TURKISH ONLINE JOURNAL of QUALITATIVE INQUIRY

Volume 11, Issue 3, July 2020

Editor
Elif Bugra KUZU DEMİR

ISSN 1309-6591

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Published in TURKEY

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Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 2, April 2020 / Cilt 11, Sayı 2, Nisan 2020

SSN 1309-6591

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The Turkish Online Journal of Qualitative Inquiry (TOJQI) (ISSN 1309-6591) is published quarterly (January, April, July and October) a year at the www.tojqi.net.

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Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 2, April 2020 / Cilt 11, Sayı 2, Nisan 2020

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CORRECTIONS

1. The academic title of the first author in the 2nd article of TOJQI Volume 11, Issue 2 has been corrected as “Res.Asst.”

Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 3, July 2020: 344-367

DOI: 10.17569/ tojqi.636526

Research Article

Pre-School Teacher Candidates' Views on STEM Applications Based on Montessori Approach[1,2]

Zehra Çakır[3], Sema Altun Yalçın[4]

Abstract

The aim of this study is to determine the pre-school teachers' opinions about Montessori approach based STEM activities. In the study, during the fall semester of the 2017-2018 academic year, the education faculty of a state university pre-school teacher studied at the 3rd grade and 50 teachers were trained and 15 people were interviewed. In the research, case studies pattern based on the effects of the program, one of the qualitative research methods, was used. "Montessori approach based STEM applications Interview Form" was used as a qualitative data tool developed by the researcher in the study. Qualitative data were analyzed using content analysis method. As a result of data analysis, it was determined that pre-service teachers about Montessori approach based STEM applications have a positive opinion and they intend to use these applications in their lessons in the future. In addition, it is seen that these practices improve the cognitive and psycho-motor features of prospective teachers. It has been changed in the perspective of preservice teachers towards science and technology in their daily lives.

Keywords: *Montessori approach, Prospective teachers, STEM*

[1] Erzincan University Human Rights Ethics Committee is a study dated 30.11.2017 and numbered 09/09.
[2] This article is derived from the Zehra Çakır's Doctoral Dissertation entitled " Investigation of the effects of pre-school teacher candidates on Montessori approach based STEM effectiveness", conducted under the supervision of Sema Altun Yalçın.

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Received: 22.10.2019, Accepted 18.07.2020

Okul Öncesi Öğretmen Adaylarının Montessori Yaklaşımı Temelli STEM Uygulamalarına Yönelik Görüşleri

Öz

Bu çalışmanın amacı, okul öncesi öğretmen adaylarının Montessori yaklaşım temelli STEM etkinliklerine ilişkin görüşlerini tespit etmektir. Çalışmada 2017-2018 eğitim öğretim yılının güz döneminde bir devlet üniversitesinin eğitim fakültesi okul öncesi öğretmenliği 3. sınıfta öğrenim görmekte 50 öğretmen adayına eğitimler verilerek aralarından 15 kişi ile mülakat gerçekleştirilmiştir. Araştırmada nitel araştırma yöntemlerinden durum çalışması desenlerinden programın etkilerine dayalı durum çalışmaları deseni kullanılmıştır. Çalışmada araştırmacı tarafından geliştirilen nitel veri aracı olarak "Montessori yaklaşım temelli STEM uygulamaları Görüşme Formu" kullanılmıştır. Nitel veriler içerik analizi yöntemi kullanılarak analiz edilmiştir. Veri analizleri sonucunda, Montessori yaklaşım temelli STEM uygulamalarına yönelik öğretmen adaylarının olumlu görüşe sahip oldukları, bu uygulamaları ilerde derslerinde kullanmayı düşündükleri tespit edilmiştir. Ayrıca, bu uygulamaların öğretmen adaylarının bilişsel ve psiko-motor birçok özelliğini geliştirdiği de görülmektedir. Öğretmen adaylarının günlük yaşamlarındaki fene ve teknolojiye karşı bakış açılarında değişiklerde meydana gelmiştir.

Anahtar Sözcükler: *Montessori yaklaşımı, Öğretmen adayları, STEM*

Introduction

Children come to the world with a natural sense of curiosity and discovery (Durbin, Pickett & Powell, 2011). Specialist guides are needed to guide the children to use these natural curiosities with scientific process skills, to do more scientific activities, and to become a qualified individual with 21st century skills, that is, they can produce solutions to the problems they face in life, think critically and develop creativity. When the right guidance is provided, children can obtain positive experiences especially in the field of science. For this reason, basic preschool education and the role of preschool teachers trained in this field are very important (Aguilar, 2016; Moomaw, 2012). These trainings are handled in today's education program in the world for many years, but quite effective results in pre-school education, which is located Montessori approach is not common in Turkey (Eratay, 2009). The Montessori approach is an educational approach developed by Maria Montessori, the first Italian female doctor to oppose the educational life that includes strict rules (Doğru, 2009). The Montessori approach is an education approach developed by Maria Montessori to best support the development and education of young children (Hobbs, 2008). Aims in the Montessori approach; to develop the child's self-confidence, initiative, knowing what he wants and implementing it, acting independently, problem solving, critical analysis, using creative skills, concentration, regularity, helping and respecting others. In order to achieve these goals, firstly, to ensure that the child lives by himself without forcing the joy of learning; The second is to help perfect the learning mechanism (Özdağ, 2014). Montessori schools are designed in a format that allows children to use the necessary teaching materials and do activities related to daily life without help from adults. In these schools, it is not the areas that adults dominate, but the areas where children are independent and to improve their own control (Arslan, 2016). STEM education is another highly effective education approach in training other important and future quality and productive individuals. STEM education, which has common goals with the Montessori approach, is an education that can be easily integrated with the preschool education program, and that allows children to understand the technology and engineering sciences developed in their environment and to establish a connection between these four disciplines (Koyunlu Ünlü & Dere, 2018). STEM is made up of abbreviations of English words, Science, Technology, Engineering and Mathematics (Gonzalez & Kuenzi, 2012).

Preschool children are mostly interested in science education, including animals, plants and the environment. Today, although there is technology all over life, children are not provided with sufficient education in these areas (Bers et al., 2013; Elkin at el., 2014). At this point, STEM education gains importance by establishing a connection between the disciplines of science, technology, engineering and mathematics to help children grow up in this field (Yıldırım, 2020). In these four disciplines, it supports the research processes of the child such as discovering, asking questions and making predictions (Yıldırım & Topalcengiz, 2019). Thanks to STEM activities developed in accordance with the development levels of children before school, it will enable them to discover and learn materials by using more than one sense organs (Koyunlu Ünlü & Dere, 2018). Chesloff (2013) sees the concepts in the heart of STEM as curiosity, analysis, creativity, collaboration, problem solving and critical thinking, and therefore argues that this education should start in the preschool period in order to gain the fundamentality and permanence of these skills in the individual. Although STEM education is not offered to students in an integrated form, it is included in pre-school education (MEB, 2016). In many studies, it is stated in the literature that the importance of educating individuals who will provide innovative solutions to the complex problems encountered in the future and contribute to economic developments by providing STEM experience to children in the preschool period (Aronin &Floyd, 2013; Chesloff, 2013; DeJarnette, 2012). Unfortunately, it is very difficult to find teachers with this education in our country. In the literature review about STEM in our country, it is seen that studies in this field have just started to increase. However, sufficient teachers could not be trained at the desired level yet (Çepni, 2017). The same is true for the Montessori approach. In line with Montessori principles, preparing new materials and activities suitable for the needs of the developing age and using them in the program in an appropriate way is an important point that should be adopted in child education (Oğuz & Köksal Akyol, 2006). For this reason, in order to apply Montessori approach in preschool education programs, educators who have adopted this approach must be present in the school. Therefore, in order for these trainings to be given before the school, we need to train our specialist teachers in these fields. These two educational approaches have the same goals (complementing each other with 21st century skills, researching, questioning, analyzing, producing, generating solutions to problems, educating creative individuals). Considering the literature, the number of studies carried out integrated with the Montessori approach and STEM education is very low. And two studies on this subject are as follows; Açıkgöz (2018); With Montessori, which is one of the pre-school approaches in science education, she conducted a

