.
- Teamwork could be promoted in lessons.
- Gamification strategies could be used actively in lessons.
- Difficulty levels of in-class activities should be arranged in a way so that tasks can be completed during class time.
- Motivating factors could be added to videos to encourage watching.

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Perceptions of Turkish Pre-Service EFL Teachers on Their Technological Pedagogical Content Knowledge

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Abstract

The purpose of this study is to investigate perceptions of Turkish pre-service EFL (English as a Foreign Language) teachers related to their level of Technological Pedagogical Content Knowledge (TPACK), the factors affecting their perceptions of TPACK, and their beliefs related to technology integration into EFL classrooms. The study employs both quantitative and qualitative data collection and analysis procedures. A total of 94 Turkish pre-service EFL teachers answered two questionnaires designed to gather information about their combining technology, pedagogy, and content knowledge in the ways of both learning and teaching processes. Six of the participants were also interviewed about their perceptions on TPACK competences and their beliefs related to technology use in language teaching. Quantitative data were analyzed by calculating descriptive statistics (frequency, percentage, mean score, standard deviation), and qualitative data were analyzed by using content analysis. The findings related to quantitative data revealed high levels of perceptions on TPACK competences, and the findings related to qualitative data supported the high level of perceived TPACK competences and further revealed that participants emphasized the place of personal interest, experience, knowledge and access while singling out educational support by their own instructors on the development of TPACK. In the light of the findings of the study, it has been suggested that courses offered to pre-service teachers should include how to combine technology, content and pedagogy together for effective instruction in their subject field; and teacher education programs should provide pre-service teachers with the opportunities of becoming the designers of technologically mediated materials.

Keywords: technological pedagogical content knowledge, technology integration, teacher education, perceptions of pre-service EFL teachers

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Türkiye'deki İngilizce Öğretmeni Adaylarının Tekno-pedagojik İçerik Bilgisi ile İlgili Algıları

Öz

Bu çalışmanın amacı, Türkiye'deki İngilizce öğretmen adaylarının Teknopedagojik İçerik Bilgisi (TPİB) ile ilgili algılarını araştırmak ve bu algılarını etkileyen faktörleri ortaya çıkarmaktır. Hem nicel hem de nitel veri toplama yöntemleri ile yapılan çalışmaya 94 İngilizce öğretmen adayı katılmış ve öğrenme-öğretme süreçleriyle alakalı TPİB algılarını ölçmek üzere hazırlanmış olan iki farklı anket yanıtlamışlardır. Ayrıca, katılımcılar arasından seçilen altı İngilizce öğretmen adayı ile mülakat yapılmış ve bu öğretmen adaylarının TPİB ile ilgili görüş, tutum ve inançları daha derinlemesine ortaya çıkarılmaya çalışılmıştır. Nicel veriler betimsel istatistikler (frekans, yüzde, ortalama, standart sapma) kullanılarak analiz edilirken nitel veriler için içerik analizi kullanılmıştır. Nicel veri analizi sonuçları öğretmen adaylarının yüksek derecede TPİB'ne sahip olduklarını ortaya koymuştur. Nitel veri analizi de hem nicel veri analizi sonuçlarını desteklemiş hem de öğretmen adaylarını TPİB ile ilgili görüş ve algılarının kişisel ilgi, tecrübe, bilgi birikimi ve alınan destek ile yakından alakalı olduğunu ortaya koymuştur. Nitel veri analizi de hem nicel veri analizi sonuçlarını desteklemiş hem de öğretmen adaylarını TPİB ile ilgili görüş ve algılarının kişisel ilgi, tecrübe, bilgi birikimi ve alınan destek ile yakından alakalı olduğunu ortaya koymuştur. Çalışmanın nicel ve nitel verilere dayanan ve birbirini destekler nitelikte olan bulguları göz önüne alınarak, İngilizce öğretmeni yetiştirme ile ilgili iki temel öneri sunulmuştur. Bunlardan biri, öğretmen yetiştirme sürecinde verilen derslerde öğretmen adaylarına teknolojiyi derslerinde etkili biçimde nasıl kullanabilecekleri ile ilgili dersler verilmesinin faydalı olabileceğidir. İkinci öneri ise, öğretmen adaylarına, teknoloji ile desteklenmiş ders materyali hazırlamalarına katkı sağlayacak olanakların sunulmasının önemli olduğudur.

Anahtar Sözcükler: teknopedagojik içerik bilgisi, eğitimde teknoloji kullanımı, öğretmen yetiştirme, İngilizce öğretmen adaylarının algıları

Introduction

Rapid developments of computers and instructional technologies have changed the nature of education in the twenty-first century and forced educational institutions to renew themselves in accordance with the advent of recent technologies. Traditional conceptions of what constitutes a classroom, the role of a teacher and the qualities of teacher knowledge have been challenged by the emergence of new technology. As far as the effective technology integration in education is considered, it would be safe to say that it is not only dependent on the appropriate technological tools, but also on the use of these technological tools by teachers.

Koehler and Mishra (2005) suggest that introducing new technologies in education does not necessarily bring about successful teaching and learning experiences, identifying teachers' needs to know about effective technology integration is also very important. Building on Schulman's (1986, 1987) conceptualization of pedagogical content knowledge, Mishra and Koehler (2006) have offered a new framework called Technological Pedagogical Content Knowledge (TPACK), which was proposed to define an integrated conceptual framework for the construction of the knowledge base that teachers should possess for effective teaching with technology.

Technological knowledge has become another dimension of the knowledge base of teaching, and any attempt to meaningfully integrate technology in educational environments requires a need for developing TPACK. Developing and implementing TPACK in teaching creates a need for understanding of how technology is in relation with pedagogy and content (Koehler, Mishra, & Yahya, 2007). In other words, "unless a teacher views technology use as an integral part of the learning process, it will remain a peripheral ancillary to his or her teaching. True integration can only be understood as the intersection of multiple types of teacher knowledge" (Pierson, 2001, p. 427).

While the importance of TPACK is clear, some teachers may remain unclear about how to use technology to support their teaching (Niess, 2005). Although they sometimes use the Internet to attract students' attention, they may have very little knowledge about how to effectively integrate technology to facilitate students' development (Lee & Tsai, 2008). In addition to lack of necessary knowledge, some teachers may also not have relevant experience in using technology to assist their teaching and their attempts may be limited in scope (Koehler, Mishra, Kereluik, Shin, & Graham, 2013). The main reason for their insufficient qualities in technology integration may stem from their undergraduate pre-service teacher training (Angeli & Valanides, 2005; Koehler, Mishra, & Yahya, 2007). Despite a variety of technological tools and increasing opportunities to help pre-service teachers to practice technological skills, little attention has been given to pre-service teachers' experiences in teaching with technology during their practicum (Kurt, 2012). Without such an experience, pre-service teachers may tend to use technology in superficial and low-level ways (Doering & Veletsianos, 2008). Thus, pre-service teacher education plays a crucial role in determining the effectiveness of technology integration into education (Snider, 2003).

Taken together, aforementioned observations may show that teacher education programs need to help pre-service teachers understand how technology can be incorporated into teaching content and support them to develop a critical knowledge base for TPACK. In order to help, teacher education programs should first determine pre-service teachers' perceived TPACK competences, which refer to their understanding of the interaction

between technologies and pedagogical content knowledge. In the light of this examination, teacher education programs can get to know the competences of groups with which they are working, and then hopefully provide better teaching and learning experiences for their students. From this point of view, this study aims at answering the following research questions: (1) What is the level of a group of Turkish pre-service EFL teachers' technological pedagogical content knowledge; (2) What are the perceptions of a group of Turkish pre-service EFL teachers on their technological pedagogical content knowledge?

Background to the Study

Traditionally teachers' knowledge bases were emphasized on two forms of knowledge: content knowledge (the 'what' of teaching) and pedagogical knowledge (the 'how' of teaching), and they were treated as mutually exclusive. Shulman (1986, 1987) criticizes teacher education programs for treating content knowledge and pedagogical knowledge as separate domains of teacher knowledge bases. Arguing that neither pure content knowledge nor pure pedagogical knowledge was enough for teaching, Shulman introduced a new type of knowledge base which is called pedagogical content knowledge (PCK) (Gess-Newsome, 1999). With the concept of PCK, Shulman refers to the interconnectedness of pedagogy and content, and suggests that teachers should have an in depth understanding of how to integrate these multiple domains of knowledge. In other words, Shulman's framework focuses on pedagogical content knowledge as the intersection of subject-specific knowledge and pedagogical knowledge, and highlights the importance of the need for teachers to understand various ways of representing subject matter.

In the mid-1980s, when Shulman first proposed PCK framework, the number and the range of educational technology tools and resources were relatively limited. In the PCK concept the emphasis was mainly on how pedagogy and content are related in teaching. In the intervening years, however, several educational technological developments have occurred. With the advent of digital educational technologies and their appearance in educational settings, educators have started to think that technology knowledge cannot be considered as an isolated construct, and effective teaching necessitates the understanding of how technology is associated with pedagogy and content (Mishra & Koehler, 2006). Addressing this limitation in the PCK framework, Mishra and Koehler (2006) suggested that technological knowledge (TK) should be included as a third knowledge base in Shulman's (1986) PCK framework. By adding this third knowledge base, Mishra and Koehler have developed a new framework called Technological Pedagogical Content Knowledge (TPACK) and attempted to explain the dynamic relationships among content knowledge, pedagogical knowledge, and technology knowledge. The TPACK framework comprises three major components of knowledge: content (CK), pedagogy (PK) and technology (TK), and their intersections represented as pedagogical content knowledge (PCK), technological content knowledge (TCK), technological pedagogical knowledge (TPK), and technological pedagogical content knowledge (TPACK) (Koehler & Mishra, 2005; Mishra & Koehler, 2006).

Figure 1. *Technological pedagogical content knowledge (tpack) framework (http://tpack.org)*

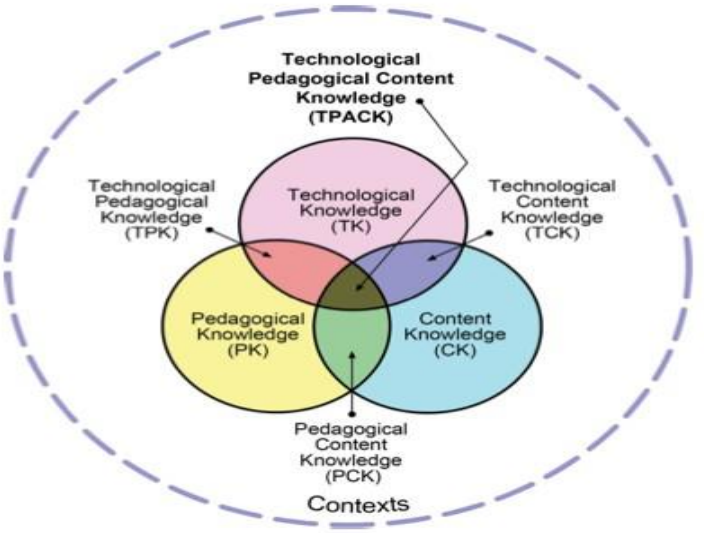


Figure 1 presents the seven categories of TPACK. These categories can be briefly defined as follows:

a) Content Knowledge (CK): This refers to the type of knowledge that teachers need to have about the subject matter. In other words, CK is the knowledge of 'what' to teach. It consists of theories, terms, ideas and constructs (Shulman, 1986).

b) Pedagogical Knowledge (PK): It includes the knowledge of the teachers about practices, processes and methods necessary for teaching (Koehler, Mishra, & Yahya, 2007). PK also comprises understanding of how learners get to learn, classroom management strategies, lesson planning, and student assessment. Therefore, it requires teachers to understand cognitive, social and developmental theories of learning and to have the necessary skills to administer them in the classroom.

c) Technology Knowledge (TK): This knowledge includes skills which are required to use various digital technologies in learning environments such as computers, internet, interactive whiteboards, mobile devices and software applications (Schmidt et al., 2009).

d) Pedagogical content knowledge (PCK): It refers to the content knowledge that is applicable to the teaching of a certain subject matter (Schulman, 1987). PCK is different for various subject areas because PCK requires combining subject with instruction (Schmidt et al., 2009). A teacher with PCK is therefore, required to have the ability to design and practice the content matter to be taught (Mishra & Koehler, 2006).

e) Technological Content Knowledge (TCK): This knowledge requires not only the knowledge of content areas to be taught but also having the ability to teach content matter via technology (Koehler, Mishra, & Yahya, 2007). Therefore, teachers should have an understanding of their subject areas and the use of technologies that facilitate student learning.

f) Technological Pedagogical Knowledge (TPK): This knowledge consists of an understanding of how pedagogical strategies can be applied to the use of numerous technologies (Margerum-Leys & Marx, 2002) and how using of these technologies may change teachers' instruction in classrooms (Schmidt et al., 2009).

g) Technological Pedagogical and Content Knowledge (TPACK): As the core of the model, TPACK is the intersection among the three key interdependent knowledge bases (PCK, TCK, and TPK). In this model, teachers' understanding of technology, pedagogy, and content interact with one another in order to employ effective teaching with educational technologies (Harris, Mishra, & Koehler, 2009).

Overall, these definitions indicate that TPACK is greater than that of the sum of its parts. It is TPACK that enables teachers to determine a 'fit' between the content focus, pedagogical approaches and educational technologies. Understanding the knowledge and skills required for technology integration into the classroom has increased the significance of teachers' development of TPACK. In this regard, teacher education programs have become a key area for the implementation of the TPACK framework (Maor & Roberts, 2011). Researchers have begun to focus on specific approaches to help teacher candidates develop their TPACK. Schmidt et al. (2009) state that "there is a continual need to rethink our preparation practices in the teacher education field and propose new strategies that better prepare teachers to effectively integrate technology into their teaching" (p. 126).

In Turkish context, although research on teachers' TPACK have noticeably increased in recent years, studies mainly focus on pre-service teachers' development of TPACK in the content fields such as science, mathematics, physical education, or social sciences (Yaman, 2007, 2008; Mavi, 2007; Yilmaz, 2008; Erdoğan & Şahin, 2010; Yilmaz, Ulucan, & Pehlivan, 2010; Kabakçı-Yurdakul, 2011; Semiz & Ince, 2012), and the number of studies implemented to investigate the pre-service English teachers' perceptions on TPACK is limited (Öz, 2015; Tunçer, 2014; Solak & Çakır, 2014). The present study attempts to provide further insight into the issue, and therefore it aims to investigate Turkish pre-service EFL teachers' level and perceptions of TPACK.

Method

Participants

Ninety-four Turkish pre-service EFL teachers studying in their final semester of the EFL teacher education program of a Turkish public university participated in the present study. Of the 94 students, 78 (83%) were female and 16 (17%) were male, and their mean age was 22.40. According to the results of the background questionnaire, all the participants had their own computers and 80 of them (85.1 %) had a smartphone. Their internet use was as follows: 37 (39.4 %) of them 'almost always', 27 (28.7 %) of them 'usually', 16 (17 %) of them 'often", 4 (4.3 %) of them 'sometimes', 1 (1.1 %) of them 'rarely', and 9 (9.6 %) of them 'almost never'.

Instruments and Data Analysis

One of the data collection instruments of this study was the 'TPACK-Deep Scale', which was developed based on Mishra and Koehler's (2006) model by Kabakçı-Yurdakul et al. (2012) for the purpose of assessing technological pedagogical content knowledge. The scale consists of 33 items answered on a 5-point scale ranging from 'strongly disagree' to

'strongly agree'. According to the evaluation criteria of the scale, the obtained total scores that are equal to or lower than 95 refer to 'low level of TPACK'; scores that are between 96 and 130 refer to 'average level of TPACK'; and scores that are higher than 130 refer to 'high level of TPACK'. The Cronbach's alpha coefficient of the scale had been calculated as .95 by Kabakçı-Yurdakul et al. (2012) and the same coefficient (.958) was found for the administration of the scale for the present study.

In addition to the TPACK-Deep Scale, participants were also given a background questionnaire (adapted from Tunçer, 2014) which consists of four parts asking questions in relation to (1) demographic information, (2) personal experiences in terms of technology use, (3) educational background with regard to technology use, and (4) teaching experiences with regard to technology use.

Apart from the questionnaires, six participants were interviewed in order to investigate how and to what extent they can integrate technology into their English teaching practices, and to discover their perceptions related to technology integration into English language teaching. The following three interview questions were asked to the participants: (1) As a prospective foreign language teacher, do you think that you can use technology for educational purposes?; (2) What factors have positively influenced your beliefs related to technology integration into English language teaching classrooms during your practicum experiences?; and (3) What factors have negatively influenced your beliefs related to technology integration into English language teaching classrooms during your practicum experiences?

Quantitative data of the study were analyzed by calculating descriptive statistics (mean score, standard deviation, frequencies, and percentages). For the analysis of the qualitative data collected via interviews, participants' responses to interview questions were transcribed and categories in accordance with their responses were identified. Those categories were used to form themes and these themes were compared with the ones identified before in the literature.

Findings

TPACK and Use of Technology in the EFL Classroom

The TPACK-Deep Scale mean score of all the participants of this study was found to be 132.16 (SD = 15.685), which indicates a high level of perception in TPACK. The highest score was 165 while the lowest one was 66. Of all 94 participants, two participants were found to be in the 'low level of TPACK', 32 participants were found to be in the 'average level of TPACK', and 60 participants were found to be in the 'high level of TPACK'.

Figure 2 presents the number of participants who integrate technology for different skills and areas in varying rates. As the figure illustrates, 81 (86.2%) participants reported using technology for listening activities, 65 (69.1%) for vocabulary activities, 52 (55.3%) for speaking activities, 42 (44.7%) for grammar activities, and 37 (39.4%) for writing and reading activities.

Figure 2. *Technology use for various language skills*

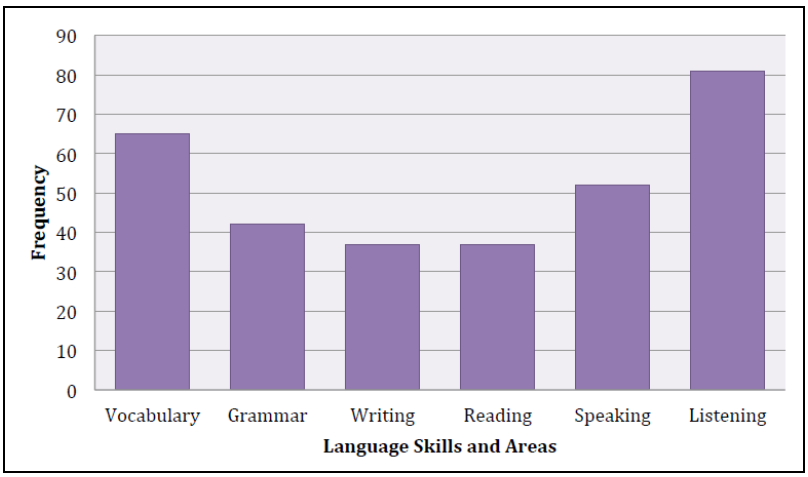


Figure 3 demonstrates participants' use of technology for various reasons during the lesson preparation. As the figure presents, participants reported that they use technology for various reasons while preparing their lessons. Eighty-nine (94.7%) participants used technology for finding authentic and visual materials, 82 (87.2%) for finding visual materials, 79 (84%) for the preparation of lesson plan, 69 (73.4%) for sharing their ideas with their colleagues, 66 (70.2%) for sharing their lesson plans, 59 (62.8) for motivating their students, and 53 (56.4%) for getting advice from their colleagues.