study that includes the opinions of 14 preschool teachers in order to determine the extent to which STEM education approaches can be applied in the pre-school education program and what are their similar and different aspects. Elkin et al. (2014) in their work; They explored how to apply the robotic curriculum in early childhood Montessori classes. This shows that the studies in which these fields are carried out are very few. Aslan Tutak et al. (2017) stated in the results of their studies that teacher candidates should be made conscious about STEM education without graduating from the university, and emphasized that due to STEM's interdisciplinary approach, teachers do not have knowledge in fields other than their own fields and that necessary information should be provided in these fields. Thanks to the planned STEM applications with the help of games implemented in preschool period, important concepts and skills that can be given to the child can be given. They have a curious and inquisitive spirit, especially against the events and objects that take place around the preschool children. By allowing them to ask questions and create hypotheses within the planned game, skills and knowledge about STEM fields can be developed (Uyanık Balat & Günşen, 2017). A personality structure, the foundation of which is laid with preschool education, psycho-social development and body development continues to develop in the same direction in the following years. Therefore, the experiences we bring to children in this period greatly affect their view of life in the future. This is very important for a country to have quality and productive individuals (Mutlu et al., 2012). In the study of Çepni (2017), the features of STEM education to be considered while integrating to the preschool period; It should include concrete experiences, focus on a single question, research, build on the events around the child, and be a topic of interest and attention. Montessori approach, which includes pre-school education approach that includes common goals with STEM education, helps the child to freely play and gain daily life skills, create a sense of responsibility, and develop mental and physical development in the environment prepared in line with the gains (Arslan, 2016). For STEM and Montessori approaches, which are effective in raising the quality individuals required for the development of the country, teachers who are well-educated, equipped and have pedagogical knowledge in their fields should be trained (Wang, 2012). In line with these importance and requirements, it is aimed to train teachers who know Montessori and STEM trainings and who are experts in these fields in the future.

Method

Research Model

In the study, a status pattern based on the effects of the program, a case study pattern, which is a qualitative research method, was used. Case study is a descriptive qualitative research approach that allows an in-depth study of a subject or situation within a certain time frame (Creswell, 2002). Case study is one of the systematic pattern types that includes steps such as gathering information, organizing, interpreting and reaching research findings, just like a detailed planning in architecture (Aytaçlı, 2012). Case studies based on the effects of the program determine the effect of the program and provide information about the causes of success or failure (Aytaçlı, 2012).

Working Group

The research was carried out with 50 pre-service teachers studying at the 3rd grade within the scope of "Pre-School Science Education" course at the university of a medium-sized province of Eastern Anatolia. In the study, pre-service teachers were applied STEM activities based on Montessori approach for 14 weeks. After the applications, data were collected with 15 volunteer candidates among the participants with interview forms prepared in accordance with the purpose of the research.

Data Collection Tools

As part of this study, “Montessori approach based STEM applications Interview Form” was used as data collection tool. The semi-structured interview form developed by the researcher consists of 4 questions. These questions were reviewed in line with expert opinions. After this process, the semi-structured interview form was finalized.

Analysis of Data

Qualitative data obtained as a result of the study were interpreted by content analysis. In these analysis methods, restricted codes are revealed from the interviews made by the researcher and related categories are created. Then, the statements of these categories indicating the underlying reality are tried to be revealed (Yıldırım & Şimşek, 2008). The interview data were recorded and the data were converted into writing and analyzed in accordance with the stages of the content analysis. The qualitative data obtained were analyzed in four stages: coding the data in accordance with the content analysis, finding categories, organizing and defining codes and themes, and interpreting the findings.

Research Process

In the study, during the implementation of STEM activities based on Montessori approach, firstly, field search was made and it was investigated which philosophy and application approaches of educational environments were targeted and learning steps and environments were used. The data obtained as a result of the screening were tried to be combined with the results of the literature review, which students generally enjoyed from what kind of teaching environments, which ones had positive effects on the students, and the expectations from the educational environments. In the activities, pre-service teacher candidates were given by integrating with the applications in order to gain only the necessary information and internalize it without extending the theoretical course phase. Particular attention was paid to some points in the selection of activities and applications. These; The activities that are implemented have absolutely STEM education features, they can be used to excite teacher candidates by using their knowledge of the field and create new and new designs, products, they contain the qualities they can solve with their own experience and knowledge about the problems they face, and in their personal development in the future professional life. Particular attention has been paid to the level of use. Activities are cylindrical small sponges made of simple, waste materials, robotic-coding legos and types (starch designed for preschool and colored with food dyes), which can be found in every area of daily life, including different application areas. they are easily glued together and the desired design is formed). STEM activities based on the Montessori approach were applied to the candidates by expert researchers during an education period. These practices, which lasted 14 weeks in total, were conducted under the guidance of

the researchers themselves. During this training, it was tried to help prospective teachers to develop their problem solving, creativity and critical thinking skills, to gain different perspectives, to obtain information from primary sources, to link their knowledge with daily life situations and to design their own products with the information they learned. In this application process, firstly, preservice teachers were given basic theoretical information about STEM education and Montessori approach. Then, each week, groups not exceeding four were asked to form the activities determined by the experts. After the groups were formed, the necessary materials were introduced by explaining the theoretical information (information such as science and mathematics required for the activity, showing the activity to be done by drawing) in a short and sufficient level regarding how to do about the determined activity of the week.

Each group was asked to buy the available materials prepared for the event and complete their activities within the specified time. In the activities, activities involving simple materials were made first, and then robotic coding and type studies were applied. After all the activities were finished, each group was asked to present the necessary materials and activities on a subject they wanted in accordance with the Montessori approach-based STEM activities in line with the gains they determined.

Ethics Committee Information

Erzincan University Human Rights Ethics Committee is a study dated 30.11.2017 and numbered 09/09. In the study, volunteer individuals selected to collect data in the sample group were informed about the subject by signing an approval form. No action has been taken regarding Scientific Research and Publication Ethics and all rules in the Higher Education Institutions Scientific Research and Publication Ethics Directive have been followed.

Findings

In this section, the findings regarding the qualitative data obtained as a result of the interview form are included.

Table 1.

"Do you think that STEM Education can be easily applied to preschool children? Why is that?" Pre-service teachers' views on the question

Category	Code Name	Frequency (F)	Percentage (%)
Material Properties	Must be great	1	1,96
	Should be bold	1	1,96
	Must have safe adhesives	1	1,96
	Should be appropriate for the level	1	1,96
	Should match the target	1	1,96
	Don't be fun	2	3,92
	Child development	1	1,96
Material Properties	Relevance to the subject	1	1,96
	Interesting	1	1,96
	Striking	1	1,96
	Intriguing	1	1,96
	Fully reflective	1	1,96
	State of the country	1	1,96
	Getting out of the mold	1	1,96
	Being open to innovation	1	1,96
	Orientation in line with gains	1	1,96
	Giving from the foundation	4	7,84
From the educational perspective	Preschool suitability	4	7,84
	Ease of application	2	3,92
	Forward steps	4	7,84
	Guidance help	2	3,92
	Don't do it alone	2	3,92
	Motivation	1	1,96
	Increasing participation and breakthrough	4	7,84
	Types suitable	3	5,88
	Lego is not available	2	3,92
From the Perspective of the Child	Small muscle skills	1	1,96
	Electrics are hard	1	1,96
	Simple material suitable	3	5,88
	Generally suitable	1	1,96
Total		51	99,96(%)

Table 1 presents the answers of the candidates to the question as a result of the interview and 4 different categories have emerged. In the material properties category; they should be large (f = 1), thick (f = 1), safe adhesives (f = 1), level appropriate (f = 1). Here, pre-service teachers stated that the materials used in the activities for the answer to the question are a bit thicker and larger so that the children can easily grasp, and that silicone can be dangerous as a glue, and if the safer adhesives are used instead of the level of the activity, it can be easily applied to preschool. In the material properties category; should be suitable for the goal (f = 1), being fun (f = 2), developing the child (f = 1), fitness to the subject (f = 1), interesting (f = 1), remarkable (f = 1), curiosity there are awakening (f = 1) codes. The highest frequency in the codes belongs to the code of fun (f = 2). The pre-service teachers' opinions about the

characteristics of the materials created in the activities, which will have a positive effect on the child, are included in these codes. They stated that choosing the material in accordance with the subject and goals will help the child draw the attention and attention to the subject, create a curiosity towards the child, perform the activity without getting bored, and develop the child. In terms of education, in its category; fully reflective (f = 1), state of the country (f = 1), extrusion (f = 1), openness to innovation (f = 1), orientation in line with gains (f = 1), giving from the foundation (f = 4), preschool suitability (f = 4), ease of implementation (f = 2), forward steps (f = 4), guidance assistance (f = 2), doing it alone (f = 2), motivation (f = 1), There are codes of increasing participation and excretion (f = 4). Here, pre-service teachers stated the appropriateness of the activities in terms of education with their reasons, together with their knowledge. The codes with the most frequencies in the category are codes of foundation (f = 4), preschool suitability (f = 4), forward steps (f = 4) and increasing participation and excretion (f = 4). Preservice teachers stated that STEM activities created based on Montessori approach are very necessary for the development of individuals in terms of scientific skills and it is a good education with ease of application.

They stated that this education should be given to the child from the foundation, that is, preschool period. In the guidance code, the candidates stated that these activities can be challenged by the child alone and will be easier with the help of a guide. In the code of forward-looking steps, candidates stated that when this education is given from a young age, large forward-looking steps will be taken in terms of science. They also stated that these activities will motivate the preschool children to the lesson and thus lessons will be held with a more active participation. Some of our teacher candidates stated that this education is very nice and useful, but our country is not fully prepared to implement such a system and teachers do not have the idea that education will have difficulties in getting out of a specified pattern and this may not cause the education goals to be reflected to the child exactly. In the code of being open to innovation, the importance of being open to innovation was emphasized by stating that the activities of the candidates are different and that this will improve the children.

In the category of suitability for the child; types are suitable (f = 3), lego is not suitable (f = 2), small muscle skills (f = 1), electrics are difficult (f = 1), simple material is suitable (f = 3), general is suitable (f = 1) There are codes. In the category, the most frequent types have appropriate (f = 3) and simple materials have appropriate (f = 3) codes. Here, pre-service

teachers' opinions about which of their activities are more suitable for the child's level are included. Some pre-school teacher candidates stated that type studies are very suitable for the child, some of them do not find robotic coding legos very suitable because they require little muscle skills, they will have some difficulties in electrical activities, some of them will be very suitable for their simple materials and some of them can be applied to children in general.

"Do you think that STEM Education can be easily applied to preschool children?" Some of the teacher candidates regarding the question expressed their thoughts as follows.

S1: "... Absolutely, yes. Preschool children can do many things we cannot do. We approached with a little fear and hesitation, but this is a fundamental issue. Basically, if good education is given, as they do and succeed, they take huge steps when they reach our age... "

S2: "... Sure. Since curiosity is more in children, there is more participation and breakthrough... "

S3: "... Yes. It can be easily applied in a way that can attract their attention and attention..."

S4: "... It may be difficult to apply alone. But if anyone guides, they do. Especially the types are very suitable... "

S5: "... At first they have difficulties, but they apply and learn as they explain over time..."

S6: "... It is very important to motivate the child. It is very important to which area we will direct, if attention is paid to these issues ... "

S7: "... Applicable only electrical ones may seem a little difficult..."

S8: "... Many of them can be applied, but not those who require little muscle skills. In other words, events with legos. Because their development has not been completed yet. But simple materials and types are fine... "

S9: "... If the necessary deficiencies are completed, yes. For example, in terms of psychomotor skills, materials should be larger, thicker, silicone guns in the bonding part can be dangerous, safer, there should be adhesives for the child... "

S10: "... Our country is not fully ready for this education. This education may not be fully reflected to the child. In other words, our education has been molded and it is difficult to get out from now on... "

S11: "... It would be great if we bring it down to the level of children..."

S12: "... Not all but it would be nice if it is applied according to the subject and the target. Differences develop the child... "

Table 2.

"What did you generally feel in these events? Why is that?" Pre-service teachers' views on the question

Category	Code Name	Frequency (F)	Percentage (%)
Emotion	Amazing	2	8,69
	Positive emotions	1	4,34
	Beautiful	1	4,34
	Funny	9	39,13
	Exciting	1	4,34
	Happy	3	13,04
Benefit	Designing interesting products	1	4,34
	Resting	1	4,34
	Abundant activity	1	4,34
	Unleash creativity	1	4,34
	Being simple-applicable	1	4,34
	Tasting a sense of success	1	4,34
	Ability to assimilate	1	4,34
Total		23	100(%)

In Table 2, as a result of the interview, the answers of the candidates for the question were included and 2 different categories emerged. In the emotion category; There are surprising (f = 2), positive emotions (f = 1), beautiful (f = 1), fun (f = 9), exciting (f = 1), happy (f = 3) codes. The highest frequency in the category belongs to the fun (f = 9) code. Here are statements expressing the feelings and feelings of prospective teachers during the activities. In other words, statements were made stating that the candidates found the activities very enjoyable, enjoyable, interesting and surprising, very beautiful and creating a product was an exciting and happy feeling. In the utility category; designing interesting products (f = 1), resting (f = 1), abundant activity (f = 1), revealing creativity (f = 1), being simple-applicable (f = 1), tasting the sense of success (f = 1), absorption (f = 1) codes. Here, statements are made stating the reasons why pre-service teachers feel the emotions in the above emotion category. In other words, the candidates stated that the fun of the activities provided them to rest when they came to this lesson from the other tiring lessons, they passed a course with plenty of activities, they developed their ability to design different products, they exposed their creativity, they practiced without difficulty because they did it in a group.

"What did you generally feel in these events? Why is that?" The views of some pre-service teachers regarding the question are given below.

S1: "... First of all, we were abundantly surprised. Then we assimilated. Then we had positive emotions… "

S2: "... It was nice. In general, I did not encounter any negativities. I was a member who combined the materials and had a lot of fun… "

S3: "... It was simple and fun…"

S4: "... I had a lot of fun. I tasted the sense of success… "

S5: "... It was exciting. We did not know the result. We were in a struggle and eventually products that surprised us appeared. "

S6: "... This lesson about science for us was like rest and activity…"

S7: "... It was very fun, we were happy. It was useful in exposing our creativity to the problem that we all came across. "

Table 3.