Figure 3

Reasons for Technology Use during Lesson Preparation

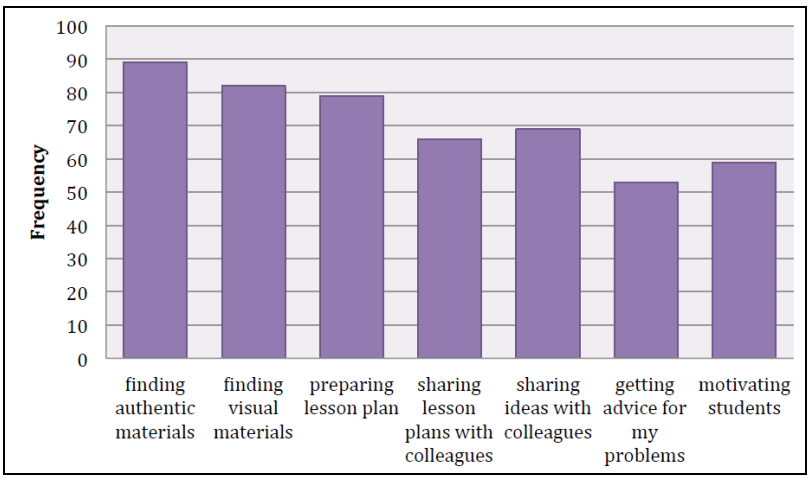
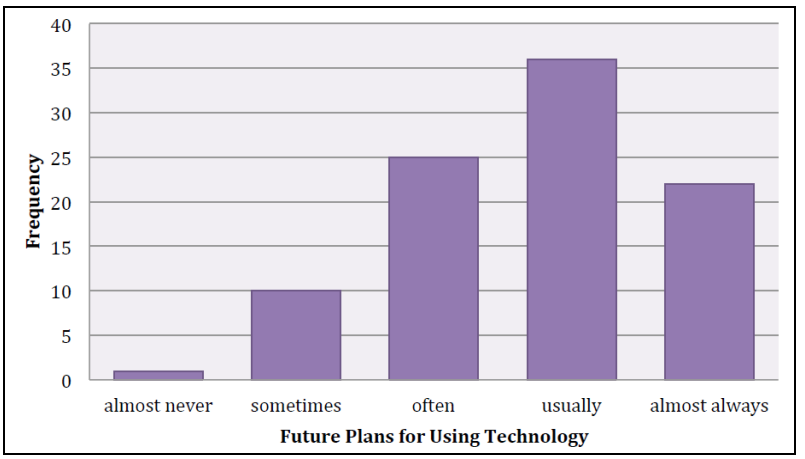


Figure 4 presents participants' plans related to technology use while teaching English in their future classes. It's seen in the figure that 22 (23.4%) of them reported that they are planning to use technology 'almost always', 36 (38.3%) reported 'usually', 25 (26.6%) 'often', and 10 (10.6%) 'sometimes'. Only one participant stated that she was planning to use technology 'almost never' in the future.

Figure 4. *Future plans for using technology in English language teaching*



Perceptions Related to TPACK Competences

Participants' responses to the first interview question were analyzed in two categories: competence and incompetence. For competency, four, and for incompetency three main factors emerged from the data. Table 1 presents these factors.

Table 1. *Perceptions related to TPACK competences*

	Factors	Number of Students
Competence	I can use technology for educational purposes (curricular tasks, presentations)	6
	ELT requires me to use technology	4
	I am eager to use technology for educational purposes and keep myself updated	4
	'Digital Material Development for ELT' course has improved my technology integration skills	3
Incompetence	I lack of models of teachers providing enough guidance for technology integration into language teaching	3
	I cannot keep myself updated	2
	I do not have enough information for adapting technology to language teaching	2

Table 1 indicates that participants seemed to have an awareness of using technology in language teaching and learning situations. Nearly all of them asserted their competence in technology use. However, two participants expressed some concerns related to adapting technology to language teaching. The following is an excerpt from the interview of one of those two students:

> *"I strongly believe I possess competence for technology use. But, I think this does not mean that I can successfully integrate my skill into my content and pedagogy knowledge. Technology use in language teaching requires different*

> *skills which are more than simply knowing and being competent in using technology for personal reasons. Technology integration seems to me necessarily beyond making PowerPoint presentations or Internet searching."*

Some participants emphasized the important role of an elective course (Digital Material Development for ELT) they took on their development of TPACK. These participants also referred to the distinctive increase in their eagerness to integrate technology into their teaching during practicum. One of these participants explains the benefits of the course as follows:

> *"In the first term of this year, I enrolled in a course, namely 'Digital Material Development for ELT'. In this course, we prepared digital materials every week by considering the content we teach at practicum schools. This course helped me a lot in terms of understanding how to integrate technology into content and pedagogy knowledge. At the end of the term, I had the sense of improvement in my teaching skills. That made me motivated and eager to learn more for technology integration."*

Some participants explained their incompetence in using technology effectively while teaching English with lack of enough guidance provided by their university instructors or practicum school teachers. One of the students illustrated this situation as follows:

> *"When I look back and reflect on my teaching practices, I see that I do not include much technological tools or materials into my teaching. The reason, I guess, is due to my lack of knowledge on how to design technologically assisted lessons. In my courses at university, we are generally provided with content knowledge and how to present this content knowledge through steps. My teachers at university and practicum schools neither particularly emphasize technology use nor they themselves present such technologically mediated courses. I guess that's why I do not employ technology use much."*

Data analysis related to participants' answers to the second interview question revealed 4 factors identified as positive contributors to their beliefs related to technology integration into English language teaching classrooms during their practicum experiences. Table 2 presents those factors.

The most commonly expressed factor is found as 'technology integration into teaching fosters individualized learning'. All of the interviewees identified an overall positive impact on their students' learning process. They believed that technology integration enables individualized learning through selecting instructional materials, and it can be adapted to students' different learning styles via designing appropriate materials.

Table 2. *Positive factors influencing pre-service teachers' perceptions related to technology integration into EFL classrooms*

Factors	**Number of Students**
Technology integration fosters individualized learning	6
Technology integration makes learning interesting, engaging, and interactive	5
Usability and cost effectiveness of computer-assisted instructional materials	5
'Digital Material Development for ELT' course	3

By appropriate materials, they referred to well-designed instructional materials (i.e. audio, video, animation or simply visuals), and emphasized on meeting the specific needs of individual students through wide range of computer-assisted materials. In this regard, one of the students expressed the following:

> *"I believe that technology integration enables effective instruction where the subject and students' pace of learning are adapted to their individual needs. Contrary to traditional classroom instruction, this method emphasizes each student's learning demands."*

To name another positive factor, interviewees believed that integrated technology tools make learning interesting, engaging, and interactive. Accordingly, they stated that technology makes learning fun and colorful, and it keeps learning environment alive and active. One of the participants illustrated this situation with the following expressions:

> *"Technology offers us a wide range of opportunities for interactive learning. For instance, you can easily create and post podcasts for your learners who were absent or want to revise….With the help of technology, I can get more students engaged as well as foster collaboration, and most importantly make learning interesting! YouTube is an amazing tool for this."*

Interviewees also addressed an overall positive impact of usability and cost effectiveness of computer-assisted instructional materials. With regard to this, they explained that traditional information resources (i.e. worksheets, handouts) are more costly, and generally funded by the students of the teachers; however, materials designed through technological tools are free of charge and most importantly, more innovative and up-to-date.

Also, three of the interviewees considered "Digital Material Development for ELT" course as a contributor and a positive factor for synthesizing their knowledge, and gaining skills, capabilities and attitude to integrate technology with appropriate materials.

Finally, Table 3 presents the participants' answers to the third interview question. As the table indicates, five negatively influencing factors were identified as a result of data analysis.

Table 3. *Negative factors influencing pre-service teachers' perceptions related to technology integration into EFL classrooms*

Factors	**Number of Students**
Time consuming	6
Mentor teacher's reluctance	4
Insufficient guidance	3
Technical problems	3
Lack of knowledge	1

As Table 3 indicates, most commonly expressed negative point is time. All of the participants reported that designing computer-mediated materials requires too much time and effort. One of them explains as follows:

> *"I try to use different interactive presentation programs to create attractive digital materials. These materials make students interested in materials and therefore, help me take their attention on the content. However, I spend too much time on preparing such kind of materials."*

A number of participants voiced the complaint about mentor teachers' being reluctant to encourage them to use technological tools in their classrooms during teaching practicum. One of the participants expressed her opinion based on her experiences as follows:

> *"At the beginning of my teaching practices, I used to include technology into my lessons because students got motivated. Each time I came to class, they started to wonder and ask their teacher whether I would present or not. When the answer was no, they immediately got upset. I guess, they associated me with my different digital activities and that's why they wanted me to teach. As far as I understand, their teacher used smart board just for listening activities. She did not have appropriate knowledge to effectively integrate technology into classroom. I think, because of her insufficiency, she wanted me to use the course book activities, and do nothing more than that."*

Apart from mentor teachers at practicum schools, some of the participants mentioned their instructors at university and stated that the instructors did not provide enough guidance for technology integration into teaching.

Some participants also stated 'technical problems' (i.e. insufficient access to Internet, slow Internet connection, hardware problems) as negative factors. Also, one interviewee stated her lack of knowledge for effective use of technology in language teaching as a negative factor.

Discussion and Conclusion

When the findings of the present study are compared with the results of other studies conducted with similar purposes, it is seen that the results of the current study demonstrate a lot of similarities with the findings of previous studies (Tunçer, 2014; Kabakçı-Yurdakul, 2011; Ceylan et al., 2014). However, a difference was found between the results of the current study and Tunçer's study (2014). The findings of Tunçer's study revealed that participants have either high or avarage level of TPACK but the current study found that two pre-service teachers' scores were in the low level of TPACK.

It was revealed in this study that almost all of the interviewees agree on the importance of technology integration into English language teaching. They reported that English language teaching necessitates technology use in classrooms especially in terms of listening activities and the presentation of visual and authentic materials. Although all of the interviewees referred to the importance of technology use in English language teaching, majority of them reported varying levels for using technology in their future classes. The leading reason for this was expressed as the condition of teaching environment. Likewise, one participant who was eager to use technology in his/her teaching in Tunçer's study (2014) stated that his/her ideas about technology integration can only be valid in a school environment where the technology integration is encouraged. Niess (2005), and Littrell, Zagumny, and Zagumny (2005) laid an emphasis on the significance of accession to technology in the classroom.

In this study the analysis of the qualitative data about positive factors revealed that the participants believed that technology integration enables individualized learning and makes learning interesting, engaging, and interactive. According to the Office of Technology Assessment (OTA, 1995) report, individualizing student learning has been the greatest appeal of technology use in the classroom setting. Accordingly, integrated learning systems and software that corresponds to curricula can be implemented due to students' abilities (OTA, 1995). OTA (1995) also stated that the nature of technology based resources and discussions with teachers suggest that various technology based classroom activities can be motivating to students.

The analysis of the qualitative data about negative factors revealed that all of the interviewees believed that technology integration can be time consuming for teachers. As Top (2007) stated, integrating technology into instruction can be a difficult, time-consuming process; however, "only those teachers who believe that technology use will lead to significant benefits for their students will undertake the associated challenges" (p.40). As Russell et al. (2003) expressed "teachers entering the profession need to develop positive beliefs about technology and skills to use technology in a wide variety of ways" (p.308). Another negative factor revealed in the present study was cooperating teachers' being reluctant to motivate pre-service teachers to use technological tools in their classrooms during practice teaching. In relation to this, one of the barriers in front of the effective technology integration endeavors defined by Dooley (1999) as teachers' habit of teaching in the manner in which they themselves were taught. At this point, our findings suggest that the level of support received from cooperating teachers can be one of the most important determining factors in whether the pre-service teachers incorporated technology into their classrooms or not (Öz, 2015). The interviewees also stated that they would expect their university instructors to be better role models for technology integration. This result supports the findings of Semiz and İnce (2012), and İnce and Ok (2005) who suggested that pre-service teachers accepted their own university instructors as role models when they had a chance to observe their modeling of technology integration.

To conclude, this study suggests that the participating Turkish pre-service English language teachers' levels of TPACK competence are at satisfactory level. Also, the participants of the study emphasized the place of personal interest, experience, knowledge and access while singling out educational support by their own instructors to the development of TPACK. In line with these, the present study has some implications for teacher education programs. With regard to pre-service teachers' effective technology use in their teaching, the role of teacher education programs is becoming increasingly apparent since such technology incorporation necessitates a relatively sophisticated and interrelated understanding of the technology, pedagogy, and content. Therefore, it can be suggested that courses offered to pre-service teachers should include teaching pre-service teachers explicitly how to combine technology, content and pedagogy together for effective instruction in their subject field. That is, the courses should combine coursework with fieldwork to equip pre-service teachers with the necessary skills of technology integration. This especially puts emphasis on the roles of university instructors as good role models for the use of technology and as supporters of technology integration. Apart from offering courses, teacher education programs should also provide pre-service teachers with the opportunities of becoming the designers of technologically mediated materials and experiencing technology assisted instruction through the use of these materials at practicum schools. In other words, as Niess (2008) states, "no matter how marvelous the coursework is in providing them with knowledge about teaching with technology, they must have opportunities to apply this knowledge" (p. 246).

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The Usage of Video Blog (vlog) in the "School Experience" Course: The Opinions of the Pre-service Teachers

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Abstract

The aim of this study is to provide that the pre-service teachers make their individual video blogs and they reveal their opinions about the process in the "school experience" course that is among the teacher education programs and has been chosen in accordance with the principles of forming vlog. Case study, one of the qualitative research patterns, was used in this study. The data was collected through semi-structured interviews. Criterion sampling which is one of the purposeful sampling methods was used in determining the study group. The obtained data was analyzed by content analysis. At the end of the research, the pre-service teachers expressed opinions regarding that vlogs are useful mostly in professional and technical terms. Accordingly, it was observed that vlog contributes to recognizing the shortcomings, reviewing and correcting them (reflective learning, self-regulation skill) and to the development of self-expression, communication, information sharing, critical thinking in terms of individual and social development. In addition, pre-service teachers attracted attention to technical aspects such as easy accessibility, common use and easy uploading-watching. On the other hand, relating to the limitations of vlog, it was observed that the pre-service teachers were tense, excited and shy in the video shoots and that they had correction problems related to the wrong shootings and they had concerns about confidentiality related to the videos. Educational inferences and recommendations are also included in the results.

Keywords: vlog, video blog, teacher training, blog-based learning

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Okul Deneyimi Dersinde Video Günlüğü (vlog) Kullanımı: Öğretmen Adaylarının Görüşleri

Öz

Bu araştırmanın amacı, öğretmen yetiştirme programlarında yer alan ve vlog oluşturma prensiplerine uygun olarak seçilen "okul deneyimi" dersinde öğretmen adaylarının bireysel video günlüklerini oluşturmasını sağlamak ve onların bu süreçle ilgili görüşlerini ortaya koymaktır. Bu amaç doğrultusunda araştırmada nitel araştırma desenlerinden durum çalışması deseni kullanılmıştır. Veri toplama yöntemi olarak ise yarı yapılandırılmış görüşme tekniğinden yararlanılmıştır. Çalışma grubunun belirlenmesi için amaçlı örnekleme yöntemlerinden ölçüt örnekleme yöntemi kullanılmış olup, araştırma toplam 24 öğretmen adayı ile yürütülmüştür. Elde edilen verilerin çözümlenmesi aşamasında içerik analizi yöntemi kullanılmıştır. Araştırma sonuçlarına göre, öğretmen adayları vlogun en fazla mesleki ve teknik anlamda yararlı olduğuna ilişkin görüş bildirmişlerdir. Bu bağlamda vlogların öğretmenlik mesleğiyle ilgili eksikleri görme, gözden geçirme ve düzeltme imkânı sağladığı (yansıtıcı öğrenme, öz-düzenleme becerisi), kişisel ve sosyal gelişim açısından; kendini ifade etme, iletişim, bilgi paylaşımı, eleştirel düşünme gibi becerilerin gelişiminde katkı sağladığı görülmüştür. Ayrıca öğretmen adayları teknik açıdan; kolay erişilebilirlik, yaygın kullanım ve kolay yükleme-izleme gibi özelliklere dikkat çekmişlerdir. Diğer taraftan vlog sınırlılıkları kapsamında elde edilen görüşlere göre ise öğretmen adaylarının; psikolojik-fizyolojik açıdan video çekimlerinde gergin, heyecanlı ve çekingen oldukları; teknik açıdan yanlış çekimlere yönelik düzeltme sorunları ve videolara ilişkin gizlilik endişesi yaşadıkları tespit edilmiştir. Söz konusu sonuçlar doğrultusunda araştırmada eğitsel çıkarımlara ve önerilere de yer verilmiştir.

Anahtar Sözcükler: vlog, video günlüğü, öğretmen yetiştirme, blog tabanlı öğrenme

Introduction

The developments in the information and communication technologies have provided the new educational thoughts to come to light by directing the learning and teaching processes in education. The Web 2.0 technology that became widespread in the educational field, especially in the last 20 years, is also one of the implementations that has supportive features for learning and teaching (Divitini, Haugalokken & Morken, 2005; Glud, Buus, Ryberg, Georgsen & Davidsen, 2010; Wan, 2010; Hsu, Ching & Grabowski, 2014; De Wever, Hämäläinen, Voet, & Gielen, 2015). Web 2.0 is the new generation internet technology to define applications like blog, wiki, RSS, mashup, tag, social networks (O'Reilly, 2005; Davies & Merchant, 2008; Parmaxi & Zaphiris, 2016). It supports the experiences of learners by facilitating instructional process in educational context (Costa, Alvelos & Teixeira, 2016) and provides interactive and cooperation based sharing opportunity to the users in the Web environment by emphasizing social interaction and collective intelligence (Murugesan, 2007).