"Did these activities help you use time effectively and efficiently?" Pre-service teachers' views on the question

Category	Code Name	Frequency (F)	Percentage (%)
Contributions in Time	Efficient use	5	13,15
	Effective use	5	13,15
	Making it fun	1	2,94
	Specific period	7	20,58
	Raising time	6	17,64
	Understanding the importance of time	5	13,15
	Growing the product on time	5	13,15
Total		34	100(%)

In Table 3, as a result of the interview, the answers of the candidates for the question were included and a category of contributions appeared in terms of time. In this category; efficient use (f = 5), effective use (f = 5), making fun (f = 1), certain time (f = 7), raising time (f = 6), understanding the importance of time (f = 5), product There are timely breeding (f = 5) codes. The specific time with the highest frequency in the category belongs to the (f = 7) code. In these codes, teacher candidates stated that completing the activities at the time given to them helps them use the time more efficiently and that they experience the importance of time during the activities. In other words, they stated that they should use the time effectively since they were asked to create the design, the product determined in a given time, and that all these flurries made their time fun.

"Did these activities help you use time effectively and efficiently?" The views of some pre-service teachers regarding the question are given below.

S1: "It happened. We entered into a strange race to avoid time. Time is running out, we are chasing after… "

S2: "It happened. When we were overwhelmed with other lessons, we were having fun at the STEM workshop. We were not only making our time enjoyable but also eventually creating a product… "

S3: "It happened. Because we were asked to produce a certain product in a certain period of time. For this, we tried to train and train without passing the time… "

S4: "… He contributed. We tried to raise it in a certain time. So it was important for us to use time important… "

Table 4.

"Did the information you learned in these activities affect your daily life?" Pre-service teachers' views on the question

Category	Code Name	Frequency (F)	Percentage (%)
In terms of the event	Adding science	1	6,25
	To be able to use mathematics	1	6,25
	Condensation of science	1	6,25
From the perspective of education	Attract attention	1	6,25
	To be able to make sense in daily life	2	12,5
	Integration into the department	1	6,25
	Opportunity to apply at home	3	18,75
	Embody abstract issues	1	6,25
Research	Questioning	1	6,25
	Examination	1	6,25
	Searching in the virtual	1	6,25
	Noticing the shortcomings	1	6,25
Total		16	100(%)

As a result of the interview in Table 4, the answers of the candidates for the question were included and 3 different categories emerged. In terms of effectiveness in its category; There are a total of 3 codes: adding science (f = 1), using mathematics (f = 1), concentration of science (f = 1). Here, preservice teachers stated that they contributed to use the science they learned in the activities in their other lessons in their own fields. They stated that they now use the science step more in their activities related to their fields and besides, they made a presentation or designs by using mathematics together with science. In terms of teaching category; There are codes to attract attention (f = 1), to make sense in daily life (f = 2), to integrate into the

department (f = 1), to practice at home (f = 3), to embody abstract topics (f = 1). The highest frequency in the category belongs to the code of application at home (f = 3). In these codes, pre-service teachers stated that they wanted to use the information they learned in activities due to the benefits and conveniences they would provide in terms of teaching in their professional life. Because the activities are remarkable in terms of education, they can easily motivate children, find the level that can be integrated in their branches and contribute to the meaning of daily life of the child, they can also use it in their professional life because it provides the opportunity to practice the child at home and embody abstract subjects in the science by concretizing it. Expressions stating were given. In the research category; There are codes of questioning (f = 1), examination (f = 1), virtual search (f = 1), noticing the missing (f = 1). Here, pre-service teachers stated that the activities contributed to questioning, analyzing and searching in the virtual in their daily lives. In addition, they stated that they contributed to the awareness of the shortcomings in the event due to the experiences they gained when they were going to hold an event.

"Did the information you learned in these activities affect your daily life?" The views of some pre-service teachers regarding the question are given below.

S1: "... Yes. For example, we had a presentation about mathematics education. I wonder what we can add from here and there is something to be found... "

S2: "... Yes. We are now trying to give more science in our events. We increased our concentration on this... "

S3: "... Yes. As far as we have learned from science, it is not about running programming for the event.

S4: "... Yes. In particular, I realized how much missing information we gave children about science... "

S5: "... Yes. It mostly affected my use in the department. In terms of embodying abstract issues... "

S6: "... Yes. For example, when I learn that mixing increases boiling, I tell my mother to mix the soup at home... "

S7: "... Yes. Actually, we know many things in daily life, but we are not aware. We understood when the teacher clearly showed them... "

Discussion and Conclusion

Within the scope of the study, the pre-service teachers' opinions regarding STEM applications based on Montessori approach were examined. Positive results were obtained as a result of the review. It is emphasized that a well-designed educational environment in all kinds of subjects in the pre-school education program is important for developing effective learning, creative and problem-solving skills of children (MEB, 2013). At this point, STEM education and Montessori approach present the expected educational environments to the child. Considering the principle that Montessori materials are instructive and feasible in the study, similar and positive statements emerged in the answers to the questions about the applicability of STEM education to children in pre-school period and how they felt during the activities. In these results, pre-service teachers evaluated their opinions in terms of material and material properties, education and suitability categories for children. In a way that the materials used in the applications can be easily grasped in accordance with the psychomotor skills of the children; a little thicker and bigger, and if safer adhesives are used (tape etc.) instead of what they think may be dangerous as silicone, the activity subject is also chosen according to the level of the children and if the guides help, the child's psychomotor, which is suitable for the purposes of the Montessori approach, stating that STEM applications can be easily applied to preschoolers. They stated that they would improve their skills as well. Supporting the results of the study, Yıldırım (2019) stated that biomimicry practices contributed to the development of cognitive and psycho-motor skills of prospective teachers in their study examining the opinions of teacher candidates for biomimicry applications in STEM. In his study, Torun (2011) examined the effect of Montessori approach on the concept acquisition, social cohesion and small muscle motor skills of children and reached positive results.

In the study results, again, the candidates stated that the applications will leave positive and permanent effects on the learning of children and stated that they are feasible. They stated that the selection of the material in accordance with the subject and the goals would help the child to draw his attention and attention to the subject, to create a curiosity towards the child, to spend the lesson without getting bored and to develop the child. Supporting the result, Dönmez (2017) examined the opinions of students and team coaches for robotic tournaments within the

framework of STEM education. He stated that among the results, the participants stated that they found the activity products fun and functional. He also stated that he increased his motivation towards the lesson and facilitated the learning of the subject. In parallel with the study, it was concluded that Kılınç, Koç Şenol, Eraslan and Büyük (2013) increased the interest of students towards science lessons of robotic projects. In line with the researches carried out by Özdoğru (2005), they stated that robot kits increased student success and attitudes. Elkin, et al. (2014) investigated how robotic education can be used in Montessori early education classes in their studies titled implementation of robotic curriculum in early childhood Montessori classes. As a result of this research, suggestions about how robotic and engineering concepts can be applied in Montessori early education classes and how they can be integrated effectively are presented. Some of those; The Montessori approach offers a unique way of integrating with robotics training, generating new ideas for children, expressing themselves in a meaningful way, as it rewards personal discoveries and leads each child to a goal, regardless of the way.

When Maria Montessori developed her approach to education, there were no such robotic technologies. They used expressions stating that if they did, they would integrate such technologies into the Montessori approach. The study emphasized the importance of mixing Montessori principles with modern technology and the importance of robotic robots to improve children's creativity. These statements support the findings of the study, stating that STEM education should be started in Montessori classes in preschool period. Again, in the results of the study, the candidates mentioned the importance of working in a team and collaboration. Supporting the study result, Dereli (2017); In his research titled “Investigation of the effect of Montessori approach program on children's psychosocial development and social problem solving skills”, he analyzed the effect of Montessori Education Program on the psychosocial development and social problem solving skills of 4-5 age group children attending pre-school education and obtained positive results. Keçecioğlu (2015) investigated the effect of Montessori approach on the social development skills of the individual compared to normal education and recorded positive results. In his study, Hobbs (2008) examined the effect of the Montessori approach on the social skills and behavior of children aged 3-6. As a result, they found that children trained with the Montessori approach show more behaviors such as justice, equality, and play with their friends and peers in positive emotions. Dönmez (2017) stated that team coaches had the opportunity to collaborate and teamwork as the best feature of the

tournament in their study which includes the opinions of students and team coaches for robotic tournaments within the framework of STEM education. Preservice teachers stated that STEM activities created based on Montessori approach are very necessary for the development of individuals in terms of scientific skills and it is a good education with ease of application. They stated that the importance of this education should be given to the child from the foundation, that is, the preschool period, in raising individuals who are open to innovation with different perspectives. Supporting the results of the study, Yıldırım (2019) stated that the applications allow the prospective teachers to have a different perspective, create an awareness of nature and contribute to imagination and critical thinking skills.