In accordance with this point of view, the researchers and the practitioners foresee that the potential of the blogs that have easily been accepted by the internet users and that is the leading one among the extraordinarily developed tools of the late years will play a both pedagogic and social role in educational environments (Godwin-Jones, 2008; Tess, 2013). When the blog based pedagogy researches are examined, it is observed that blogs can be used as online magazines in which the users can keep their studies/works up to date (Matheson, 2004) as well as digital portfolios allowing mutual communication between the writer and the reader (Churchill, 2009; Parkes, Dredger & Hicks, 2013).

When examined from social perspective, it can be mentioned that blog based learning gets the greatest support from Vygotsky's social constructivism and Bandura's Social Cognitive Theory. According to Vygotsky (1978), learning occurs when students socially interact with people and when they internalize the data obtained from these interactions. Also, Bandura (1999, 2001) states that learning can take place when people observe the behaviour of the other people and take them as a model as humans are social beings. Therefore, blogs that facilitates peer feedback can provide context for social interactions and these kinds of interactions allow the participant individuals to internalize the data formed in the online interactions (Bonk & Cunningham, 1998; Ferdig & Trammell, 2004; Halavais, 2005; Coutinho, 2007; Hourigan & Murray, 2010; Tan, Ladyshewsky & Gardner, 2010; Hung, 2011; Noel, 2015). Also, several studies were carried out in order to demonstrate the effect of forming blogs on the learning experiences of the students related to the performance and/or emotional results. Besides the findings demonstrating that it increases the motivations of the students (Karger & Quan, 2005) and their learning performances (Wang & Tang, 2012; Huang, Chen & Mo, 2015) positive results were revealed related to reflective thinking, critical thinking, information sharing, attitudes/perceptions, learning participation and the sense of community of the students in the blog based environments (Chou, 2011; Yang & Chang, 2012; Tang & Lam, 2014; Pavo & Rodrigo, 2015).

And in the video based blogs, if the structure of the blogs is appropriate, each entry may include text, sound, video or picture (Knight, Hakel & Gromko, 2006). However, blogs can be formed as video blogs (vlog), audio blog and textual blogs as they will include only one of those media types in accordance with their intended use or needs. Especially, forming and sharing videos including all of these media types (sound, display, text) has become easy with today's mobile devices and mobile internet services that provides high bandwidth. Within this context, the internet users have started to use multiple platforms to communicate, learn

and have fun with the spread of social media, this formed a basis for the combination of the online informal learning and face-to-face learning in the classroom (Jenkins, 2006; Cayari & Fox, 2013; Jenkins et al., 2013). YouTube, which is one of these platforms is a video sharing website in which the people who form videos are included as users, that allows them to socialize through interacting other users (Burgess & Green 2009), allowing voting and comments (Chang & Lewis, 2011), allowing the followers to be more included in the lives of the users (Stever & Lawson, 2013). YouTube, with these characteristic features, provides a unique platform to form video blogs and reach the other users in the social network. YouTube is the website that hosts the highest number video blogs (35%) in comparison with the other video sharing sites (Mogallapu, 2011).

Although it is derived from blog (Jackson & Wallin 2009; Kellner & Kim 2010), vlog, also known as video blog, is a blog type is composed of video series that the users shoot by themselves, they upload to the Internet environment after optional edits and that the users can comment about and vote (Gao, Tian, Huang & Yang, 2010; Frobenius, 2011). In the general sense, the most significant feature of vlogs is that a person forms his/her own experiences and share them as videos. From this aspect, it is different from the randomly shot videos (commercial, films, news etc.). The users can share their vlogs through several platforms such as YouTube, Vimeo, Dailymotion, and Facebook (Mogallapu, 2011). The people who form videos are called "vlogger" as in the relation between blog and blogger and all their sharings are archived in their vlogs (i.e.; in the YouTube channel) chronologically (Herring et al. 2005). It also aroused the attention of the researchers that vlogs have become a popular way people share their "moments" related to their observations, thoughts and lives (Lange, 2014).

When the related literature is examined, the studies that aim to reveal the educational potential of vlogs and the vlog forming sites like YouTube come into prominence. Accordingly, it is observed that the studies related to the contributions of vlog to language (Shih, 2010; Hung, 2011), dialogical (Jackson & Wallin 2009; Kellner & Kim 2010) and peer learning (Hrastinski & Aghaee, 2011; Hung, 2011; Jensen, Mattheis & Johnson, 2012; Fox & Cayari; 2016) were carried out at the secondary school and the university level. However, it is observed that the studies on the usage of vlog regarding professional development at the university level, especially in teacher training programs are limited (Kajder & Parkes, 2012; Parkes, Dredger & Hicks, 2013). Thus vlogs are effective in the development of the reflective thinking of the learners (Parkes & Kajder, 2010; Kajder &Parkes, 2012), in self-assessment of a person (Chenail, 2011, Parkes, Dredger & Hicks, 2013), peer learning, in learning technical and professional qualifications (Hung, 2011). Therefore, it is thought that pre-service teachers use vlog applications which are newer compared to blogs will have important contributions in terms of professional and social developments, in relation to obtaining knowledge and skills. In this context, "school experience" course, that pre-service teachers can share their internship experience in the classroom environment and that is considered to be suitable for the vlog structure, was included in the scope of the research. The "school experience" course is an important course in which pre-service teachers can put their previous knowledge and skills into practice and gain experience in the real classroom environment.

Based on the studies and evaluations summarized above, the aim of this study is to provide that the students make their individual video blogs and they reveal their opinions about the process in the "school experience" course that is among the teacher training programs and has been chosen according to the principles of making vlog.

Method

This research was carried out by case study, which is one of the qualitative research methods. In case study, an event or case is examined thoroughly and sophisticatedly in its own real environment (Yıldırım and Şimşek, 2012). In this research, video blog (vlog) usage in "school experience" course is considered as a case.

Study Group

The study group of the research includes 24 pre-service teachers who attend the "science education department" of a university's Educational Faculty in West Black sea Region, in the spring term of 2015-2016 academic year. 10 (41.67%) of the participants are men, and 14 (58.33%) of them are women. Their average of age is 23.1 (SS=1.14). The general academic grade point averages vary between 2.25-3.86 (4-point grading system). In the research, while choosing the study group, criterion-sampling method, one of the purposeful sampling types, were used. Accordingly, the following are taken as a basis: the participants; (i) attend the "school experience" course, (ii) do internship in a school of the Ministry of National Education (iii) have an intelligent device (tablet, cell phone etc.).

Gathering Data

In the research, the perceptions of the students related to vlog usage was tried to be determined by semi- structured interviews. Accordingly, the semi-structured interview form was prepared including three open- ended questions by receiving the opinion of the related expert. For providing the internal validity of the interview form; the opinions of the four domain experts (all 4 with doctoral degree, 2 of them in training programs and teaching and 2 of them in assessment and evaluation), the questions were put into final form by doing the required corrections in accordance with the feedback. The questions in the interview form are as follows:

- How did it contribute you to form your video blogs, related to your school experience, and to share them in YouTube?
- How did you feel while you were forming your video blogs related to your school experiences by shooting yourself?
- What were the difficulties that you came across while forming your video blogs related to your school experiences and sharing them via YouTube?

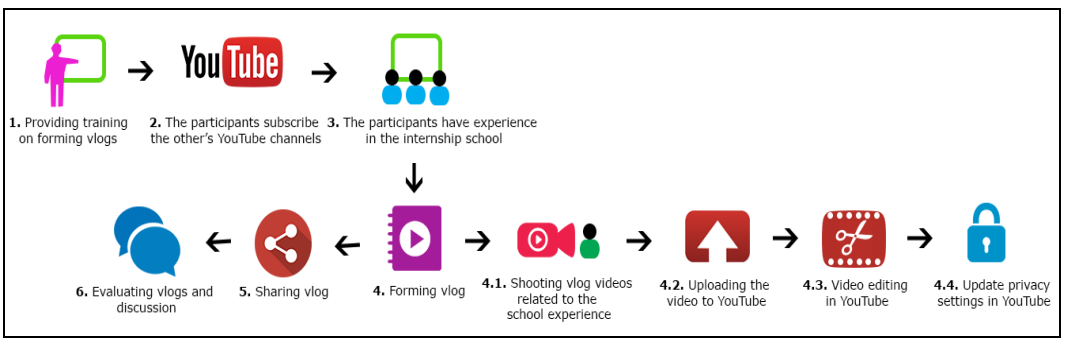
In addition to these, additional questions (like Why?, what kind of problems?, Can you give examples?, What makes you feel like this?, Which feature of YouTube?) were included if required. Before the main interview, pilot interviews were carried out with four pre-service teachers that were out of the study group in order to control the intelligibility of the questions. As a result, it was observed that the questions were clear and intelligible. However, the data obtained from these pilot interviews were not used in the scope of the research. At the beginning of the interviews, the participants were asked "Can you introduce yourself briefly?". During the interview, leading questions were avoided. The interviews were carried out on the days and hours that were determined by the pre-service teachers. At the beginning of the data gathering, the participants were informed about the research, they were provided to participate the research voluntarily. Tape recorder was used in all the interviews. At the end of the interviews, 675 minutes of record data was obtained.

Implementation Process

In the research, the pre-service teachers formed vlogs regularly ever week within the scope of "school experience" course, related to their internship experience. Before the implementation, the researchers provide an information training to the pre-service teachers related to forming and sharing vlogs. The students were asked to reflect and share their instructional experiences in the school freely while forming vlog. Specifically, video blogs includes all the learning activities of the pre-service teacher together with the relations with students, teachers and school managers, experiences in the classrooms that they make observations, the educational and professional inferences related to the course, self-assessments, the knowledge and skills that the pre-service teacher gained. The participants told their experiences by shooting videos using the cameras in their intelligent devices and they shared these videos in their video blogs via YouTube.

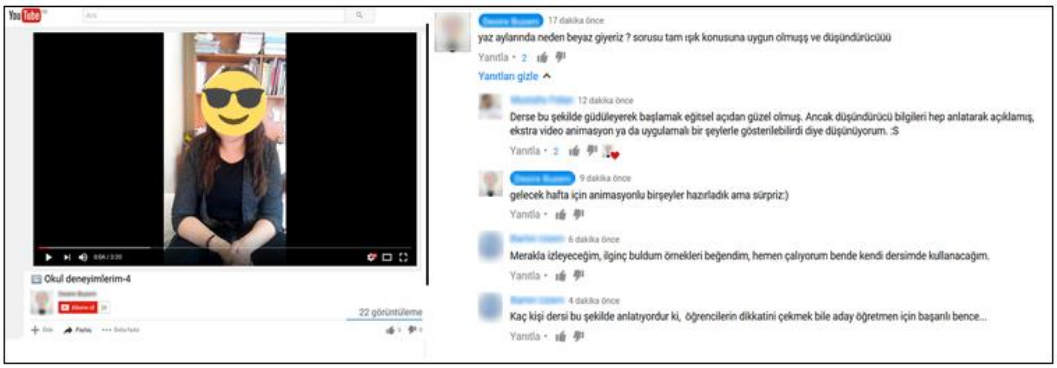
YouTube was preferred for video sharing because of both its common usage and the opportunities it provided (discussion environment, video editing, voting, statistical follow-up, privacy settings, simple and practical interface etc.). Each student subscribed the YouTube channels (video blog) of the other students in order to watch and evaluate (voting, discussion etc.) their videos. Also, the teacher of the course subscribed the YouTube channels of the participants and carry out evaluations and guidance. The steps of the implementation process are summarized below in Figure 1:

Figure 1. *Implementation process*



Before the vlog sharing, every student edited his/her weekly video on YouTube. (i.e.; video cut and join, adding texts, adding effects). The average time of the videos varies between 3 and 7 minutes. Also, he/she shared the video link with other friends by ticking the "out of list" option in the privacy settings. Each student watched and evaluated the videos of the other participants. Accordingly, the participants showed whether they liked the videos or not by clicking the buttons just below the videos. Then, a discussion platform was formed as the participants commented on the others videos. During the implementation process, the screen shots related to the video shared by a pre-service teacher and the comments of the other participants about the video is demonstrated in Figure 2 below:

Figure 2. *The screenshot related to a vlog example shared via youtube and the comments of the participants*



The Role of the Researcher

In the implementation process, the researchers had a contact meeting related to the vlog usage with the pre-service teachers and the teacher of the course and provided technical support during the process. Accordingly, they gave an educational seminar related to the use of YouTube for vlog within a course hour. The researchers had interviews with the participant at the end of the implementation, converted the sound recordings to text, analyzed the data and prepared reports of this data.

The Analysis of the Data

The data obtained in the research was analyzed by the content analysis method via MAXQDA 12 program. The similar data is organized within the frame of specific themes and concepts (Yıldırım and Şimşek, 2011). The sound recordings obtained from the interviews were listened and the expressions of the participants were converted to 62 pages of text literally via Office Word program. The data obtained in the first phase were separated into meaningful parts and codes were formed according to these. Then, the codes that formed a related and meaningful wholeness with each other were grouped according to their similar features and themes and sub-themes were formed. Under the findings topic, the codes were given together according to their prevalence.

The Validity and Reliability of the Research

The criteria of persuasiveness, verifiability and consistency were taken into consideration in providing the validity and the reliability for the research (Yıldırım and Şimşek, 2011). In the research, as the vlog implementation process lasted 14 weeks, a long time interaction was provided with the students and the persuasiveness was increased by eliminating the possible problems related to the researcher. So, it was provided that the participants expressed their real opinions. In the research, vlog records were used as well as the sound recordings obtained from the interviews as data diversity. The procedural process of the research (i.e.; research design, the characteristics of the participants, the implementation process, the collection of the data, data analysis) was defined in detail in increasing the transmissibility of the research. In addition, criterion sampling was preferred

in choosing the study group. In order to support the research findings, direct quotations were used. In the quotations, the personal info of the "pre-service teacher" was kept confidential and coded as PST-1, PST-2, PST-3 etc. After converting the sound records into text, they were sent via email and they were provided to be validated. The obtained data were also coded by two experts, other than the researchers, who are experienced in qualitative research in different times and different environments and these coding was compared. The percentage of the agreement between the coders were calculated as 94% according to reliability formula of Miles & Huberman (1994) [(agreement/(agreement+disagreement) x100]. The findings were presented without interpretation in providing reliability. The raw data and the codes of the research should be kept to be examined when requested by the others.

Findings

In the research, the data obtained from the interviews were analyzed by content analysis and accordingly evaluated under two main themes "the benefits of vlog" and "the limitations of vlog". 37 codes (f=149, 80.10%) related to the benefits of vlog and 17 codes (f=37, 19.90%) related to the limitations of vlog were generated. Accordingly, it can be mentioned that the pre-service teachers have intensively positive perceptions towards the vlog usage. The findings related to the benefits and the limitations of vlog are explained in detail under two topics below.

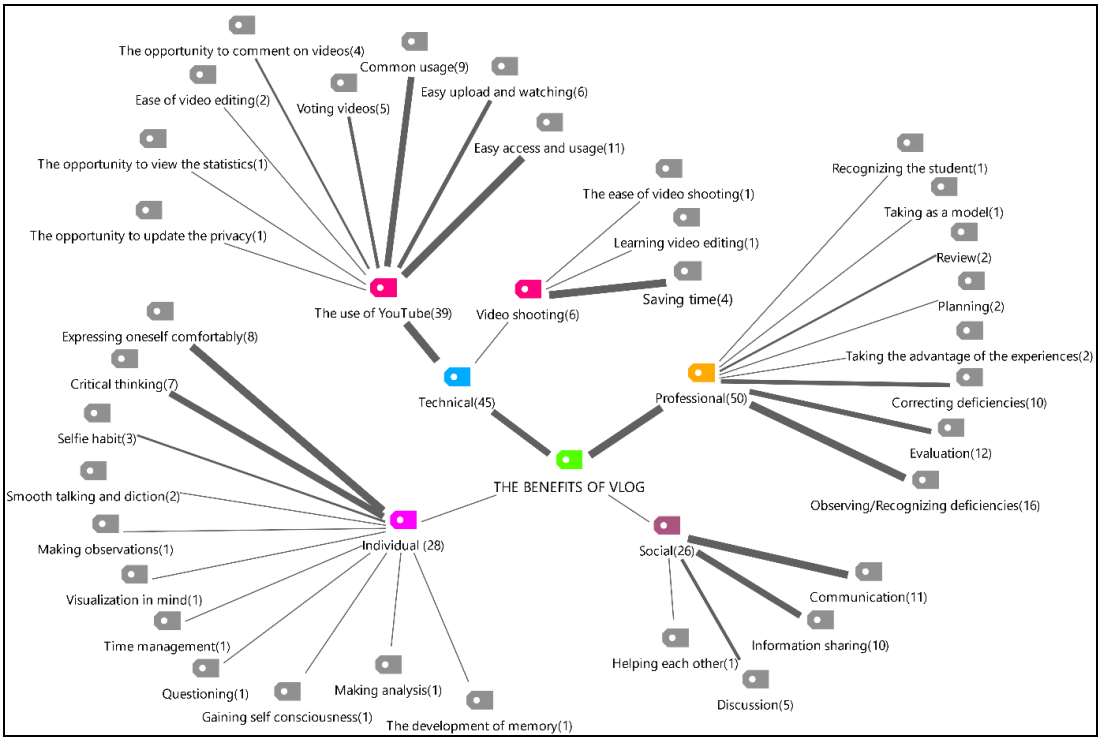
The Findings Related to the Benefits of vlog

In the research, in receiving the opinions of the pre-service teachers on the benefits of vlog, the question *"How did it contribute you to form your own video logs related to your school experiences and share them via YouTube?"* were asked. On the other hand, the positive answers of the pre-service teachers to the question *"How did you feel while you were forming your blogs related to your school experience by shooting yourself?"* were evaluated under this theme. In Figure 3, the sub-themes and their codes in the content analysis related to the benefits of vlog are presented.

In Figure 3, the codes related to the benefits of vlog are classified according to four sub-themes: individual, social, professional and technical. According to this, the participants expressed their opinions that vlog is mostly useful in professional (f=50) and technical (f=45) terms. The social (f=26) and the individual (f=28) sub-themes follow the codes of those sub-themes as frequencies.

In the professional sub-theme, it was observed that vlog contributed mostly in recognizing, reviewing and correcting the missing points related to the teaching profession. This emphasizes that vlog contributes to the development of the knowledge and skills related to teaching profession (pedagogically) in general terms; and individually to the development of the reflective thinking and the learning skills of the pre-service teachers. As a reference to this finding the participant with the code PST-20 expressed opinion as *"In the internship, we had the opportunity to recognize our deficiencies and mistakes by evaluating our daily activities at the end of the day. ...We had the opportunity not to repeat our mistakes in the future by reviewing our weekly activities."* Similarly, the students with the code PST-9 expressed his opinion as *" I noted down the points that I should pay attention to in my career in the future and I determined the deficiencies related to the days of internship on which I could think more thoroughly and correct."*

Figure 3. *The sub-themes and the codes related to the benefits of vlog*



The codes under the technical sub-theme were evaluated in two categories as "the usage of YouTube" and "video shooting" by evaluating the technical terms. This sub-theme reflects the content of the vlog related to implementation rather than the theoretical aspect. The participants expressed mainly that YouTube is an easy and useful sharing site in sharing the videos as well as they expressed positive opinions on the features of YouTube like voting videos, commenting on them, editing them. Accordingly, one of the participants (PST-13) expressed *"First of all we are familiar to using YouTube and it is very easy. Sharing information that much is something unbelievable. Sometimes I shot the videos by my cell phone and sometimes by my tablet, the application works in both and it is very useful."* Similarly another participant (PST-17) stated *"I think, voting and commenting are the most educational aspects because we can consider it as feedback."* Also, the remarkable expression of the participant coded as PST-8 *"I think editing the privacy option is a must otherwise I could beware, I couldn't feel comfortable as I would think that everybody will watch my video."* can be given as an example to the editing privacy code. On the other hand, the participants expressed opinions in "video shooting" category that they learned video editing by vlog, it was easy to shoot videos and it saved time. As a reference to these findings, the participant coded as PST-13 stated *"Cropping and editing the videos doesn't cause a lot of work, because there may be some parts to cut even you say I won't make a mistake."*

In the social sub-theme, "communication" (f=11) and "information sharing" f=10 codes are the most repeated codes. The pre-service teachers expressed that using vlog promoted the communication with the other participants, they exchanged information in the discussion environment. Thus, this sub-theme is for the positive contribution of vlog to the social relations of the pre-service teachers. Accordingly, the participant coded as PST-23 expressed

opinion as *"I think the best part of vlog is that it promotes the communication. Both mentioning and our conversations on how we shot the videos and how we will shoot them when we came face to face promoted our communication."* And the participant coded as PST-2 stated *"we discussed the experiences we talked about in our weekly vlogs both through YouTube and in the classroom, this helped to better shoot the following vlogs."*

In the individual sub-theme, it was observed that vlog mainly contributed positively to the participants to express themselves comfortably and to gain critical thinking skill. Besides, it was determined that vlog was useful for the participant in terms of diction and smooth talking skills and that also it provided self-consciousness. Briefly, individual sub-theme reflects the contributions of vlog in terms of the self improvement of the students. As a reference to these findings, the participant coded as PST-8 explained his opinion as *"Telling about what happened during the day in front of the camera made me to express myself more comfortably, I may not be able to express myself clearly by writing or I may not write most of them."* PST-13 stated *"It provided to recognize what I did, I thought myself as an audience like a jury and I had the opportunity to tell what I did by evaluating the pros and cons of them."* Besides the three participants expressed that vlog got them adopt the selfie as a habit. In relation to this finding, the expression of the participant coded as PST-6 is remarkable: *"We have already had a habit of selfie. Forming vlogs promotes this to be done as video and it promotes this habit. I think this habit is kind of self-expression."*

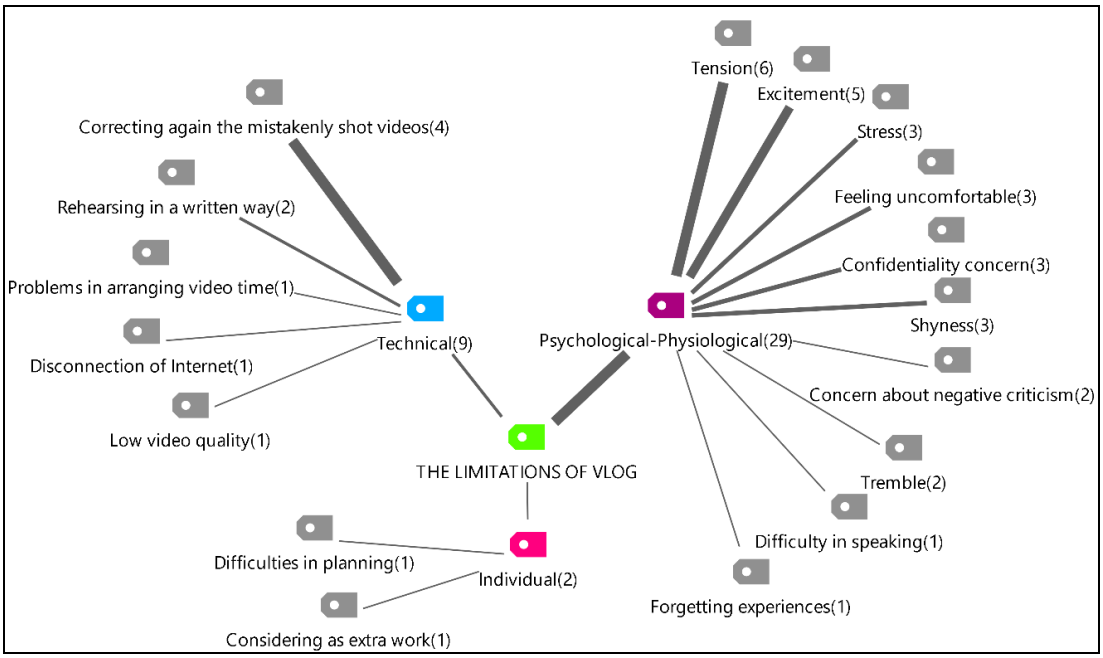
The Findings Related to the Limitations of vlog

In the research, in receiving the opinions of the pre-service teachers on the limitations of vlog, the question *"What were the difficulties that you came across while forming your video blogs related to your school experiences and sharing them via YouTube?"* were asked. On the other hand, the negative perceptions of the pre-service teachers about the question *"How did you feel while you were forming your blogs related to your school experience by shooting yourself?"* were evaluated under this theme. In Figure 4, the sub-themes and their codes in the content analysis related to the limitations of vlog are presented.

In Figure 4 the codes related to the limitations of vlog are classified according to three sub-themes: psychological-physiological, technical and individual. According to this, the participants expressed opinions mostly on psychological-physiological (f=29) sub-theme. The technical (f= 9) and the individual (f=2) sub-themes follow the codes of that sub-theme as frequencies.

The mostly repeated codes related to the limitations of vlog in the psychological-physiological sub-theme are "tension" (f=6), "excitement" (f=5), "stress" (f=3), "feeling uncomfortable" (f=3) and "shyness" (f=3) respectively. Accordingly, it was observed that the participants were uncomfortable mostly during the video shoot, also physiological reactions were observed related to this. At this point, the participant coded as PST-17 explained his opinion as *"I feel seriously tensed because of this work. Because I have video camera phobia, I can't talk when I see a video camera, I feel stressed and I say to myself that it is better I don't speak."* Similarly, the participant coded as PST-8 expressed that *"It is better not to mention about talking in front of a video camera as I feel shy when my photo is taken."* After the video sharing two of the students expressed their concerns on confidentiality and accordingly the participant coded as PST-4 said *"I feel anxiety that others will see and make fun of me.*"

Figure 4. *The sub-themes and the codes related to the limitations of vlog*



In the technical sub-theme, it was observed that the pre-service teachers had difficulty in editing the videos when they shot them in a wrong way. Besides this, some participants expressed that they lost time as they rehearsed by writing, they had difficulty to adjust the video time. As a reference to these findings the participant coded as PST-20 stated that *"Indeed I sit in front of the camera willingly to tell what I experienced all day. But I don't like my shooting as I feel excited or I worry that someone will criticize negatively, and this time there is no opportunity to correct again, and it won't be at my will when shot again."* The participant coded as PST-3 expressed *"It is not guaranteed to shoot video blog at a sitting. It requires to rehearse in a written way before not to make a mistake, and this causes it doesn't fully serve its purpose."*

In the individual sub-theme, it was determined that the pre-service teachers considered vlog as some extra work. Accordingly, one of the participants (PST-19) expressed his opinion as *"That is to say, it is difficult for me, I feel tired when I come back from school experience. Quite simply it is extra work to shoot myself after that."* Also one of the participants (PST-5) expressed that he had difficulty in planning as *"I prepare myself to behave without mistake, I plan what will I say on the specified points of the video. There may be problems without a good plan, I have difficulty in making plans.*

Conclusion and Suggestions

In the research, the findings obtained by analyzing the interview data revealed two important results. Firstly, it was observed that most of the opinions and the perceptions related to the vlog used in the "school experience" course are positive; accordingly the pre-service teachers indicated that they found vlog application useful for individual, professional, social and technical reasons. Secondly, it was concluded that the negative opinions about vlog application depended on individual, psychological-physiological and technical reasons. These results are explained in detail below and discussed according to the related literature.

The participants that expressed positive opinion on vlog usage mostly found vlog for professional reasons in the research. Especially, they expressed that it contributed to their career development because of reasons like recognizing own deficiencies, correcting them in the future, not repeating them (like reflective learning, self-regulation skills), reviewing his/her own behaviors and evaluating them. Also, they emphasized that as well as providing communication, information sharing and discussion opportunity in social terms, it has advantages that is provided by the easy usage, popularity, voting and commenting features of YouTube. The pre-service teachers expressed opinions that vlog usage mostly provided a basis to express themselves comfortably and think critically.

In parallel to these findings, Hung (2011) in his study that he carried out with university students, concluded that the students expressed positive opinions about providing their professional development, expressing themselves verbally, making self-assessment and increase their technical capacity under the favor of vlog. Similarly, this is in consistency with the positive opinions resulted in the study of Liu (2016) that he researched the learning outputs of the vlog usage at the university level, and in which the students found vlog flexible and innovative, and in which they thought that it allowed multi-dimensional evaluation, developing the presentation and expression skills. The students, in the applied study of Shih (2010) that lasted 10 weeks, provided them to think reflectively, self-learning, to give feedback by commenting about others. Cavanagh, Bower, Moloney & Sweller (2014), in their research in which they aimed to determine the effect of vlog usage of the pre-service teachers on communication along a semester, concluded that the comments of the other participants on the videos that were uploaded by the participants promoted the communication and improved the reflective learning. Thus, the evaluation of vlog videos by peers and instructor promotes communication and interaction (Jenkins, 2007; Hsu, H. Y., Wang, S. K., & Comac, L., 2008; Burgess & Green, 2009; Shih, 2010) and implicitly affects learning outputs.

It is observed that the positive outputs obtained in this research about vlog usage is in consistency with the other positive learning outputs and the research findings that reveals the satisfaction of the students as well as its contributions to social learning and reflective learning related to the "blog based learning" that also includes vlog (Cameron, 2012; Ching, 2012; Göktaş & Demirel, 2012; Tang & Lam, 2014; Huang, Chen & Mo, 2015; Lee Bonk, 2016). Fox & Cayari (2016), in their study that was carried out with university graduates, determined some limitations that almost half of the students had problems related to the video editing software and also they needed more information on video shooting and editing. Contrary to this, the findings that the pre-service teachers talked about the ease of use of YouTube and thus they didn't have problems in video uploading, editing and sharing show that these limitations can be eliminated.

The positive opinions of the participants on YouTube is also in consistency with the increase of the educational potential of YouTube (Baym & Markham, 2009) and the intention of the students to integrate social media into their learning experiences (Hall, Hanna & Huey, 2013; Foley, Mather & Corrigan, 2014). When the findings summarized above are evaluated, it was observed that the pre-service teachers record all their school experiences into video blogs via vlog affected their individual learning, individual presentation performance, individual evaluations, social learning and evaluations positively. Also, these findings can be interpreted according to Social Cognitive Learning of Bandura (2001) and Social Constructivism Theory of Vygotsky (1977). Thus, individuals can learn

some behavior by observing other people and taking them as a model pursuant to their experiences. The individuals that have the opportunity to observe and evaluate others via vlogs can direct their own learning also by recognizing their self-regulation skills.

It was determined that the negative opinions of the pre-service teachers about the limitations of vlog usage in "school experience" course mostly based on the psychological-physiological reasons like tension, excitement, shyness. Similarly, also in the researches related to the micro-teaching implementations in which pre-service teachers are required to speak in front of video camera (Peker, 2009; Karataş & Cengiz, 2016), it was concluded that pre-service teachers got too much excited and this led to negative effects. This may be originated from the individual's environment, social, cultural, economic and physiologic conditions or the individual's psychology, his/her deficiency of knowledge and skills (Sargın, 2006: 14). Thus, sometimes it is observed that some people are very hesitant to speak in front of the community (when we consider that vlog videos address a community and they are available to be watched over and over) although they are well equipped, cultured and who are very good at dual conversations (Gürzap, 2007).

Most of the opinions about the technical limitations are based on the correction of the shootings that had mistake and rehearsing by writing before the shooting. The confidentiality concern is a remarkable finding although its frequency is little and it has a critical importance for the students to use internet based technologies like vlog. Internet, as a media, brought about some problems (İçel & Ünver, 2012). As the personal data on internet may affect the lives of individuals directly, the confidentiality of the data should be provided and they should be kept away from being changed improperly (Chander, Gelman & Radin, 2008). Thus, the privacy settings (like forming out of list videos, sharing videos for only intended people) in YouTube is a feature that should be highlighted, as, on the one hand it tries to keep users to be negatively affected from the content, and on the other hand it shows respect to the right of the individual to remain anonymous (right to privacy). On the other hand, when the opinions of the students in individual terms about vlog usage were examined, it was determined that they found vlog usage as extra work and they had difficulties in planning.

Future Recommendations

Integrating YouTube and the other social media into the learning environments will contribute to the emergence of new learning models. Within the scope of this research, it can be mentioned that carrying out school experience course with vlog support for 14 weeks and the diversity of shares in the classroom are effective for reaching the aims of the course. As the students used a social media like YouTube throughout a term without having problems may promote the acceptance of similar technologies in their learning experiences. Accordingly, specific measuring tools can be developed related to the cognitive and effective variables on vlog (such as attitude, self-efficacy, self-assessment) and the number of relational researches can be increased. Especially, when it is thought that mobile devices and internet usage is common in universities, vlogs can be considered as e-portfolio product. As the results of the research are limited to the students of "science education department", it is considered that the researches that will be carried out with the students studying in different departments may result in different educational aspects. Also, increasing the number of researches that suggest forming educational videos in different contents with vlog or other than vlog in the classroom environment will make the integration of this technology into education easier. Also, applied studies can be performed in different education levels by

examining the literature demonstrating that the online video blogs promote dialogue learning (Jackson & Wallin 2009; Kellner & Kim 2010).

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The Perception of Pedagogical Formation Students have towards Educational Concepts: Metaphoric Study*

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Abstract

The aim of this study was to evaluate the perceptions pedagogical formation students have about basic educational concepts, such as education, school and class. The research was designed as a phenomenological study, a qualitative research method. The use of metaphors was used as the method of data collection. With this in mind, a structured question form was used to determine the metaphors the research group had developed with regards to certain concepts. The first part of the question form asked participants demographical information. The second part of the question form asked pedagogical formation course trainees what they would liken research concepts to and why. The data was then subjected to content and descriptive analyses through the use of metaphorical analysis. The study group was determined by the convenience sampling among the trainees who attended the pedagogical formation program given by the Faculty of Education at Akdeniz University during the fall and spring semesters of 2015-2016/2016-2017. 500 question forms gathered from pedagogical formation trainees were evaluated. Overall, the results revealed a holistic open system definition with an eclectic point of view, although the thoughts about the concepts of education, school and class were diversified in the study. Besides, pedagogical formation trainees seem to have a positive perception of the concepts of education, school and class. However, the results offer two different possible interpretations of the concepts. The first of these interpretations is that the participants interpreted the concepts of education in an ideal world. Accordingly, opinions about the concepts of education, school and the classroom are positive. The second interpretation reflects the actual practice. Accordingly, this points to the existence of an education and training environment far from fulfilling the expectations of these concepts.

Keywords: education, school, class, pedagogical formation, prospective teacher

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Pedagojik Formasyon Öğrencilerinin Eğitim Kavramlarına ilişkin Algıları: Metafor Çalışması

Öz

Bu çalışmanın amacı, pedagojik formasyon öğrencilerinin eğitim, okul ve sınıftan oluşan temel eğitim kavramlarına ilişkin algılarının değerlendirilmesidir. Araştırma nitel araştırma yöntemlerinden olgubilim çalışması olarak desenlenmiştir. Veri toplama yöntemi olarak mecaz kullanımından yararlanılmıştır. Bu amaçla çalışma grubunun kavramlara ilişkin geliştirdikleri metaforları belirlemek üzere oluşturulmuş yapılandırılmış bir soru formu kullanılmıştır. Soru formunun birinci bölümünde katılımcıların demografik bilgileri sorulmuştur. İkinci bölümde ise pedagojik formasyon kursiyerlerin verilen kavramları neye benzettikleri, nedenleri ile istenmiştir. Veriler, metaforik çözümlemelerden yararlanılarak içerik analizine ve betimsel analize tabi tutulmuştur. Çalışma grubu 2015-2016/2016-2017 güz ve bahar dönemlerinde Akdeniz Üniversitesi Eğitim Fakültesi'nde pedagojik formasyon programına katılan kursiyerlerin arasından amaçlı örnekleme yöntemlerinden kolay ulaşılabilir durum örneklemesi ile belirlenmiştir. Bu çerçevede 500 pedagojik formasyon kursiyerinden gelen soru formu değerlendirmeye alınmıştır. Genel olarak değerlendirildiğinde çalışmada; eğitim, okul ve sınıf kavramlarına dair düşüncelerin çeşitlendiği görülse de sonuçlar, eklektik bakış açısı ile bütüncül açık bir sistem tanımını ortaya koymaktadır. Bunun yanısıra, pedagojik formasyon kursiyerlerinin çoğunluğunun eğitim, okul ve sınıf kavramlarına dair olumlu algıya sahip oldukları görülmektedir. Ancak sonuçlar, kavramların iki tür yorumunu ortaya koymaktadır. Bu yorumlardan birincisine göre katılımcılar eğitim kavramlarını idealize ederek yorumlamaktadır. Buna göre eğitim, okul ve sınıf kavramlarına dair görüşler olumludur. İkinci olarak, yapılan yorumlar uygulamalardaki durumu yansıtmaktadır. Buna göre ise kavramlar beklentileri karşılamaktan uzak bir eğitim öğretim ortamının varlığına işaret etmektedir.

Anahtar Sözcükler: eğitim, okul, sınıf, pedagojik formasyon, öğretmen adayı

Introduction

Human capital equipped with 21st century skills and the ability to develop manpower pursuant to different domains of expertise is one of the preferred topics talked about in our day. The responsibility of cultivating manpower pursuant to certain specialist domains deemed necessary by society has been left to teachers as a necessity of the science-information age (Sabancı and Şahin, 2006).