The effects of STEM activities based on Montessori approach in the study were asked about how the candidates use time efficiently and integrate the information they learned with their daily lives. Positive results were achieved in the answers given. Candidates were recorded that completing the activities at the given time helps them use the time more efficiently and helps them better understand the importance of time, make the science more expressive in their daily lives, they want to use the science step more in their professional life and improve their scientific skills. In addition, as a result of STEM applications based on the Montessori approach, there has been a positive change in the prospective teachers' views on technology. Among the studies conducted to support the results, Strong (2013); In his research, in Sullivan (2008) that STEM education developed scientific process skills; In addition, they stated that robotics and science literacy training contributed to the positive development of the student's thinking and scientific process skills. Yıldırım (2019) supports the results of the study examining the pre-service science teachers' views on biomimicry applications in STEM education. As a result of the examination, Yıldırım determined that the candidates have a positive perspective on STEM biomimicry applications and that they intend to include their courses in the future. In addition, as a result of the applications, it was stated that the prospective teachers' opinions about technology have changed positively. Again, Yamak et al. (2014) found that the students' scientific process skills and attitudes towards science provided a positive development at the end of their implementation by associating the design-based learning model with STEM activity. Yıldırım and Altun (2015) determined that they contributed to the academic success of the candidates as a result of their STEM education and engineering practices with prospective science teachers. Yıldırım and Selvi (2017) stated that the practices increased the academic success of students in science as a result of the study they

examined the effects of STEM applications and full learning on academic success with secondary school students. In Judson (2014) study, it was stated that there was a positive difference on success at the end of the study of STEM activities on students' academic achievement. Again Green, (2012), Cosentin, (2008), Kang, Ju and Jang (2013), Hill (2002); have reached similar results in their work, namely that STEM practices have increased academic success.

In the study results, the candidates also emphasized the necessity of giving the activities in pre-school period in terms of teaching and stated that they are remarkable with these practices, and that they can easily motivate the children, and they can provide opportunities for permanent and meaningful learning by embodying abstract subjects in the science. Günşen, Fazlıoğlu and Bayır (2017), which supports the results of the study, will add importance to life in the future by blending the knowledge of basic sciences such as physics, biology, chemistry and math with the fields of technology and engineering, as events such as creating, gaining and using concepts are more active. They stated that it would be possible to create innovations. Therefore, they emphasized the necessity of applying the STEM approach as of preschool years. In the research titled "Mathematics and Science Integration Argument: A Stand for Teacher Education" conducted by Furner and Kumar (2007), they included statements stating that teachers trained with STEM education had an impact on the students' future individuals to achieve more permanent and productive learning. Livstrom et al. (2018) examined the theoretical and empirical aspects of Montessori secondary school science in the USA and its adaptation to the conceptual framework of the integrated STEM in their studies on integrated STEM: Learning from Montessori philosophies and practices. As a result, they stated that Montessori offers an integrated educational approach that significantly positions academic disciplines well supported by STEM and the learning theories involved. In his research titled Comparison of STEM and Montessori methods from pre-school approaches in science education in line with the opinions of teachers, Açıkgöz (2018) investigated the extent to which STEM education approaches can be applied in the preschool education program and what are their similar and different aspects. In the results, the teachers know the Montessori approach, but stated that they learned STEM education for the first time in this research. Within the scope of a general evaluation, it was stated that the teachers showed interest in the research and their ideas about Montessori and STEM would have a positive effect on the development of the child.

Statements of ethics and conflict of interest

"I, as the Corresponding Author, declare and undertake that in the study titled as *"Pre-School Teacher Candidates' Views on STEM Applications Based on Montessori Approach"*, scientific, ethical and citation rules were followed; Turkish Online Journal of Qualitative Inquiry Journal Editorial Board has no responsibility for all ethical violations to be encountered, that all responsibility belongs to the author/s and that this study has not been sent to any other academic publication platform for evaluation. "

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Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 3, July 2020: 368-392

DOI: 10.17569/ tojqi.656965

Research Article / Araştırma Makalesi

Teachers' Conceptual Perceptions and Thoughts about Learning Environment[1,2]

Bedriye Tunçsiper[3], Gülçin Mutlu2[4]

Abstract

The literature provides perspectives in relation to the links between student perceptions of learning environment and their cognitive and affective outcomes but falls short in qualitatively explaining what teachers' perceptions are in relation to classroom learning environment and its various characteristics. Hence, this study aimed to investigate teachers' perceptions about learning environment characteristics facilitative to students' outcomes and their conceptualizations concerning the term "learning environment". The study was designed as basic qualitative descriptive research and attempted to elicit qualitative data from eight social sciences teachers working at state secondary schools. The results revealed that teachers had a tendency to conceptualize learning environment as a physical construct at first. Some of them also mentioned the social and psychosocial connotations or dimensions of the term. Three group of factors in the learning environment (categorized as physical, social and classroom assessment-based) were reported to be facilitative to student outcomes by the participants of this study.

Keywords: *learning environment, classroom learning environment, classroom climate, qualitative descriptive research*

[1] The initial findings of the study were presented at the " 3rd International Congress on Science and Education" held in Afyonkarahisar (Turkey) on 21-24th March 2018.

[2] The ethical committee permission is not required in this study since the data were gathered before 2020.

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Received: 09.12.2019, Accepted: 27.07.2020

Öğretmenlerin Öğrenme Ortamına Yönelik Kavramsal Algı ve Düşünceleri

Öz

Alan yazın öğrencilerin bilişsel ve duyuşsal kazanımları ile onların öğrenme ortamına ilişkin algıları arasındaki ilişkiler bağlamında yeterli kanıtlar sunarken, öğretmenlerin sınıf öğrenme ortamına ve bu ortamı oluşturan çeşitli özelliklere yönelik düşüncelerini açıklama hususunda yetersiz kalmaktadır. Bu bağlamda, bu çalışma öğretmenlerin öğrenme ortamı kavramından ne anladıklarını ve öğrenci kazanımlarına katkı sunan öğrenme ortamı özelliklerine yönelik düşüncelerini araştırmayı amaç edinmiştir. Temel nitel betimsel araştırma deseni ile kurgulanan bu çalışmaya ait nitel veriler devlet okullarında orta öğretim düzeyinde hizmet veren sekiz sosyal bilgiler öğretmeninden elde edilmiştir. Çalışma sonuçları çoğu sosyal bilgiler öğretmeninin öğrenme ortamı kavramını daha çok sınıfların fiziksel şart ve özellikleri ile ilişkilendirdiğini ve bir kısmının ise bu kavramı daha sosyal ve psiko-sosyal boyutları olan bir kavram olarak gördüğünü ortaya koymuştur. Ayrıca, bu öğretmenler sınıf öğrenme ortamlarında yer alan bir takım fiziksel, sosyal ve sınıf içi değerlendirmelere dayalı etmenlerin öğrenci kazanımlarını olumlu olarak etkileyebileceği konusunda görüş bildirmişlerdir.

Keywords: *Öğrenme ortamı, sınıf öğrenme ortamı, sınıf iklimi, nitel betimsel araştırma*

Introduction

The term "learning environment" is a broad and inclusive concept which includes all kinds of learning and teaching activities and processes. Although such individual factors as teaching materials, physical conditions, instructional methods, peer interaction or teacher communication with the students can be categorized as learning environment factors, Fraser (1994) recommends three encompassing categories which are psycho-social, social and physical in defining the term " learning environment". For Fraser (1994), learning environment refers to all kinds of psychological, social and physical characteristics which affect students' learning, attitudes and success outcomes. Fraser's (1994) ideas above in fact dates back to Moos' (1979) theoretical framework developed to define human environment. The theoretical sub-dimensions developed by Moos (1979) have an important role in the emergence of the concept of *learning environment* and later in the birth of educational research venue called *learning environments research*. Moos (1979) mentions three basic dimensions that compose any learning environment including human in his theoretical framework and according to him, a learning environment reflects, though in different proportions and amounts, the three basic dimensions and their relevant characteristics. The three dimensions in Moos' (1979) framework are defined as a) relationships, b) personal development, and c) system management and change. As the name implies, the dimension called *relationships* refers to the verbal and non-verbal interactions taking place between human beings. The dimension called *personal development* reflects the characteristics of the environment to provide opportunities for personal development and promotion. The dimension called *system management and change* emphasizes the characteristics of the environment to become consistent and controlled as well as to become open and sensitive to change.

The above theoretical structure put forth by Moos (1979) served as a preliminary and leading source for the following studies conducted concerning learning environments. Guided by this theoretical framework, many tools for data collection were developed in order to obtain information about several learning environment characteristics (Fraser, 1981; Fraser, Treagust, & Dennis, 1986; Fisher & Fraser, 1981; Fisher & Fraser, 1990; Taylor, Fraser, & Fisher, 1997; Trickett & Moos, 1973; Walberg, 1968). That is, research data were obtained about students 'perceptions of learning environment by means of these tools, scales and inventories, thereby

making it possible to investigate the relationships between the students' perceptions about the learning environment and students' cognitive and affective gains.

Investigations into the students' perceptions about classroom learning environment and several characteristics of learning environment appears to the be strongest line of research in the domain of learning environments research (Fraser, 2002; den Brok, 2018). Researchers within this domain of research have frequently sought to examine the associations between these learning environment perceptions and students' cognitive and affective outcomes, which resulted in an extensive number of studies with correlational research designs (den Brok, Brekelmans, & Wubbels, 2004; den Brok, Bergen, & Brekelmans, 2006; Fraser & Fisher, 1982; Fraser, Aldridge, & Soerjaningsih, 2010; Kim, Fisher, & Fraser, 2000; Mutlu & Yıldırım, 2019; Ovbiagbonhia, Kollöffel, & den Brok, 2019; Pamuk, 2014; Sökmen, 2019; Wei & Elias, 2011; Wubbels & Brekelmans, 1998; Yang, 2015; Yerdelen-Damar & Aydın, 2015). These associational type of research designs dominated the literature especially for the beginning period of learning environments research (den Brok, 2018; Dorman and Fraser, 2009; Fraser, 2002). The questioning of the associations brought the quantitative research methods to the forefront compared to the other research methodologies and the learning environment studies which started with Walberg's (1968) attempts appeared to follow the same quantitative trend as in the past until the millennium. As stated by den Brok (2018), different research methods have started to be included in the learning environment research field only after the year 2000. For this reason, qualitative and mixed design studies in the learning environments research agenda are few in comparison with quantitative studies. Moreover, it has been observed that most of the studies were related to secondary education science and science-related courses and were conducted with the students who took these courses or the teachers who taught these courses (Fraser, 2002). It is also important to note that there have been more surge of interest upon student perceptions concerning classroom learning environment characteristics compared to teacher perceptions and the dominance of quantitative methodologies repeats here with investigations into teacher perceptions being conducted again with quantitative or correlational research designs (Anagün, 2018; Fraser, 1982; Wei & Onsawad, 2007; Tshewang, Chandra, & Yeh, 2017). Therefore, there is a need for qualitative research studies to be conducted with teachers and students in other courses and classrooms (not science-related ones) to understand the real nature and dynamics of classroom learning environments. Based on this gap in the

literature, this study aims to investigate the perceptions of social sciences teachers working at secondary education level about the concept of learning environment. Another aim of the study is to learn about the dimensions and characteristics of the learning environment which these teachers find the most effective to promote student outcomes in their social sciences classes. In summary, the following research questions guided this study:

1. What is "learning environment" according to the participant social sciences teachers? What main elements or components does in refer to?
2. What dimensions or factors of classroom learning environment promote (facilitate) student outcomes according to the perceptions of social sciences teachers?

Method

Participants

The participants included social sciences teachers (n = 8) working at state middle schools in several provinces (both central and remote provinces) of İzmir, a city located in the west of Turkey. Criterion sampling was performed in the selection of participants in that those with at least a two-years-experience in the profession were invited as participants to the study. Out of these eight participants, four (50 %) participants were female and the remaining four (50 %) were male. Their ages ranged from 26 to 46. Their years of teaching experience ranged from three to 18 years. Two of the participants had completed their Master's in that one had an MA in social sciences teaching and other one in educational sciences. Table 1 shows the demographic characteristics of the participants.

Table 1

The Characteristics of the Participants

Participants	Gender	Level of Education	Age	Years of Experience
Ayşe	Female	Bachelor	28	4
Ahmet	Male	Master	26	3
Fatma	Female	Master	35	9
Mete	Male	Bachelor	34	10
Hafize	Female	Bachelor	40	15
Yağız	Male	Bachelor	46	18
Semra	Female	Bachelor	30	7
Hüseyin	Male	Bachelor	37	12

Note: Pseudonames were given to the participants.

Research Design

This study is a qualitative descriptive research that aims to provide a straight forward description of how social sciences teachers conceptualize and manage classroom learning environments. Lambert and Lambert (2012) defines the goal of this research design as "a comprehensive summarization, in everyday terms, of specific events experienced by individuals or groups of individuals" (p. 255). It is also important to note that qualitative descriptive studies can carry other research designs' characteristics to certain degrees depending on the researchers' aims and expertise. In this essence, this study here is a (basic) qualitative descriptive study with light phenomenologic overtones in that especially for the RQ2, the researchers had to change their function from describing the subjective experiences of the teachers to understanding and interpreting of these teachers' particular experinces within the classrooms to create an effective learning environment for their students. That is, for Sandelowski (2000, 2010), when researchers describe and present the participants' ideas about something like we do using our everyday language, the design is qualitative descriptive. However, when researchers understand, get deeper into the participants' worlds to interpret and to "re-present events in other terms", then the design can move into the phenomenological sphere (Sandelowski, 2000, p. 336).

Data Collection Instruments and Procedures

Qualitative data for *Research Question 1* (RQ1) and *Research Question 2* (RQ2) were collected by means of semi-structured interviews and an interview schedule was prepared by the

researchers. This interview schedule was composed of two main sections, that is, one section included *background and demographic questions* to be posed to the participants and the other section included *several questions concerning the main content and processes*. The first section of the interview schedule included five open-ended questions aiming to ask about such demographic information as age, years of experience and hours of teaching a week and it was designed to prepare and proceed the students to the main content questions of the interviews. The second section of the interview schedule included eight content questions designed to elicit these teachers' opinions about the term *classroom learning environment* and the dimensions of the learning environment that they consider the most facilitative to student outcomes in their classrooms. There were such questions as "What do understand from the term classroom learning environment", "What is the most important dimension of classroom learning environment in your opinion?" and "What characteristics of learning environment should be facilitated in order to contribute to students' learning?".