In our country, thousands of teachers participate in our education system every year. Are we even able to strengthen our education system with this community of teachers? Or on the other hand, are we weakening our education system? Do prospective teachers see the teaching profession as a gate to a career and a source of livelihood, or do they have the wish and desire to become a member of a dedicated profession group? Many such questions need to be answered in terms of teacher employment and quality of education.

Teacher candidates' idealism, vision, and perspective with regards to the future of education shape their attitudes towards teaching profession. In this respect, the overall perspective of individuals ranging from prospective teachers to actual educational shareholders with regards to the educational system in general is of importance for both the individual as well as the social benefits of the school. When teacher candidates begin the profession, their perspective and vision with regards to their profession and in particular education are also important with regards to the success of the education system. This is because teachers' attitudes towards their profession have a very important place in education-teaching activities, and they are important variables for success in the teaching profession (Can, 2010; Çakır, 2005; Çakır, Kan and Sünbül, 2006). In addition to developing a positive attitude towards the profession in terms of obtaining professional success, it is important that the individuals are prepared both cognitively and emotionally as well as with regards to skill. This again is in relation to their attitude towards the profession (Eraslan and Çakıcı, 2011). In this regards, the development of teachers along with their attitudes towards the teaching profession will bring about positive results in terms of the success of the teachers and the education system (Eraslan and Çakıcı, 2011). Likewise, professional expectations, perspectives, and values related to teaching are important in the preference of the teaching profession (Akbaba, 2002; Altınkurt, Yılmaz and Erol, 2014). For this reason, Akbaba (2002) points out that it is necessary to instill in teacher candidates attitudes and behaviors related to teaching from a very early age. In addition, Akbaba (2002) points out that individual skills, interests, values and personality characteristics are important in the teaching profession as she expresses that individuals with personality traits required by the teaching profession should be chosen for the teaching profession.

In our education system, teacher needs were met through the incorporation of different teacher training programs throughout the years. This process has continued in our Republic through teacher training schools (muallim mektepleri), primary teacher training vocational courses (ilkmektep muallimleri meslek kursları), secondary teacher training schools (orta muallim mektebleri), schools of primary teacher education (ilköğretmen okulları), rural teacher schools (köy muallim mektepleri), village institutes (köy enstitüleri), teacher training institutes (eğitim enstitüleri), higher teacher training colleges (yüksek öğretmen okulları) and education faculties (eğitim fakülteleri) (Akyüz, 2001; Eraslan and Çakıcı, 2011; Yıldırım and Vural, 2014; MEB, 2015). During some periods in our history, many teachers were appointed regardless of their qualities through expedited training programs such as obtaining a teaching diploma in 40 days, pedagogical formation courses in the form of on-the-job training using teachers trained through Teacher Training Course Centers by Correspondence,

non-thesis graduate programs and pedagogical formation education certificate programs in order to fill the lack of teachers (Akyüz, 2001; Baskan, 2001; Eraslan and Çakıcı, 2011; Günçer, 1998; Korkut, 2002; Sabancı and Şahin, 2006; Tekışık, 2003; Yıldırım and Vural, 2014; YÖK, 1998; MEB, 2015). Thus, the quantitative dimension with regards to teacher education and employment policy took priority over quality (Azar, 2011; Sabancı and Şahin, 2006). As for today, teacher employment continues from two basic sources. The first is education faculties and the second is pedagogical formation education certificate programs (MEB, 2015; MEB TTKB, 2014, YÖK, 2017). However, various teacher training programs within the process, especially pedagogical formation programs which allow educated people to become teachers, have been a topic of debate in terms of their effectiveness and sufficiency as well as the motivation, attitudes and sufficiency of the prospective teachers trained through these programs (Altınkurt et al., 2014; Can, 2010; Çakır et al., 2006; Eraslan and Çakıcı, 2011; Günçer, 1998; Korkut, 2002; Oral, 2000; Tekışık, 2003; Yıldırım and Vural, 2014). In this manner, much research has been done in recent years to determine pedagogical formation programs (Yıldırım and Vural, 2014) and pedagogical formation students' perceptions and attitudes towards the teaching profession (Bağçeci, Yıldırım, Kara and Keskinpalta, 2015; Özdemir and Demircioğlu, 2016; Özkan, 2012). However, not many studies have been done to determine the perceptions of these prospective teachers using a different technique, that of metaphors.

The need for pedagogical formation programs came about during a period of time where there was a lack of teachers educated in education faculties. However, nowadays, there is a surplus of teachers educated in education faculties. Despite this, formation programs continue. While the number of prospective teachers in many branches has become too much, teachers are continuing to be accepted from formation programs. Rather than strengthening the base of teachers educated in education faculties, evening education programs were decided to be closed, and the procurement of teachers from different sources continues to increase. One of the debates with regards to the quality of the education system is about the attitude of the prospective teachers developed through different sources (Sabancı and Şahin, 2006). On this point, this research is attempting to determine the perspective of teacher candidates educated through pedagogical formation certificate programs, one of two sources in teacher education, using metaphors with respect to basic concepts concerning education.

In educational research, metaphors can be used as useful conceptual tools. One of the common reasons why metaphors are used in educational research is to illustrate and explain a concept so that it can be communicated effectively with the target audience (Midgley and Trimmer, 2013). Metaphors arise from the interaction of language and thought, thought transforming into language. Metaphors are used not only in literature but also in daily life. Many branches of science use the metaphor as a data source (Tepebaşılı, 2013). In fact, metaphors are tools that enable us to understand and give meaning to an experiential experience (Lakoff and Johnson, 2015). In the process of creating metaphors, the general purpose is to use concrete objects to bring light to abstract concepts. Metaphors have such functions as 1) enriching vocabulary, 2) focusing, 3) stimulating the imagination, 4) discovering immaterial domains, 5) transmitting and triggering emotions, 6) creating aesthetic appeal, 7) entertaining, 8) transmitting moral values, and 9) warning behavior (Tepebaşılı, 2013).

Metaphors help us frame our human experience and enable us to depict our world in a unique way. The essence of metaphors is to understand, comprehend and feel something through something else which is more concrete, more familiar and more visible (Lakoff and

Johnson, 1980; Zhao and Huang, 2008). Metaphors are not just speech patterns, but they also create the necessary mechanisms that allow our brains to model and acknowledge past experiences. For this reason, metaphors can be understood as the psychological modeling experience leading to new forms of conceptual understanding (Zhao, Coombs and Zhou, 2010).

Metaphors reflect our minds and influence our behavior. In other words, metaphors reflect our cognitive approaches. Thus, metaphors can be regarded as linguistic behaviors and thought schemes (Tepebaşılı, 2013). Metaphorical thinking is inevitable and mostly unconscious (Lakoff and Johnson, 2015). In this respect, metaphors can be regarded as the best, most objective and most reliable way of expressing emotions (Tepebaşılı, 2013). In this way, metaphors enable us to visualize what we have accumulated in our prior knowledge and experiential experiences in consequent subconscious concepts. They bring the reality in our subconscious to the surface. Individuals have the ability to manipulate when explaining their thoughts. But with metaphors, the situation is a bit different and our consciousness enters into the picture. As a result, the subconscious works more uncontrolled and unbridled. In this case, the individual expresses his or her real thoughts with relation to specific events and phenomena. That is why metaphors are important in terms of revealing feelings and thoughts that an individual is not aware of.

Concepts such as education, school and the classroom that are commonly seen as isolated are, in fact, a part of the whole education system. The combination of the thoughts and experiences of individual concepts can give us a better idea with regards to the whole. The metaphor of each singular concept and the internal consistency of these metaphors together in the whole have the potential to give an idea of the prospective teachers' perceptions of our educational system. From this perspective, this study purposes to analyze the perspective pedagogical formation certificate program trainees have towards the organization they are candidates with through the analysis of their emotions and thoughts with relation to various educational concepts presented in this study.

The pedagogical formation certificate program gives an opportunity to prospective teacher candidates to reshape the system in the future through identifying their perceptions, revealing new dynamics, different perspectives, dynamic energy and creative practices from different sources, and it emphasizes a more realistic relationship between theory and practice through more comprehensive and profound studies. This research presents an idea regarding whether or not human sources that are developed in different fields and are now teacher candidates are part of an effective and efficient learning teaching process. However, there is a debate about whether or not these certification programs can be evaluated as a permanent source of teacher training. In doing so, scientific quality metaphorical data on the perceptions of pedagogical formation certification program candidates were obtained and in light of this data, it was attempted to analyze, discuss, evaluate, and develop a vision for the future with regards to the teacher development system.

Revealing the actual feelings of the teacher candidates towards the education system and the various roles in the system 1) will provide a strategy for how to train prospective educational personnel 2) will allow us to determine the data teacher candidates give themselves, their idealism, wishes and desires towards the teaching profession.

In this context, metaphor was used as the method of data collection in the study. The aim in the study is not to question the reasons for this but to get an impression about the

quality and the future of the education system through the questioning of the perceptions of those who come from this particular source.

Method

Research Model

In this study, which aimed to determine in depth the perceptions of pedagogical formation students with regards to basic education concepts such as education, school and class. A qualitative research method, that of the phenomenological study, was used. Büyüköztürk, Çakmak, Akgün and Demirel (2010) indicate that qualitative research methods may be more appropriate in researching human perceptions. Phenomenological studies attempt to determine in depth the perceptions of and reactions to an event go, based on the experiences of individuals (Fraenkel, Wallen and Hyun, 2011). In other words, we focused on phenomena that we are aware of though we do not have an in-depth and detailed understanding of it (Yıldırım and Şimşek, 2011). At the same time, the study was based on cognitive theory regarding metaphors as it was used as a means of data collection. The cognitive approach has increased the relevance of metaphors and has been used as a qualitative research method of data collection in many disciplines such as medicine, literature, education, psychoanalysis and business. According to cognitive understanding, one of the important tasks of metaphors is to explain and bring understanding to abstract concepts (Tepebaşılı, 2013). Metaphors are important sources for the visualization of the inner worlds of people, their ways of thinking, making something concrete through the use of words, and the links between knowledge and experience. One of the attractive aspects of using metaphors in research, as a methodological method is the ability to make knowledge and life experiences relevant and meaningful and relate them to each other through the use of metaphors (Black, 2013).

Study Group

The study group was determined through the convenience sampling among the participants who attended the pedagogical formation program at Akdeniz University Faculty of Education during the fall and spring semesters of 2015-2016 / 2016-2017. Convenience sampling gives speed and practicality to research (Yıldırım and Şimşek, 2011). 500 question forms gathered from pedagogical formation trainees were evaluated. However, some participants did not answer all the questions. Therefore, there were differences in the number of metaphors produced for the concepts of education, school and class. The demographic data of the study group was presented in Table 1.

500 pedagogical formation course trainees voluntarily participated in the study. 74.8% (374) of the trainees were female; 25.2% (126) were male. The average age of participants was 27.22 years old.

Table 1. *Demographical characteristics of participants*

Pedagogical Formation Trainees (N=500)				
		N	**%**	**Branches/Departments**
Gender	Female	374	%74,8	Accounting and Finance (27), Agricultural Eng. (14), Agriculture Tech. (2), Architecture-Structural Design (1), Biology (13), Business Administration (13), Ceramics (3), Chemistry (19), Communication (12), Computer Eng.-Information Tech. (5), Economics (1), Electrical-Electronics Tech. (1), Engineering (2), Environmental Health (1), Family and Consumption Sciences (2), Finance (1), Food Eng.-Tech. (12), Foreign Language (16), French (1), Graphic Design (10), History (16), History of Art (2), Journalism (7), Justice (21), Laboratory Service. (1), Landscape Architecture (4), Literature (16), Marketing (5), Mathematics (8), Music (13), Philosophy (24), Photography (5), Physical Education and Sports (10), Physics (7), PPE (1), Psychological Counseling and Guidance (9), Psychology (8), Public Administration (4), Public Relations and Publicity (25), Radio Cinema TV (16), Renewable Energy Tech. (1), Sculpture (2), Sociology (51), Textile Tech. (1), Theology (41), Traditional Hand Crafts (3), Tourism (38), Transportation Services (1), Travel (1), Visual Arts (3)
	Male	126	%25,2	
Age	20-25 years	255	%51,0	
	26-30 years	139	%27,8	
	31-35 years	53	%10,6	
	36-40 years	36	%7,2	
	41-45 years	11	%2,2	
	46-49 years	6	%1,2	

Data Collection Tool and Data Collection Process

The use of metaphor was used as a method of data collection. To this end, a structured question form was used to determine the metaphors the study group has developed about various concepts. In the first part of the question form, the demographic information of the participants was asked. In the second part, the opinions of pedagogical formation trainees with regard to basic education concepts such as education, school and the classroom were asked. Participants were asked to describe these concepts along with their reasons for answering the way they had. The questions were asked in the following manner. *"Education is like ....., because ....."*

The items in the questionnaire were explained one by one and through mutual interaction, and participants were requested to write their answers honestly. Each participant was asked to answer the questions on their own, and they were prevented from influencing each other. While the participants filled out the questionnaires given to them, the researchers walked around and gave any necessary explanations to the questions asked by the participants and provided the necessary environment and facilities for the participants to provide in-depth information through the providing of mutual interactions (interviews) between the participants and the researchers. It took an average of 27 minutes for participants to fill out the questionnaires. Participation in the survey was completely voluntary, and no questionnaire was distributed to anyone who did not want to participate.

Analysis of Data

The inductive content analysis and descriptive analysis techniques were used together in the analysis of the qualitative data obtained. For the analysis of qualitative data, the NVivo qualitative research program was utilized. During the descriptive analysis phase, a thematic

framework for data analysis was established primarily through the conceptual framework of the research and by way of the research questions. Later, according to this thematic framework, the findings were combined in a meaningful and logical way, and the metaphors used were metaphorically analyzed and collected according to each relevant question. Then, by using inductive content analysis, these data were coded, and based on the relations between the codes, themes were generated and the findings interpreted. The purpose of inductive analysis is to reveal the underlying concepts of data and the relationships between them through coding. Direct citations have also been included in the study in order to dramatically reflect the views of the participants (Yıldırım and Şimşek, 2011). During the process of metaphoric analysis, image fields were created that contain the meanings of each source, starting from the logical basis of metaphor-generating methodology (Tepebaşılı, 2013). Care has been taken to use the images that best reflect the participants' sense of meaning and thought when creating the images.

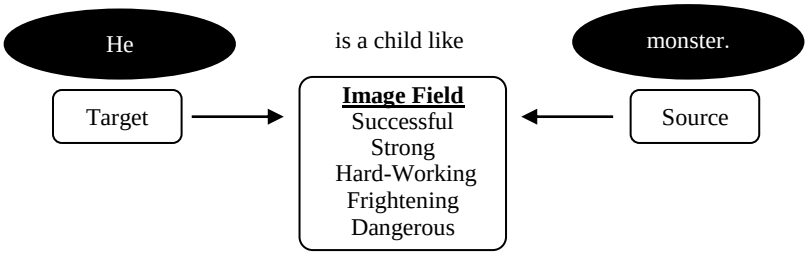

Figure 1. *The metaphor generation process (Tepebaşılı, 2013)*

While the images evoked by the source codes were being created, the knowledge and experience of the researchers and the Turkish Language Institution's Online Current Turkish Dictionary (2017) were used. In addition, during the analysis process of the data, codes such as A12, F02 were used for the participants in order to hide their personal identities.

Validity and Reliability Studies

During the course of the analysis of qualitative data, a road map was established using the criteria and thematic framework generated through the study's conceptual framework and research questions prepared by the two researchers in order to provide harmony and coherence in the analysis of the data. During the analysis, all data were analyzed together through the NVivo qualitative research program according to the determined roadmap in terms of cohesion and adaptation. This process, which is carried out during the analysis stage, is important both in terms of determining the validity as well as the reliability of the qualitative data.

The researchers' collaborative analysis has increased the credibility of the research through the debating and negotiating of the process of coding and conceptualization and thereby ensuring consensus and ensuring that the final codes and themes coincide with the views reflected by the common opinion of the researchers. The research findings were then shared among the three classes of pedagogical formation program trainees, and they were asked to confirm them by reading whether or not the findings accurately reflected their views. Participants' opinions on the findings were found to be consistent with the results of the research. This in itself is accepted as an internal validity factor. The inclusion of the views of pedagogical formation trainees with different demographic characteristics and the consistency of these views increase the external validity of the research. The openness of the

research process, the archiving of raw data and its openness to being checked if deemed necessary also improves the reliability of the research (Yıldırım and Şimşek, 2011).

Findings

In this section, the findings of the analysis of the pedagogical formation students' perceptions related to basic education concepts such as education, school and the classroom were presented.