Prior to the main study, this interview schedule was pilot-tested with two social science teachers, one male and one female, who were master program students at the researchers' university. The participants of this piloting stage were asked to comment on the comprehensibility, clarity and basic wording of the questions. Based on their comments, two questions were re-worded in order to clarify their meanings. One content question was omitted as it was found a repetitive of another question in the draft interview schedule. Thus, the interview schedule with its five background and six content questions took its final form to be used in the main study.

Data Analysis

The qualitative data were analyzed by means of content analysis. Semi-structured interview data were first transcribed and then read by the researchers carefully. The researchers separately assigned codes to the data by marking the important vocabulary items, expressions and sentences. Inductive coding strategy was performed by the researchers when assigning the codes on the data. The researchers then compared their codes and they tried to agree on the codes that they each assigned different names and meanings in their first individual analyses. This cooperative look at the data as a second round of analyses yielded agreed-on codes and

then the researchers assigned the themes together. The research questions were also used as a guide or as a framework in the assignment and organization of the codes into themes.

Trustworthiness

The researchers aimed to achieve credibility (internal validity) by means of two main procedures, *peer debriefing* (Miles & Huberman, 1994) and *members' check* (LeCompte & Goetz, 1982). To achieve peer debriefing, a colleague who was an expert in qualitative research methods were consulted to examine the codes and themes generated by the researchers. As another procedure to achieve credibility, *member's check* procedure was performed in the way the participants were invited to read the transcribed versions of their interviews and ensure the verification of their reportings. Moreover, the researchers tried to provide *thick descriptions of the participants and data collection procedures* (Miles & Huberman, 1994) to serve the purposes of achieving transferability (external validity) in that further studies could have a detailed understanding of such procedures to make adequate comparisons with their own samples.

Ethical Issues

The ethical committee permission is not required in this study since the data were gathered before 2020.

Results

RQ1: Conceptualizations of Learning Environment

The results from the analyses of the qualitative data about how the participants make sense and conceptualize the learning environment show that there are three different outlooks to conceptualize the term (Figure 1). As is understood with the emerging themes out of the qualitative data, the teachers perceived the learning environment in three different ways: a) as a construct in the context of physical conditions, b) as a construct in the context of social

relations and lastly c) as a construct in which the teacher manages and controls the classes and the students. In the following section, these three different conceptualizations of learning environment were discussed in the light of the most appropriate quotations from the interviewees.

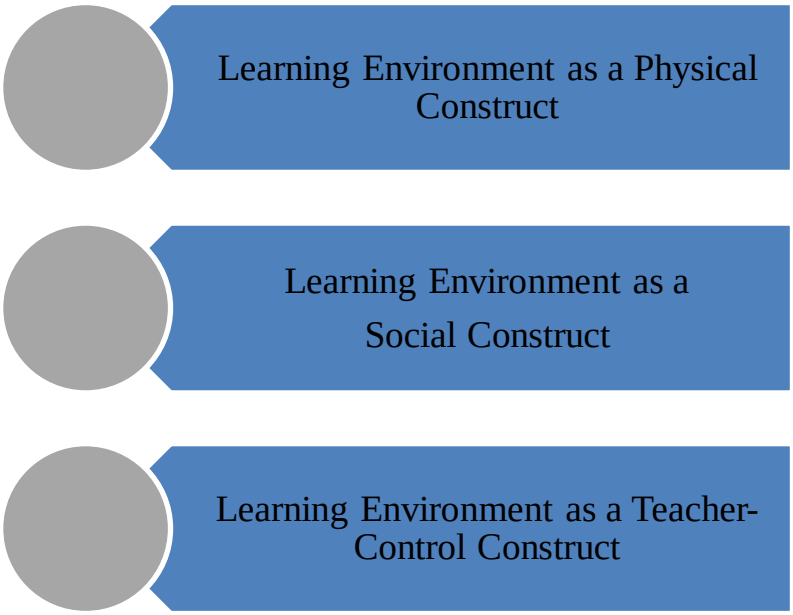

Figure 1. Conceptualizations of Learning Environment by the Social Sciences Teachers

Learning Environment as a Physical Construct

The results from the analyses of the qualitative data revealed that most teachers had a tendency to understand the term learning environment as a type of physical condition or construct. The opinions of a teacher who has associated and conceptualized the learning environment solely with physical characteristics are as follows:

> *"When I say learning environment, I think it is a concept that is totally related to the physical conditions of a school or a classroom. If the classroom is large and spacious, I can say that this class has a good and beautiful learning environment to support students' learning." (Hafize)*

Another social sciences teacher conceptualized the concept of learning environment with physical characteristics again; however, this teacher mentioned some other characteristics other

than the size of the classrooms as related to the term learning environment. He stated his opinions as in the following:

> *"The concept of learning environment reminds me of the physical conditions and characteristics of my classroom. These conditions may include, for example, the lighting, temperature, walls, desks, that is, the properties of any object we can see in the classroom." (Yağız)*

Similarly, another social sciences teacher explained the term learning environments as a physical construct; but, this teacher also mentioned the technology and the technological tools in the classroom as a component of classroom learning environment. The teachers also emphasized the inevitable connotation of technology they have attached to the term "learning environments" in today's world where students are exposed to many types of technical and technological developments.

> *"The first thing that comes to my mind when I think of learning environment is the physical environment. This includes many things such as the size of the classroom, the technical or technological facilities of the classroom, the lighting and the air conditioning. However, for me, technological focus of the term "learning environment" is more inevitable and important as today we live in a technology-directed world and we are exposed to more and more technology in every aspect of our lives including our lives within schools and classrooms." (Ahmet)*

Overall, most teachers stated that when they thought of the term "learning environment", they perceived the conditions and situations such as the physical building, lighting, ceiling level, layout of the desks, size of the classrooms and the heating of the classrooms as the basic concepts expressing the term "learning environment". Moreover, some teachers pointed out the fact that some other concepts or conceptualizations come to their minds when they think of this term. However, they first and foremost think of the physical atmosphere to define the term "learning environment" and for them this tendency may be related to the lexical meaning of the word "environment" which appears to emphasize a physical connotation.

Learning Environment as a Social Construct of Relationships

The results from the analyses of the qualitative data showed that some teachers conceptualized the term "learning environments" as something shaped by the relationships present in the classrooms. These teachers mentioned that learning environment is the atmosphere which is formed by the mutual dialogues, interactions and communication between teachers and

students and between peers. In this essence, for some of the teachers, the term "learning environment" appears to make a more social and abstract connotation compared to the above physical and concreate outlook realized in the physical classroom material environment. One of the teachers explains his ideas about the concept of learning environment as in the following:

> *"The term "learning environment" makes me also remember the environment prepared by the teachers for the students to learn. It includes those relationships and communication between our students or those that take place between us, the teachers, and our students. Thus, the concept of learning environment is something social or human-related in my opinion. I also said that it can be also related to the physical characteristics of the classrooms such as the size of the classrooms or its being dark or not. However, my first impression relates to all those relationships or dialogues taking place in the classrooms generally between teachers and students. The physical side is secondary to me as the relationships can compensate for the lacks in the physical conditions". (Yağız)*

The responses related to this social dimension of conceptualizations imply that the factors related to this type of conceptualizations of learning environment are not always visual, concreate and directly observable in the classroom settings because these social factors can even take place without the presence of direct words or actions. For instance, these factors making the connotations or associations about the concept of learning environment may include such non-verbal behaviors as facial expressions, smiles, noddings or bodily movements signaling positive or negative attitudes towards the lessons or towards the teachers or peers, the usual stakeholders of the classrooms. One of the interviewees explained this outlook as in the following:

> *"What I understand from the concept of learning environment is that it can be something related to the human beings in the classroom. It can be seen in the words or sentences uttered by the people in the classroom or it can be seen in the smile of a teacher, in the touch of a friend or the physical distance arranged between the students and teachers. The concept of learning environment is made up of all of these characteristics and if these characteristics are all positive then it can be environment for learning to take place in a real sense." (Mete)*

The results showed that for some of the teachers, the term "learning environment" refers to the teachers' interpersonal relationships with their students. For these teachers, teachers' communicative behavior and attitudes towards their students compose the main elements of classroom learning environment. One of the teachers uttered the following words concerning this issue:

> *"When I say learning environment, I see it as something prepared or organized by the teachers and teachers' attitude towards their students. If the teacher is kind, positive, has good intentions for students, then the learning environment becomes the environment for students' learning." (Semra)*

Overall, the responses categorized into this theme showed that learning environment is human environment that includes the relationships, dialogues and interactions among all individuals in the classrooms. All these social constructs compose the main elements of the learning environment and these are seen as a sort of prerequisite for the classroom setting to turn into a place or environment for learning and other student gains to take place.