Table 2. *Metaphorical analysis of the concept of education*

Themes	Codes (Sources)*	Image Field	n
Existence	Life's Building Block (20), Water (19), Breath (13), Soil (7), Air (11), Basic Need (4), Rain (2), Necessity (1), Sun (1)	Four Elements (Air, Water, Soil, Fire), Abundance, Vitality, Life Symptoms, Respiration, Living Environment, Life Source, Liquid, Heat	78
Source of Change and Development	Tree-Forest (24), Sapling (10), Flower (7), Seed (4), Love (3), Desire for Freedom (3), Growth (2), Summit (1), Knowledge and Skill Accumulation (1), Future (1), Foundational Stone for Development (1), Agriculture (1)	Multi Purpose, Able to Produce Fruit, Long Life, Whole Trees, Growing and Strengthening, Mineral, Water, Sunlight, Carbon Dioxide (Composed of Four Elements), Fine, Long, Delicate, Grace, Freshness, Open to Growth, Reproducible, Offspring, Generation, Loyalty, Passion, Independent Thought, Volition, Puberty, Desire to Reach the Peak, Mastery, Production, Quality, Yield, Planting and Harvesting Process	58
System	Macro System: Ocean (6), Sea (6), Sky (3), Stream (3), Space (2), Infinity (2), Nature (1), Universe (1) Micro System: Family (11), Ladder Rung (3), Road (3), Chain (2), House (2), Sand (1), Adaptation (1), Lego (1), Color (1), Bridge (1), Ivy (1), Spider Web (1), Factory (1), Industry (1)	Macro System: Universe, Eternity, Profound, Ocean (Upper System), Connection with One Another (Salt Water Culture), Wide Area, Multiplicity, Density Micro System: The Smallest Unity in Another (ships, Unity of Purpose, Group, Agreement, Cluster, Order of Steps, Target, Bed, Attitude, Behavioral Form, Intertwined Past Connections, Series, Dwelling, Unit, Effect, Scattering, Dissolution-Integration, Adaptation, Comprehension, Understanding, Meaningful Unification, Variable Collectivity	54
Lifelong Learning Process	Lifelong (28), Process (5)	Birth Death, Repeat, Progress, Development, Unending, Cycle	33
Basic Needs	Nutrition (8), Honey (3), Fruit (3), Breakfast (1), Vitamin (1), Food (1), Bread (1), Pastry (1)	Food, Abundance, Vital Food, Product, End, Profit, Different Needs, Cumulative Knowledge, Stability, Experience, Special Taste, Relativity,	19
Source of Enlightenment	Light (5), Sun (3), Lamp-Lantern (2), Compass (2), Key (1), Eyewear (1)	Light, Lover, Illuminated Tool, Guide, Illuminator, Happy Glow, Light and Heat Source, Illuminating Tool, guide, Directional Indicator, Determining Factor, Transducer, On/Off Switch, Tool	14

		to See Better	
Diversity	Human (4), Mirror (2), Ability (2) Development (1), Fingerprint (1), Adventure (1), Patience (1), Glass (1), Experience (1)	Living Creature able to Think, Uniqueness, Outstanding, Objective, Reflection, Differentiating Individuals, Ability, Identification, Unique, Adventure, Endurance, Waiting, Transparent, Experience	14
Academic Development	Library (2), Book (2), House of Science (1), Learning (1), Teaching (1), Invention (1), Discovery (1), Research Center (1)	Knowledge Bank, Bookshelf, Work of Art, Place Open to Everyone, Best Friend, Reading, Gaining Knowledge, Gaining Abilities and Skills, Behavioral Change, Giving Information, Schooling, Basic Right, Necessity, Creativity, Learning Something Knew Using Prior Knowledge, Methodical Studying, Newness, Development	10
Protective and Remedial Impact	Drug (4), Vaccine (3), IV-Serum (1)	Remedy, Healing Agent, Healing, Protecting, Preventing, Immunization, Disease Prevention, Beneficial Nutritional Strengthening Fluid	8
Gem	Diamond (1), Certified Diamond (1), Treasure (1), Inheritance (1), Wealth (1), Unopened Lock (1), Iron (1)	Bee, Pure, Transparent, Depth, Precious, Processed, Precious, Brilliant, Accumulation, Wealthy, Tool for Protection, Strong, Power, Hard	7
Emotional and Social Development	Painting (2), Art (2), Film (1), Foundation (1), Makeup (1)	Visual Product, Art teaching a visual product, Creativity, Mastery, Skill, Expression of emotions and thoughts, Spiritual Intelligence Manifesting in the Body's Outward Expression, Socialization, Impressionism, Artistic Work, Something that Shows Homogeneity, Beauty, Beautification through Change, Correction	7

* The numbers in brackets refer to the frequencies of the codes.

Table 2 shows that pedagogical formation trainees most relate the concept of education to the metaphor of existence. Most of the participants emphasize the importance of education in terms of human life and this importance being to a high degree as associated education with basic living sources such as air, water, soil, fire and building blocks of life. When source metaphors used by the participants are examined, images such as vitality, life signs, life fluid, life source, etc. emerged, which the participants tried to express. In these cases, it can be said that the participants pointed to education as one of sine qua non in terms of the person's age. In this regard, A41 related education metaphorically to one of the foundational sources of life by saying, *"Education is like water, because man cannot live without water. Education cannot be in question in society."* On the subject, another participant indicated the importance of education by saying, *"Education is like breathing, because humans die if they do not breathe as necessary. Those who do not receive education will also die."* (A29). B34 likened the concept of education to the air that is unavoidable for educational life by using the metaphor of oxygen: *"Education is like oxygen, because no one can live without."* Similarly, to I37 shared that *"Education is like oxygen, because there is no life without education."* E14 likened education to soil explaining his thought as *"Education is like soil, because you reap what you sow. Good education is a good result."*

The second theme that was most related to the concept of education by participants is that education is seen as a source of change and development. Participants used metaphors such as trees-forests, flowers, seeds, love, and growth to express how they regard education as a source of change and development. These metaphors are evocative of purposefulness, growing, strengthening, producing fruit, reproduction, openness, quality, yield, breeding, harvesting and mastery. A43 explained how education was the tool for change and development by saying,*" Education is like a tree, because every time new knowledge is learned, your branches grow."* Likewise, A48 says: *"Education is like a tree, because as a tree greens, it grows and develops."* C26 relates education to soil by saying, *"Education is like seed sowed, because as long as the seed is watered and fed, it grows, develops and brings forth fruit."*

At the same time, the concept of education has also been associated with systemic collectivity. However, in terms of system collectivity, some participants seemed to be approaching the education from the angle of a macro system and some of them from the angle of a micro system. Education is associated with the macro system, as metaphors such as ocean, sea, sky, space, nature and the universe were used. These metaphors evoke images such as world, eternity, interconnectedness, immensity, multiplicity and wide field. In this regard, A30 concretely expressed that education is a macro system by saying, *"Education is like the ocean, because it lasts forever; you can never bring the end."* Likewise, D30 stated that *"Education is like the ocean, because education is a colorful and deeply diverse, beautiful place."* I9 also stated, *"Education is like the sky, because there is no limit in education. Language is endless. Education is life-long."* Furthermore, A38 said, *"Education is like the universe, because there are always things to learn and discover."* Finally, E24 stated, *"Education is like a river, because it heads for the final point by receiving a lot of information from various different sources."* Participants who regarded education as a micro system used metaphors such as family, ladder, road, chain, house, unwrapped. In the image fields created to better understand the feelings and thoughts underlying these metaphors, concepts such as unity in purpose, the smallest unity in relationships, cluster, the order of steps, intertwined past connections, harmony, diversity in unity, and the meaningful unification emerge. It is important for the participants who perceive education as a micro system to be able to relate education with other systems. In regards to this topic, some participants expressed their views as follows: *"Education is like a chain, because a single chain of rings is no good but when they come together they can create influence and formation." (A19), "Education is like a chain, because if any chain link is lacking, such as family, school, student, teacher, the whole cannot come about." (A20), "Education is like a ladder, because if you cannot take the first step, you can not progress higher." (I43), "Education is like family, because education first begins in the family." (B60),* and *"Education is like ivy, because it surrounds everything and continues to grow." (E7).*

Another idea expressed by the participants with regards to education was collected under the theme of a lifelong learning process. Regarding this theme, the participants use lifelong and process metaphors. When the images of these sources were examined, it was seen that education was emphasized to be a process which progresses from birth to death, advances, repeats and develops. B17 supported this by saying, *"Education is like life, because it is lifelong and should continue to develop throughout one's lifetime."* Likewise, B39 stated, *"Education is like life, because it exists in every period of life and is a part of life."* Also, D18 says, *"Education is like life, because it develops and changes throughout the process."*

Education is also seen as a basic need by some of the participants. Participants with this idea related education to such sources as meals, honey, fruit, breakfast, vitamins, breads and food. During the process of portraying these sources through images, they have come to mean things like food, fullness, things that cannot be done in the body and things that should be done with the help of external support. From here, it can be said that the participants who expressed their views on this issue seemed to relate education to basic necessities in terms of sustaining human life. E14, F15 and E11 support this idea as follows:

Education is like eating, because it is essential for every individual to eat (E14).

Education is like morning breakfast, because we do not start the day without breakfast and we cannot live without it (F15).

Education is like vitamins, because though we do not die when we lack vitamins, we do get sick. If we still continue to not take vitamins, our illness can be fatal. The same process occurs in education. We can continue to live without education. However, education is everywhere. I have to refrain from eating anything to keep from taking in vitamins. In order to not receive education, you have to not do anything (E11).

Education is also seen as a source of enlightenment. When these considerations were put into metaphors, sources such as light, sun, lamp-lantern, compass, key and glasses were used. When the images evoked by these sources were examined, it was seen that the emphasis had been placed on the educational guidance, as well as the enlightenment and development of individuals and the collective. On this subject, some participants said:

Education is like an everlasting lamp, because it gives light and knowledge to every new generation with the same eagerness and enthusiasm (C11).

Education is like a compass, because it teaches those that are uneducated how to find their way (C36).

Education is like light, because it shows the way and broadens one's horizons (C9).

Education is like the sun, because as information increases, it spreads knowledge all around it. Knowledge that is continuously alive and ongoing (D2).

Education is like a lantern, because it illuminates our horizon (D41).

Education is like light, because it illuminates the person or place around it (F10).

Education is like the sun, because it pours light on and illuminates everything around it, and everybody gets at least a little light (G20).

Other themes that emerged through expressing education through metaphors were diversity, academic development, protective and healing effect, precious gem, emotional and social development.

Participants who supported the theme of diversity often emphasized reflecting inequality, individual differences, diversity and talents using sources such as human, mirror, ability development and fingerprinting. At the same time, educational diversity and

individual peculiarities were also pointed out due to individual differences. On this topic, F18 stated, *"Education is like a mirror, because society and individuals in society reflect their character and their characteristics."* As for E12, *"Education is like a fingerprint, because it should be peculiar to that person."*

The metaphors used by the participants in relation to academic development were often associated with such things as a knowledge bank, a space open to everyone, skill acquisition, basic right, research, innovation, creativity and development. In short, academically education is seen as a source and means of development. On the subject, E33 point this out by saying, *"Education is like a library, because it gives information and upon fulfilling its purpose it gives direction to life."* D38 states, *"Education is like a library, because the information is developed and updated."* Likewise, A33 states, *"Education is like a book, because no matter how much you read it, it never ends."*

As for the protective and remedial impact of education, it becomes clearer as A2 states, *"Education is like medicine, because if medicine is taken, a person heals; otherwise, s/he gets worse."* B26 says, *"Education is like a vaccination, because education protects us from evil."* Finally, E13 states, *"Education is like an IV, because it is made up of vitamins and minerals which will bring immediate benefit to us. It has the power to heal us; education is similar to an IV."*

Education is also seen as a valuable gem. Participants used metaphors such as diamond, certified diamond, treasure, and iron in this analogy. When these metaphors are envisaged, they have meanings like precious, strong, power, accumulation, pure, depth. In fact, it can be said that education is a very valuable system for many people and societies, and besides its value, it is also a powerful tool at the same time. A42 emphasizes that when it is used it makes people stronger and more durable by saying, *"Education is like iron, because the luminous iron does not rust."* B21 emphasizes the importance of education by saying, *"Education is like a treasure, because it is valuable. Its value should be recognized."* B31 mentions that education is already important and valuable, but much more valuable, useful and effective for those who know how to use it and benefit from it by saying, *"Education is like a diamond, because it is valuable for those that know how it is forged."*

Finally, participants emphasized the emotional and social development aspects of education. Participants used painting, art, film, foundation cream and makeup metaphors for this purpose. According to the sources, it can be said that the participant's emotions and thoughts related to the subject conjured up imagery such as the expression of emotions and thoughts, beauty, correction, beautification through change, creativity, mastery. Indeed, B13 supports this by saying, *"Education is like art, because it continues throughout life. It shapes new individuals from scratch."* And B16 states, *"Education is like makeup, because the student becomes more beautiful as s/he is educated."*

Overall, pedagogical formation trainees seem to have a positive perception with regards to education. This is a result that can be evaluated as positive and opportunistic in terms of the education system they are candidates to become members of.

Table 3. *Metaphoric analysis of the concept of school*

Themes	Codes (Sources)*	Image Field	n
Existential Affiliation	Home (78), Nest (37), Family (36), Mother's Bosom (4), Shell (1), Shelter (1), Cocoon (1)	Family, Generation, Kindredship, Unity, Formal Unity, Sitting-Working-Lying Down Room, Eye, Resting Place, Thing Protecting from Evil, Socialization, Protector of the Mind, Covered Place, Longing, Root, Father's House, Domestication, Safe Food, Protection, Decontamination, Commitment, Affiliation, Harbor, Stretching Arm and Wings, Support, Friend for a Bad Day, Relaxed and Peaceful	158
System	Life (15), Field-Soil (12), Tree-root (10), Garden (10), Forest (9), World-Universe-Space (8), Flower (3), Sea-Ocean (3), Body (3), Growing Sapling (3), River Tributaries (1), Oxygen (1), Milky Way (1)	Vegetables, Fruits, Flowers, Soil, Water, Air; Useful and Harmful Creatures to the Plant, Product, Nutrition, Decay, Fertilizer; Tree Community, Peace, Protected Structure, Artificial Eco System, Balanced Internal Relations Network, Different Forms, Respiration-Extraction-Sweating Cycle, Energy Collector, Output, Variability, Pressure, Crop, Sapling, Life-giving, Harboring Life, Universe, Eco-System	79
Task and Responsibility	Continuous Cooperation, Division of Labor, Relationship and Communication: Business-Workshop, Business (8), Beehive (5), Organizational Structure (4), Ship-Captain (3), Kitchen (3), Bank (2), Country (2), Ashure (1), Farm (1), Electric Circuit (1), Anthill (1), Patisserie (1), Building Complex (1), Social Network (1), City (1) Provisional Cooperation, Division of Labor, Relationship and Communication: Factory (16), Harbor-Shelter (8), Car-Bus (5), Bakery (1), Hospital (1), Caravanserai (1), Club (1), Hotel (1), Bus Station (1), Restaurant (1), Public Transportation Vehicle (1), Dining Hall (1)	Earning, Blessing, Ownership, Satisfaction, Meat, Vegetables and Fruit, Spices and so on. The Entirety that Cooks Create, Product, Machines, Bottom-Top Relationships, Input-Output, Energy Give and Take, Social Security, Work Security, Retirement, Lifelong Work, Collaboration, Business Department, Specialization, Information Access, Leadership, Participation, Job Commitment, Job Satisfaction, Whole Built from Parts, Management, Rules Course, Seminar, Conference, Workshop, Interaction, Relationship, Bottom-Top, Boss-Worker, Trial, Practice; Mechanical Components, Gear System, Engine, Fuel, Driver, Motion, Transportation, Transit Accommodation, Landing, Departure, Ground Services, Aircraft Companies' National- International Flights, Transportation, etc. Operation within Business and Relationship Network; Blue-White Collar, Confrontation, Merge, Transition, Connection; Giving, Dining, Entertainment, Service, Bottom-Top Relationships, Inputs, Output Volunteering, Humility, Modesty	73
Harsh	Prison (16), Ward (1),	Trap, Mastery, Death, Cruelty to the Weak,	18

Environment	Spider Web (1)	Restriction, Captivity, Injustice, Prisoner, Pain, Sadness	
Knowledge Bank (Window for the Opportunity to Learn)	Place of Education (5), Information Repository (4), Library-Book (4), Computer (1), Food (1), Lung (1), General Blood Donor (1)	Information Source, Education, Learning, Information Access, Bridge Built between the Person's World and Relationship	17
Dilemma with Regards to School	Negative: Ideology Machine (3), Rules Ordinance-Obeying Authority (2), Lifespan (1), Gum (1), Pencil (1), Control (1)	Distraction Tool, Ideology Transmitter, Developing Similarities, Repetitive, Erratic, Overwhelming, Distracter	17
	Positive: Discipline (2), Longing (2), Smile (1), Value (1), Dream (1), Hope (1)	Door of Hope, Disciplined Life, Source of Happiness, Valuable	
Intellectual Development and Enlightenment	Compass (2), First Point-Beginning (2), Sun (2), Air Conditioner (2), Candle (2), Locksmith (2), Explorer (2),Community Conscience (2)	Illuminating Like the Sun, Radiating, Information Source, Inspiration for Intellectual Development, Curiosity, Inspiring Different Ideas, Creating a Desire to Discover, Refreshing, Security in Stepping Out in Life, Pathfinder, Illuminating the Road, Integrating with the Community,	16
Happy Results	Playground (3), Stage-Theater (2), Exhibition Hall (1), Circus (1), Water Park (1), Palace (1)	Entertainment, Role Diversity, Communication, Costume, Stage, Excitement, Comedy Drama etc. Expressing Oneself, Using Gestures and Mimics, Listening, Reaction, Creativity, Place for Creating Suspense, Love, Criticism, Tolerance, Performance, Visual Richness, Learning, Teaching, Team, Participation, Being a Part of the Group, Leadership	9
Competitive Environment	Hippodrome (1), Race Course (1), Exam (1), Labyrinth (1), Arena (1)	Race, Winner, Loser, Happiness, Sadness, Show of Power, Strategy, Ability, Demonstration	5

* The numbers in brackets refer to the frequencies of the codes.

When examining Table 3, it shows that pedagogical formation students' metaphorical perceptions emphasized an existential affiliation by relating the concept of school mostly with love, loyalty, and a place of refuge providing shelter. Participants used the concepts of home and nursery most when generating metaphors with regards to the concept of school. When these sources of metaphors are analyzed semantically, image fields such as descendants, generation, blood ties, unity, family, socialization, father's house, and purification, place providing shelter, protection, comfort, peace and support come up. These suggest that the school is perceived as a safe harbor for the individual, being a place that protects, strengthens the individual, provides comfort and peace and is connected with love. In this respect, it can be said that the participants have positive perceptions and attitudes with regards to school. A11 states that school is like a part of the family by saying, *"School is like home, because there are classes like rooms in the house. Teachers and students constitute members of a family."* In fact, this statement suggests that the participant cultivate similar feelings of love and devotion they have towards their family towards school, teachers and

students. Another participant made similar statements on the subject by saying, *"The school is like a second home, because people spend so much time there growing and socializing from very early on. The person kind of forms a second family. It shows that family is not just blood ties."* (A25).

The second most used theme according to the participants is the analogy of the comprehensiveness of the school system. Participants expressed this through metaphors such as life, field-soil, tree, root, garden, forest, world, universe, space, sea, ocean, flower. These sources evoke a balanced network of internal relations, cycles, eco-systems, and so on. H36 explains the systematic nature of school by saying, *"School is like steps in life, because it is through these ladders that people reach where they are going."* Similarly, G13 states: *"Education is like life experience, because the whole sum of what you have lived through is called education."*

At the same time, the concept of school was likened to a network of tasks and responsibilities with collaboration, relationship and communication at the center. However, according to the participants' opinions, it can be said that a network of cooperation, relationship and communication must be constantly and temporarily examined under two sub-themes. In this respect, source metaphors were also analyzed under these two sub-themes. When participants' views on continuous cooperation, division of labor, relations and communication were examined, it was seen that metaphors such as workshop, business, bee hive, organizational structure, ship, captain, and kitchen came forth. These sources evoke imagery such as earnings, ownership, satisfaction, production, subordinate relations, input-output, division of labor, business association. In this regard, A30 explained concretely that the school is a place of continuous cooperation, relationship and communication by saying, *"School is like a workshop, because all kinds of materials are reshaped."* Similarly, F43 said, *"School is like a company, because it is a place to produce things."* I51 states, *"School is like a bee hive, because just like bees everyone is gathered in the same classroom for the same purpose."* Finally, F19 said, *"School is like an organization, because teachers, students, personnel, etc. all come together for the same purpose."* Most of the participants who likened school to temporary cooperation, division of labor, relationship and communication network used metaphors such as factory, harbor, car, bus, caravanserai, hotel, bus station. In order to give more meaning to these metaphors, concepts such as transportation, reconciliation, unification, modesty, transition, connection and temporary accommodation along with similar concepts such as relationship, bottom-top, functioning, input-output also emerged. These images help participants understand the reasons for their coming to school and seeing it as a temporary network of collaboration and relationship. On this subject, some participants commented as follows: *"School is like a factory, because the stages of production start here."* (A42), *"The school is like a caravanserai, because it's like a house for a short time. Students are like travelers."* (A54), and*" School is like public transport, because it takes everyone where they want to go"* (C18).

Another thought the participants came up with was the negative perspective that likened the concept of school to places that were painful and distressing environments. With regards to this theme, participants used metaphors such as prison, ward, and spider web. When these sources are examined, images such as trap, captivity, pain, sadness, cruelty, restraint, bondage, deprivation came forth. In this respect, it can be said that the participants who considered schools as painful environments emphasized one of the negative aspects of schools and have had negative experiences with regards to school. In this regard, those who are candidates for the teaching profession need to succeed in their profession in order to

develop positive attitudes towards school. A29 explains his/her thoughts as *"The school is like a prison in today's system, because the repressive and castle-like school walls are quenching people's spirits."* E8 says: *"The school is like a prison, because education is everywhere and should not be mandatory."*

At the same time, school was seen as a window for the opportunity to learn according to some participants. Participants who held this idea used metaphors to liken school to such things as information pool, library, book, computer, nourishment for a place of education, lung, and general blood donor. On this topic, participants created images that acted like a bridge to such metaphoric sources as knowledge base, education, learning, knowledge acquisition, and the person's relationship to the world. As B10 said, *"School is like an information pool, because it teaches us knowledge relating to many fields."* Similarly, C9 stated, *"School is like food, because it teaches something with each bite."* D1 also said, *"School is like a library, because it is the place where we can learn about all subjects."* Also, D37 said, *"School is like a library, because even if there are various kinds of information, the desire for learning depends on the person."* From this point of view, it can be said that school is seen as an area of opportunity for learning.

Another idea that came up was the dilemma that school harbors ambiguity. While some participants seemed to have a positive perception of schools, it could be argued that some of them also have a negative attitude. These differing perspectives on school are a matter of debate as to whether or not schools (traditional communal education) should exist. When the images expressed by the participants through the metaphors were examined, positive images were generally expressed as hope, happiness, value and discipline, whereas negative images evoked concepts such as distraction, ideology, repetition, memorization and overwhelming. With regards to this topic, C3 expressed his/her negative feelings as *"School is like an ideology machine, because the new generation dictates state politics and strict social norms."* However, I39 expressed a positive perspective by saying, *"School is like hope, because we always look forward to the future."*

School is also seen as a window for intellectual development. Participants used metaphors such as compass, sun, air conditioner, candle, first point, locksmith, explorer and public conscience. As for the associating images, concepts like radiating like the sun, feeding curiosity, inspiration, pioneering, unifying came to light. According to the participants who made this analogy, school is seen as an enlightening environment providing intellectual development. Some supporting statements of the participants were:

> *School is like candle, because when it's put out, you will be imprisoned in darkness (A8).*
>
> *School is like a compass, because it always shows the right way, just as a compass does (B34).*
>
> *School is like a locksmith, because it helps us find the key to life (B40).*
>
> *School is like the sun that rises every day, because it enlightens students with fresh light every day (C11).*

Another thought related to school is that schools are seen as a place of entertainment producing happy results. Regarding this theme, participants generally used metaphors such

as playground, stage, theater, exhibition hall, circus, water park and palace. When these sources were examined, imaginative meanings such as entertainment, excitement, stage, costume, comedy, drama, listening, communication, self-expression, creativity, love and criticism emerge. Thus, it can be said that schools are happy and enjoyable learning environments. This positive view of school environment will help teacher candidates develop positive attitudes toward students, parents, colleagues, and other school shareholders. F7 explained this by saying, *"School is like a water park, because you have fun and learn. If you are pessimistic, you will drown in it."*

The last thought regarding school was regarding these environments as competitor and competitive-focused. Participants sharing this idea attracted attention to the school environment by using metaphors such as a hippodrome, racetrack, labyrinth and arena for schools. However, there are two perspectives that emerge with regards to competitiveness and competition. While with one perspective, the parties are happy and is on the winning side, the other party is sad and on the losing side. No matter how much one wins, it can be said that these metaphors have a negative perspective on school. It's to design these school environments and effectively manage them in such a way that everyone is on the winning side and happy. Such expressions of the participants' thoughts regarding schools as competition and ruthlessly competitive are as follows: *"School is like a racetrack, because everyone competes against each other." (*C2); *"School is like a labyrinth, because if you cannot figure out what you want to explain and teach, you will get lost."* (C34); *"School is like a hippodrome, because children are competing in tests such as the TEOG, preparing like they would for a horse race."* (E14); and *"School is like an arena, because students are always asked to win."* (I9).

Table 4. *Metaphoric analysis of the concept of the classroom*

Themes	Codes (Sources)*	Image Field	n
Existential Association	Home (47), Family (42), Nest (20), Room (19), Shelter (10), Socialization Medium (6), Skull (1), Poultry (1), Village (1), Happy Place (1), Cultivated Mushroom (1), Love (1), Father (1), Umbrella (1)	Family, Generation, Kindredship, Unity, Formal Unity, Sitting-Working-Lying Down Room, Eye, Resting Place, Thing Protecting from Evil, Socialization, Protector of the Mind, Covered Place, Longing, Root, Father's House, Domestication, Safe Food, Protection, Decontamination, Commitment, Affiliation, Harbor, Stretching Arm and Wings, Support, Friend for a Bad Day, Relaxed and Peaceful	152
System	Garden (19), Field-soil (9), Forest (8), Flower Garden (6), Greenhouse (1), Leaf (1), Life (1), Air (1), River (1)	Vegetables, Fruits, Flowers, Soil, Water, Air; Useful and Harmful Creatures to the Plant, Product, Nutrition, Decay, Fertilizer; Tree Community, Peace, Protected Structure, Artificial Eco System, Balanced Internal Relations Network, Different Forms, Respiration-Extraction-Sweating Cycle, Energy Collector, Output, Variability, Pressure, Crop, Sapling, Life-giving, Harboring Life	47
Task and Responsibility	Continuous Cooperation, Division of Labor, Communication and Relationship: Kitchen (5),	Earning, Blessing, Ownership, Satisfaction, Meat, Vegetables and Fruit, Spices and so on. Sweeteners, knives, forks, plates, cookers and so on. All	41

	Orchestra (4), Ship (4), Box (4), Place of Business (2), Team (2), Beehive (1), Ashure (1), Choir (1), People (1) <u>Provisional Collaboration, Division of Work, Communication and Relationship:</u> Workshop (4), Bus (3), Health Institution (3), Harbor (2), Airport (1), Bridge (1), Construction Area (1), Hotel (1)	Cookery Creations, Cooperation, Coordination, Leadership, Communication, Socialization, Unified Goal Course, Seminar, Conference, Workshop, Interaction, Relationship, Bottom-Top, Boss-Worker, Trial, Practice; Mechanical Components, Gear System, Engine, Fuel, Driver, Motion, Transportation, Transit Accommodation, Landing, Departure, Ground Services, Aircraft Companies' National- International Flights, Transportation, etc. Operation within Business and Relationship Network; Blue-White Collar, Confrontation, Merge, Transition, Connection; Giving, Dining, Entertainment, Service, Bottom-Top Relationships, Input, Output	
Hurtful Environment	Prison (5), Cage (3), Lantern (3), Sheep (2), Stable (2), Stove (1), Closed Box (1), Boiling Soup (1), Pepper (1), Cactus (1), Dark Room (1), Poultry (1), Bacteria Bed (1), Herd (1), Concentration Camp (1)	Four Walls, Loneliness, Exclusion, Failure, Absence, Communication Barriers, Control, Punishment, Pain, Physical And Mental Stability, Emotional Depression, Exploitation, Use, Benefit, Animal Stable, Feces, Fecal Odor, Obedience, Painful, Burning, Learning through Pain, Learning through Experience, Ignorance, Ambiguity, Learning through Painful Experiences, Burning, Fear, Groping, Filth, Chaos, Chaotic Environment, Difficult to Taste, Thorny Road, Rubbing up to Differences, Becoming the Same, Slavery	25
Happy Results	Theater (5), Playground (4), Aquarium (2), Stage (1), Concert Hall (1), Casserole (1), Place of Entertainment (1)	Entertainment, Role Diversity, Communication, Costume, Stage, Excitement, Comedy Drama etc. Expressing Oneself, Using Gestures and Mimics, Listening, Reaction, Creativity, Place for Creating Suspense, Love, Criticism, Tolerance, Performance, Visual Richness, Learning, Teaching, Team, Participation, Being a Part of the Group, Leadership	15
A Rich and Valuable Positive Environment with Its Differences	Grocery (2), Unity in Diversity (2), Crayon Box (1), Appetizer Plate (1), Ice Cream (1), Seed Storehouse (1), Mosaic (1), Honeycomb (1), Snowflake (1)	Colorfulness, Closeness, One of Us, Diversity, Flavor, Adaptibility, From the Neighborhood, Neighbor Solidarity, Communication, Information Giving-Receiving, Respect for Different Ideas, Variety, Richness of Diversity, Local Values, Taste, Flavor, Fruitfulness, Influence, Individuality, Respect for Values, Collaboration, Division of Labor, Sharing, Involvement, Contribution, Integration	11
Individualized	Battlefield (2), Arena (1),	Race, Win, Passion, Achievement,	6

Beneficial Competitive Environment	Battleground (1), Exam (1), Competition Area (1)	Audience, Competitor, Living and Inanimate Tools for Competition, Fee, Profit, Team, Measure, Evaluation, Grade, Motivation, Certificate	
Window of Opportunity	Dining Table (1), Chance (1), Scratch-Off Tickets (1)	Random Learning, Environment based on Luck, Win, Lose	3

* The numbers in brackets refer to the frequencies of the codes.

When examining Table 4, it is observed that the participants used metaphors most to express the concept of the classroom as an existential association. The evaluation of the classroom as a close environment creating a sense of belonging and safe haven similar to their views regarding school reveals that the participants view the concepts of school and the classroom in a positive light. Metaphors such as home, family, room, shelter and social environment were used. These metaphors refer to family, lineage, bloodline, unity, residing-studying, refuge, protection from evil, socialization, belonging, comfort, etc. The metaphors used by the participants and the images that these sources refer to showed that the classroom is regarded as an environment in which individuals can feel at home, feel love and devotion. In relation to this matter, B12 emphasized that classes should be places that have a positive climate like the home environment physically keeping individuals healthy and comfortable by saying, *"The classroom is like home, because a student spends most of the day at school. We need places that are clean, spacious and inviting. Education should be done well."* F29 in a similar fashion depicts the classroom environment as an environment where a positive climate prevails and socialization is ensured by saying, *"The classroom is like home, because it is where the conversation is; it's the place to socialize."* Likewise, A15 likens the classroom to the family pointing out the student's solidarity and unity by stating, *"The classroom is like a family, because it consists of students in unity and togetherness."* A19 also points out that each classroom is actually a social environment by saying, *"The classroom is like family, because all happiness, hardship, success, and joy are experienced and shared together."*

The perception of the classroom as a system was the second most expressed theme by the participants. Participants expressed their view of the classroom as a system through metaphors such as garden, field, forest, greenhouse, leaf, life, weather and river. It can be said that the images produced from these sources generally conjure up a complete system. In this manner, C16 emphasizes the diversity within the system by stating, *"The classroom is like a garden, because there are different flowers in that garden."* E6 said, *"The classroom is like a field, because produces crop whenever seed is sown."* H27 observed the classroom as a subsystem of the education system by saying,*" The classroom is like earth, because it is the floor of all education."* A37 referred to the sub-parts of the system that are compatible with each other in the system by stating, *"The classroom is like a forest, because there are all kinds of different personalities. The various kinds of animals and plants in the forest resemble the diversity of the students in the classroom."*

At the same time, the concept of classroom was likened to the network of cooperation, relationship and communication just as the concept of school was, and the participants' thoughts are gathered under two sub-themes such as constant cooperation and relationship. When the participants' opinions on continuous cooperation were examined, it was observed that metaphors such as kitchen, orchestra, ship, box, work place, team, beehive, ashure, chorus and people came forth. These metaphors evoke images such as earning, blessing, ownership, satisfaction, unity in purpose, cooperation, coordination, leadership, communication, socialization. On this topic, A11 likened the classroom to a workplace by saying, *"The classroom is like the workplace, because certain people have come together*

(teacher, student) for a purpose: to produce desired behavior." Especially when using the workplace analogy, emphasis was placed on unity of purpose. Nowadays, workplaces along with the home environment constitute the two most basic environments which people spend their life. In terms of life management, being a business owner is a continuously demonstrated action. This action also includes cooperation and communication. In this respect, workplace metaphors are important analogies in terms of demonstrating continuous cooperation and communication. Similarly, C22 states, *"The classroom is like a team, because teamwork should be achieved and success ensured."* D39 also draws attention to the importance of cooperation, communication and coordination by saying, *"The classroom is like an orchestra, because very different elements come together to form a harmonious relationship."*

Participants who thought of the classroom as a temporary collaboration network mostly used metaphors such as workshop, bus, health institution, airport, bridge, construction site and hotel. Concepts such as interaction towards us, relationship, bottom-top, functioning input-output, transition, connection, transportation, reconciliation, unity, modesty, transition, connection and temporary accommodation emerged better revealing the meanings implied by these metaphors. These images helped the participants understand the reasons the classroom was likened to a temporary network of collaboration and relationship.

With regards to this subject, some participants commented: *"The classroom is like a bus, because people come from different places. They all come together for a common purpose."(C36), "The classroom is like a tour bus, because it is the vehicle that allows us to get where we want to go." (F8) and "The classroom is like a bridge, because it serves as a bridge for the information exchange between teacher and student" (F24).*

Another idea that the participants likened the concept of the classroom to, just as they did for the school, was the negative perspective that the classroom is a painful and distressing environment. Regarding this theme, the participants used metaphors such as prison, cage, fan, lantern, sheep, stove, closed box, dark room and so on. When these metaphors were examined, various images emerged such as four walls, loneliness, exclusion, failure, absence, communication obstacles, suffering, punishment, depression, exploitation. In this respect, it can be said that the participants, who think that the classroom is a painful environment, likewise have had negative experiences with regards to school and the classroom as is seen with them using the same analogies for school. E18 thinks, *"The classroom is like a chicken coop, because you always want to get out of it."* I33 stated, *"The classroom is like a cage in the forest, because it restricts freedom."* I45 emphasized his/her negative view of the classroom environment by saying, *"The classroom is like a dark room, because nobody will enter on purpose."*

Another thought regarding the classroom was that they were environments seen as entertainment areas producing happy results. In regard to this theme, the participants used theater, playground, aquarium, stage, concert area, “The Chaos Class” and entertainment venue as metaphors. When these metaphors were examined, various images emerged, such as entertainment, role variety, communication, costume, stage, excitement, comedy, drama, listening, reaction, participation, leadership, love, criticism, etc. In this regard, it can be said that classrooms are seen as happy, pleasurable learning environments. On this topic, A1 stated, *"The classroom is like entertainment, because it is a place to enjoy with friends."* Similarly, B38 said, *"The classroom is like ‘The Chaos Class,’ because there is always something that goes wrong. If need be, it shows its true colors."*

The classroom was also seen as a favorable environment with its colorfulness and diversity. With regards to this idea, participants used metaphors such as grocery, diversity, crayon box, appetizer plate, ice cream, seed storehouse, mosaic, honeycomb and snowflake. In terms of image association, various images emerged such as color, unity of things with different characteristics, sincerity, a piece of us, taste, suitability, solidarity, richness of diversity, respect for different ideas, originality, sharing, participation, division of labor and so on. According to the participants who used this metaphor, individuals with a variety of characteristics within a classroom setting is seen as creating a positive environment in which they find themselves within the framework of such basic values as sincerity, cooperation, solidarity and respect. Supporting statements of some of the participants are:

> *The classroom is like a box of 12 crayons, because it consists of every color (C33).*
>
> *The classroom is like a mosaic, because it is composed of many different people (D41)*
>
> *The classroom is like ice cream, because it becomes more appreciated the more it is shared (E14)*
>
> *The classroom is like a snowflake, because each one seems similar but is actually different, and each one falls somewhere else (H36).*

The class is also seen as an individualized utilitarian competitive environment. Participants sharing this idea drew attention to the classroom using metaphors such as battlefield, arena, field of combat, examination, racehorse, battleground and scratch-off tickets. Some participants pointed to each classroom being a competitive environment by saying, *"The classroom is like a battlefield, because all achievements are achieved either in the physical or the abstract classroom." (B25); "The classroom is like an exam, because befriending it teaches how to struggle in life." (B9); "The classroom is like an arena, because every character in it competes in synergy." (C9); and "The classroom is like a competition, because everyone is in a race. It's all because of social pressure. "(G37)*

The final thought regarding the classroom was related to the fact that these environments are viewed as windows of opportunity. Participants with this idea used such metaphors as dining tables, luck and scratch-off tickets. With regards to this subject, D13 likened the classroom to coincidental learning, an environment based on luck, winning and losing by stating, "*The classroom is like a scratch-off ticket, because if there are good friendships one likes school; on the contrary, they hate it."* Similarly, D8 stated, *"The classroom like luck, because it can be good or bad."* From this point of view, it can be said that the classroom creates an opportunity for learning. However, these expressions can also be interpreted the opposite. In this regards, it is unthinkable that the classroom allows and gives opportunity for learning based on chance and coincidence to happen. The important thing is to always be able to make these environments effective and fruitful and to design them in this manner.

Discussion and Conclusion

According to the perceptions of the participants, it seems that education is essentially likened to things. Metaphors for education have been made using the most basic elements of

the universe. The relation of education to these concepts, which are the main sources of life, emphasizes the importance and necessity of education for life. In short, education is regarded as one of the musts in terms of a person's life. In addition, while explaining the concept of education, the emotional, mental and psychomotor dimensions, which act as sources of change and development, were emphasized as a whole. From this perspective, it can be said that the participants' education is defined as a multi-faceted and lifelong adaptive training and development process in which individual differences are taken into consideration. When emphasis was placed on training and development, attention was also placed on the role of education as protector, strengthener and healer. This is supported by the fact that participants saw education as having a therapeutic nature seeing it as a source of nutrition or likening it to such things as drugs, vaccines and an IV. Another important conclusion regarding education is the concept of a holistic system that internally relational, having different but interdependent parts, and together constituting a greater whole, or, in other words, as the depiction of a grand system. Thoughts related to it as a system included ocean, universe, space and sky at the macro scale and family, sand, ladder step, chain, ivy, factory and spider web at the micro scale. Education was also seen as a source of enlightenment. It can be said that the participants who hold to this idea actually emphasized the guidance of education and the enlightenment and development of both individuals and the community. In a study conducted by the Kart (2016), it was observed that similar metaphors such as the sun, light, candle, and guide were made with regards to the teaching profession.

It was observed that pedagogical formation students' metaphorical perceptions with regards to the concept of school were most associated with places such as love, loyalty and shelter providing protection. These thoughts suggest that schools are, in terms of individuals, a place perceived as protecting, strengthening, comforting and providing peace and affection to the individual just like a safe haven or a family would. From this perspective, it can be said that the participants held a positive attitude towards the school in general.

Similar metaphors made at various places points to the existence of a common perception related to education and school. In particular, both education and school are seen as enlightenment and a window of opportunity in terms of the system's integrity, network of collaboration and relationships, development and change. It was observed that the participants' thoughts regarding the concept of education were hopeful, ambitious, overarching, unifying, and idealizing human differences, rights and freedoms, and yet, on the contrary, saw school as something that eliminates individual differences and places emphasis on individuality through such pragmatic characteristics as competition and individual success, though still seeing it in a positive light. While emphasizing individual differences in education, this emphasis of disappears when school is defined. It was observed that clearly emphasizing it as a place home to collaborative relationships, communication and a network of cooperation it also was seen as a place of temporal relationships. It was striking the little emphasis that was placed on negative aspects with regards to the concept of school such as a spider web, arena, prison, ward, and juvenile detention center. It was also emphasized that school is actually a dynamic place, using metaphors such as anthills and beehives. It can be argued that the participants reflected a difference between the perceived and desired perceptions with regards to the school. Theoretically, although the participants held positive perceptions of school, it can't be said that the school is a fun place in its current state, but rather, on the contrary, the school was seen to be dominant, and as unhappy painful environments restricting freedom. The dilemma that participants reflected in their general perceptions about school in their mind also had the characteristics of being summaries of their evaluations. To sum up, the school is a system. Such a system is a like a home that

serves as a dynamic positive network of collaborative relationships, less entertaining, loving, and able to express itself with a depth of emotion, but not all that fun. In a study done by Nalçacı and Bektaş (2012), they observed that the metaphors produced by teaching candidates likened school to something indispensable, negative, guide, social environment, racing, recreational, formative, developmental, authoritative, and information provider. In a study done by Cerit (2006), such perceptions that likened schools to knowledge and enlightenment, change and development, family, a place of growth and maturation, and emphasizing teamwork were recognized by all participants. In another study conducted by Saban (2008), schools were seen as places of knowledge and enlightenment, places of love and solidarity, centers of discipline and control, and centers of work and study. In other studies which had similar results, Cerit (2006), Nalçacı and Bektaş (2012) and Saban (2008) emphasized that schools were observed to have the indispensible characteristics of being locations of information, enlightenment, change and development and showing love and reassurance as a family would.

When the participants' perspectives on the concept of the classroom were evaluated, it was seen that the concept of the classroom was mostly related to the metaphors that likened it to the idea of a refuge including the concepts of home, family and socialization. The implications of the feelings and thoughts evoked by the concept of shelter indicate that the classes are seen as safe, loving, protective, comfortable and peaceful and supportive positive environments. In addition, the most emphasized perspective was that of being systematic, as was in the case with schools. Emphasis on the systematic characteristics of both schools and classrooms shows the interrelationships of the schools and the classrooms with each other, the top-bottom relationship. While emphasizing the systematic nature of the concept of the classroom, the metaphors used were more associated with positive imagery such as gatherer of energy, life giving, life sustaining, balance, relationship, peace, fertilizer and sheltered structure. This suggests that the classes are positive, energetic, productive, efficient and dynamic environments. Thus, it can be said that the positive potential of the classroom can be that of an even more effective and efficient environment. In fact, the results indicate that classrooms are considered as a sub-system of schools and are important to the success of the school system.

At the same time, the concept of the classroom was likened to a network of cooperation, relationships and communication, just like the concept of school had. Participants' perspectives are divided into two sub-categories, that of permanent cooperation and relationship. When the participants’ opinions on continuous cooperation were examined, it was seen that metaphors such as kitchen, orchestra, ship, box, work place, team, beehive, ashure, chorus and people came forth. These metaphors evoke images such as gain, blessing, ownership, satisfaction, purpose cooperation, collaboration, coordination, leadership, communication and socialization. In the metaphors in particular, noteworthy concepts that came up were unity in purpose, coordination, communication, harmony and satisfaction. It was the sense that these positive concepts should be emphasized in the classes seen as environments based on continuous cooperation. Participants who likened the classroom to a temporary network of collaboration mostly used metaphors such as workshops, buses, health institutions, airports, bridges, construction sites and hotels. Images such as interaction towards us, relationship, bottom-top operation, input-output, transition, connection, transportation, reconciliation, modesty, bond and temporary accommodation emerged in an attempt to better reveal the meanings implied by these metaphors. These images helped the participants understand the reasons they saw the classroom as a temporary network of collaboration and relationship.

Another idea that the participants held regarding the concept of the classroom likened it to a negative perspective that the classroom is a painful and distressing environment, just like the school. When metaphors and associated objects were examined, it can be said that the participants who held this idea had had negative experiences with schools and classes. The important thing is for teacher candidates who have had negative experiences to use this to their advantage and change the underlying perceptions in a positive way improving, developing and creating a positive learning environment.

Another consideration with regard to the classroom was that these environments were regarded as a place of entertainment. According to the participants who held this idea, it can be said that the classes are seen as happy and enjoyable learning environments. However, greater emphasis being placed on its negative aspects suggests that these aspects are more dominant than the classroom being a place of entertainment.

Classrooms are also seen as positive environments that accommodate a variety of color and diversity. According to the participants who made this analogy, individuals with different characteristics together in the classroom and this togetherness creating a framework of such fundamental values as sincerity, cooperation, solidarity and respect was seen as being a positive environment. The class was also seen as an individualized pragmatic competitive environment, attracting attention to competition within the classroom environment. The final thought regarding the classroom was related to the fact that these environments were viewed as windows of opportunity. It can be said that the classroom can be seen as an opportunity for learning. However, these expressions also left room for an opposite interpretation. In this regard, it is unthinkable that classes allow for learning based on chance and opportunity. The important thing is to be able to always make these environments effective and productive and plan activities and designs to achieve that.

However much the body of literature in this field has made findings with regards to the necessity of the pedagogical formation training program (Dündar and Karaca, 2013) the results of this study show that the majority of pedagogical formation trainees have a positive perception with regard to education. This situation can be regarded as an opportunity with regards to the education system that they are candidates of. Indeed, Kart (2016) showed that pedagogical formation students preferred the teaching profession primarily for immaterial reasons and because of this they will be able to take ownership of and perform well in it.

Similar results were obtained in a study conducted by Altınkurt et al. (2014) indicating that the pedagogical formation program students' motivation towards the teaching profession was high. In another study conducted by Kartal and Afacan (2012), it was determined that the pedagogical formation course teacher candidates' general attitudes towards the teaching profession were higher than normal. Similarly, a study conducted by Çocuk, Yokuş and Tanrıseven (2015) showed that the majority of metaphors regarding the teaching profession by formation education teacher candidates were positive.

In reality, all these results show that pedagogical formation students (Nartgün and Gökçer, 2014), who are deeply anxious about the future, both have a positive attitude in regards to the teaching profession and see it as a door to a second chance as well as have a positive perception with regards to the educational system itself based on their own experience.

When evaluated at the holistic level, participants do not have a common and unified idea, but rather, they show a diversity of perceptions with regards to the concepts of education, school and the classroom. However much perceptions were not unified but rather varied, the results reveal an open and holistic definition of the system with an eclectic perspective. Indeed, it is stated that a large number of metaphors are needed in order to explain something at the holistic level, as it is not possible to explain a phenomenon based on a single concept (Saban, 2008). In this regards, there is some evidence that participants have a passive and holistic perception regarding the concepts of education, school and the classroom. It can be said that there is a similar perception regarding the teaching profession. Altınkurt et al. (2014), Can (2010), Kartal and Afacan (2012), Çocuk et al. (2015), Nartgün and Gökçer (2014) and Ömür and Nartgün (2013) indicated that pedagogical formation program teacher candidates generally have a positive attitude towards the teaching profession. As for Başbay, Ünver and Bümen (2009) and Yüksel (2004), they found that the attitudes of the Middle School Teacher Non-Thesis Masters Programs' students towards the teaching profession were high. Positive metaphors related to the concepts of education, school and the classroom in the study can be considered as the basis of these views. In order to give an overall understanding about the findings, the participants' perceptions were given in Table 5.

Table 5. *Summary of the participants' perceptions*

EDUCATION is something that:	SCHOOL is something that:	CLASSROOM is something that:
• is the source of existence. It is a reason to exist. • is seen as a source of versatile change and development. It changes and develops people. • is a system. Like the ecosystem, it is something that has macro and micro inner unity and consistency. • is a lifelong learning process. • it is one of our basic needs. • is an enlightenment source. It enlightens people. It is an intellectual enterprise. • is able to protect and improve. • is like a gem. It is valuable. • is a developmental process that accepts emotional, mental and bodily individual differences as meaningful and existent. • makes the individual valuable and happy.	• evokes existential association. It is a place connected with love. • is a system with inner integrity and varying dynamics. • evokes duties and responsibilities. • develops cooperation, relationship and communication. • is a knowledge bank. It is a meaningful place where people can voluntarily access information that can be used as a window of opportunity for learning. • contains various dilemmas within. There is a perception that it is both happy and painful. • is an environment of intellectual development and enlightenment. • is a competitive environment.	• evokes existential association. It's like a protected area. • is a system with inner integrity and varying dynamics. • evokes duties and responsibilities. • develops cooperation, relationship and communication. • contains a competitive spirit. However, the individualized pragmatic character stands out. • contains various dilemmas within. It is a place of happy results and pleasure. It is a place to find entertainment, witnessing different roles and undertaking those roles. It is also painful at the same time. • is a rich and valuable positive environment with diversity. It is a democratic, colorful and amusing environment that accommodates the differences (mosaic) of each student like a crayon. • is a window of opportunity. • every student in the school is like a snowflake. In essence, each student is unique and without equal.

In conclusion, most pedagogical formation trainees seem to have a positive perception with regards to the concepts of education, school and the classroom. This can be seen as an opportunity in terms of the education system they are candidates to become members of. However, when the results are idealized, it is observed that when talking about the concepts of education, school, and the classroom the perception is positive, but when looking at it practically, there are negative perceptions as well based on unfulfilled expectations.

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YAZIM KURALLARI

Genel Kurallar

Makaleler, A4 sayfa düzeninde olmalıdır. Yazılar düz metin olarak tek sütun halinde yazılmalıdır. Sayfa düzeni yapılırken kenar boşlukları **2,5 cm** olarak düzenlenmelidir. Yazı karakteri "**Times New Roman**" olmalı ve **yazılar 11 punto** büyüklüğünde **tek satır** aralığı kullanılarak iki yana yaslanmış formatta düzenlenmelidir. Başlıklar arasında iki satır aralığı bulunmalıdır.

Makale şablonu dergimizin internet adresinden indirilip üzerinde düzeltmeler yapılarak kullanılabilir.

Başlık

Makalenin başlığı 14 punto büyüklüğünde, ilk harfleri büyük olarak, koyu ve ortalanmış biçimde yazılmalı, kısa ve konu hakkında bilgi verici olmalıdır. Başlığın uzunluğu 8-16 sözcük olmalıdır.

Yazar(lar)'ın açık adı ve soyadı küçük harf olmak üzere, ortalanmış olarak 12 punto ile yazılmalıdır. Yazar(lar)'ın unvanı, çalıştığı yer/bağlı olduğu üniversite, bölümü, şehir ve ülkesi ile e-posta adresi dipnotta özel imle (*) belirtilmelidir.

İngilizce Öz (Abstract) ve Türkçe Öz

Aday makalede sırasıyla İngilizce Öz (Abstract) ve Türkçe Öz yer almalı. İngilizce Öz (Abstract) ve Türkçe Öz 11 punto ile sağ ve soldan birer cm girintili olarak ve iki yana yaslı (justified) biçimde yazılmalı, 200-350 sözcük uzunluğunda olmalıdır. İngilizce Öz (Abstract) ve Türkçe Öz'ün altında 4-8 sözcükten oluşan Anahtar Sözcükler (Keywords) belirtilmelidir.

Başlıklar ve Alt Başlıklar

Makale içinde farklı düzeylerde başlıklar kullanılabilir. Başlıklar aşağıdaki şekilde biçimlendirilmelidir:

Başlık Düzeyi	Biçim
1	**Ortalı, Kalın, Her Sözcüğün İlk Harfi Büyük**
2	**Sola Dayalı, Kalın, Her Sözcüğün İlk Harfi Büyük**
3	**İçeriden, kalın, ilk harfi büyük, diğerleri küçük harflerle yazılır**
4	***içeriden, kalın, italik, tamamı küçük harflerle yazılır***
5	*içeriden, italik, tamamı küçük harflerle yazılır*

Şekiller

Diyagram ve grafikler beyaz bir kağıt üzerine basılabilecek nitelikte olmalıdır. Her şeklin bir numarası ve alt yazısı olmalı, kaynak kullanılmış ise parantez içinde şeklin altında yazılmalıdır.

Tablolar

Tablo numarası ve tablo yazısı, tablonun üstünde ve sola dayalı olarak yazılmalı; içeriği tablo numarasının yanında başlık olarak açıklanmalıdır. Tablo adı, italik ve ilk harfi büyük harfle, diğerleri küçük harflerle yazılmalıdır. Tabloların sağına ya da soluna herhangi bir yazı yazılmamalıdır.

Tablolar sadece Word programındaki Tablo menüsünden faydalanılarak yapılmalıdır. Tablo içeriği 10 punto olmalı, satırların öncesinde ve sonrasında boşluk verilmeksizin ayarlanmalıdır.

Tablolarda satır ve sütun başlarındaki kategori adlandırmaları dışında; satır, sütun aralarında çizgi olmamalıdır.

Atıfların Yazımı

Metin içindeki atıflarda yazarın soyadı, yayının yılı ve birebir alıntı yapıldıysa sayfa numarası belirtilmelidir.

Örnekler:

Nothing seemed so certain as the results of the early studies (Tatt, 2001, p. 445). It was precisely this level of apparent certainty, however, which led to a number of subsequent challenges to the techniques used to process the data (Jones & Wayne, 2002, p. 879). There were a number of fairly obvious flaws in the data: consistencies and regularities that seemed most irregular, upon close scrutiny (Aarns, 2003; West, 2003, p. 457).

İki yazarlı çalışmalara atıfta bulunulduğunda her iki yazarın da soyadını yazılmalıdır:

- (Anderson & Bjorn, 2003)
- As Anderson and Bjorn (2003) illustrated in their recent study
- As recently as 2003, a prominent study (Anderson & Bjorn) illustrated

Üç, dört ya da beş yazarlı çalışmaları kaynak gösterirken sadece ilk defasında tüm yazarların soyadı verilmelidir:

- (Anderson, Myers, Wilkes, & Matthews, 2003)

Sonraki kullanımlarında ise ilk yazarın soyadından sonra "et al." yazıp, diğer yazarlar tekrarlanmamalıdır:

- (Anderson et al., 2003)

Altı ya da daha fazla yazarlı çalışmalar için “et al.” kullanılmalıdır:

- (Bell et al., 2003)

İsimsiz çalışmalar için:

- ("Recent Developments," 2004)
- (Dictionary of Tetrathalocigistic Diseases, 2004)

Kaynakların Yazımı

Kaynaklar alfabetik sıraya göre ve aşağıda verilen örneklere uygun olarak yazılmalıdır:

Haag, L. & Stern, E. (2003). In search of the benefits of learning Latin. *Journal of Educational Psychology*, *95*, 174–178.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York: Wiley.

Johnson, D. W. & Johnson, R. T. (1990). Cooperative learning and achievement. In S. Sharan (Ed.), *Cooperative learning: Theory and research* (pp. 173–202). New York: Praeger.

Daha fazla bilgi için:
http://citationonline.net/CitationHelp/csg04-manuscripts-apa.htm#references

MANUSCRIPT GUIDELINES

General Rules

Manuscripts must be formatted to fit an A4 page. The manuscript text must be written in the form of a single column as plain text. While preparing the page setup, there must be 2,5 cm margins should be arranged from top, bottom, left, and right. The manuscripts must be written in "Times in Roman"; font size 11; justified; single line spacing in Microsoft Word.

There must be two line spaces between two line spaces between titles. Manuscript template is available on the JEF's web site to use by making corrections on the template.

Title

The title of the manuscript must be written in font size 14. The title should be in initial capitalization and must be centered. The title must be short and relevant to the topic. The title must not exceed 8-16 words.

The exposed name and surname of the author(s) must be given in lowercase; author name(s) must be centered on the page. The title, name of the university and the department, the e-mail adress, and the city-country information must be marked (*) and mentionad in a footnote on the title page.

English and TurkishAbstract

English abstract must come first. The abstract must be written in font size 11 and the text should be justified, and intended by 1cm right and left. Both English and Turkish abstract must be between 200-350 words. After the abstract, provide a minimum of 4-8 keywords.

(For the applications from different countries, preparation of Turkish abstract can be helped in case of need.)

Chapters and Subchapters

Chapter and subchapter levels should be formatted as follows:

Level of heading	Format
1	**Centered, Boldface, Uppercase and Lowercase Heading**
2	**Flush Left, Boldface, First Letter of the Every Word Uppercase, Others Lowercase Heading**
3	**Indented, boldface, only first letter uppercase, others lowercase heading**
4	***indented, boldface, italicized, lowercase heading***
5	*indented, italicized, lowercase heading*

Figures
Diagrams and graphics must be drawn in such a way that they can be printed on a white paper. Each figure must have a number and subtitle. If any source was used, it must be stated in parenthesis below the figure.

Tables
The table caption and table number must be given above the table. The content of the table must be expressed in the title, next to the number. Nothing must be written to the left or right side of tables.

Tables must be formed using the "Table" menu in Microsoft Word. Table contents must be written in font size 10 and must be arranged in such a way that no space is left before or after the lines. There must be no line between rows and columns except for in categorizations on row and column headings.

References
References must be given in accordance with APA (American Psychological Association) standarts. Detailed information on reference style can be found at: http://www.apastyle.org/learn/index.aspx.