Learning Environment as a Teacher Control Construct

In some of the qualitative data, teachers were frequently reported as the main agents of the classroom learning environment with a function to maintain and manage the learning environment of the classrooms. In other words, teachers were seen as the main control mechanisms of classroom learning environments. In the previous section about the social nature of learning environments, some of the respondents also mentioned that teachers are the main components of classroom learning environments. Their focus above is on the teachers' personal relationships or attitudes towards their students while here the focus is on the teachers' being the sole authority or agent in the design of learning environments. One of the teachers explains her ideas about learning environment as follows:

> *"In my opinion, learning environment is something under the control and supervision of teachers. It is the teachers who decide the course content, the activities for the students, the order of the activities and basically the typical flow of all procedures within the classroom walls. For this reason, learning environment firstly involves teachers as the main responsible figure of everything." (Ayşe).*

Another teacher made a similar focus in her explanations; however, she also explained that behaviors or attitudes of the students towards their teachers are likely to influence teachers' ways of managing or controlling classroom learning environment. In this sense, though it is the teachers who were the main agents within classroom environments, students appear to have a subsidiary role. The explanations of this participant teacher are as in the following:

> *"I think for learning to take place in any environment, we need teachers to organize or order our learning or steps for learning. However, teachers also need students and sometimes teachers' behaviors in organizing the classroom activities or classroom topics depend on the* students' *behaviors. For this reason, I firstly emphasize the teachers' control of learning environments by giving them the leading role in a play. However, learning environment cannot be a whole without students." (Hafize)*

Some teachers whose interview data categorized under this section appear to encourage teacher-centered classrooms. They frequently assigned dominant and traditional roles to the teachers when talking about the crucial role of teachers in composing classroom learning environments. One of the teachers explained his ideas as follows:

> *"Teachers are the main actors of any classroom environment. They are the leaders of this environment. They lead the students to learn in the best possible way. Without teachers, it cannot be environment for learning. It is just a physical building." (Hüseyin)*

In summary, analyses from the interview data implied that teachers' responses related to this third dimension in the above account resulted from their perceptions or connotations concerning "learning" when defining or conceptualizing the term "learning environment". They had a focus on students' learning and teachers were seen as the main figures in planning or actualizing students' level of learning in the classrooms. The overall results for RQ1 indicated that social sciences teachers perceived the concept of learning environment as a concept with more physical connotations for them and they used the word "physical" the most in their expressions by emphasizing that especially the word "environment" formed a physical perception for them. Thus, physical connotations of the term learning environment were more frequent than the other two conceptualizations emerging from the analyses of the qualitative data. It is also important to note that most of the participants gave more than one answer when conceptualizing the term learning environment with the physical conceptualizations of the term being the most recurring one.

RQ2: What factors in the learning environment facilitate student outcomes?

For the purposes of the second research question, social sciences teachers were asked about the dimensions of learning environment that they considered the most effective to promote positive

student outcomes. The results showed three main learning environment factors, a) physical, b) social and c) assessment-related ones that were likely to enhance student outcomes (Figure 2).

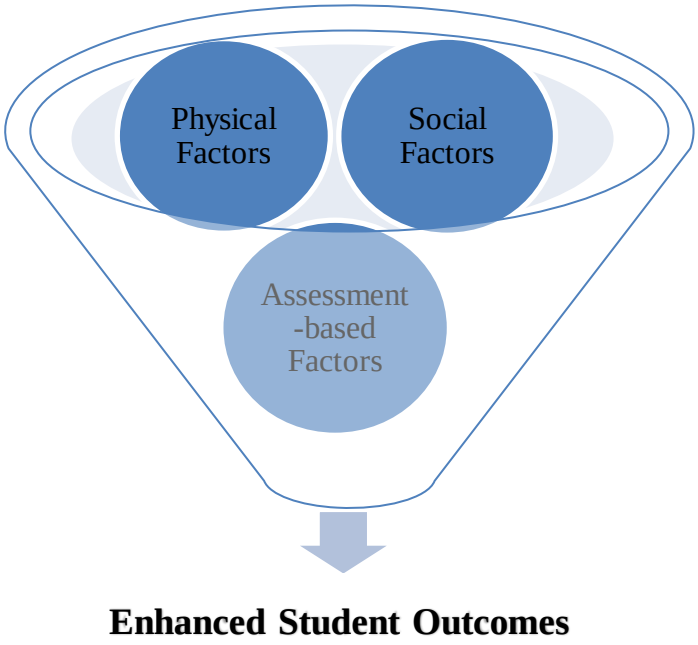

Figure 2. Learning Environment Factors Facilitating Student Outcomes

Physical Learning Environment Characteristics Facilitating Student Outcomes

The results from the analyses of the qualitative data concerning the second research question revealed that most teachers who participated in the study reported the physical characteristics and physical conditions of the classrooms as the most and preliminary dimension of the learning environment among the other dimensions. Therefore, they reported that they first and foremost try to improve the physical conditions of their classrooms in order to support and enrich learning environment of their classrooms. One of the participants stated his opinions as in the following:

> *"Today's students are visual learners and they are attentive to appearances. Perhaps in the past when we were students, we did not care that much about the physical appearances and conditions. Time has changed and now these students get motivated when they have favorable physical conditions. For this reason, I think that the nice and optimal physical conditions should be provided to the students so that they pay attention to their lessons and classroom work. This should be our*

preliminary task as teachers. We should try our best to have neat, clean and organized atmosphere like bright and tidy classrooms, good desks and good learning tools in our classrooms". (Yağız)

Almost all of the interviewees mentioned the significant influence of the physical characteristics upon students' motivation and attitude towards the class. They mentioned the contribution of the physical conditions and characteristics to students' motivation and emphasized that this motivation then contributes to their learning. In other words, not only this motivation is seen as an affective student outcome but it is also seen as a moderator influencing students' cognitive outcomes.

"I think the most important characteristic of learning environment that will contribute to students' learning and happiness is good physical conditions. For instance, when students sit in good desks in a bright and tidy classroom, they will feel happy and thus feel more motivated to learn. A good, properly organized classrooms, labs and gyms or school gardens will have students feel they are valuable. This positive feeling enhances their learning process in turn." (Hafize)

Given the physical characteristics which have been reported among the most facilitative learning environment dimensions contributing to student outcomes by the interviewees, there was a particular surge of emphasize on the use of technology in the name of providing favorable physical conditions. That is, for those reporting the classroom physical characteristics as the most important dimension of the learning environment, the use of technology and technological tools was important and facilitative to positive classroom learning environment and thus to positive student outcomes. One of the teachers mentioned technology as an important sub-dimension of physical learning environment characteristics as in the following statement:

"Physical characteristics of any learning environment is the first thing to consider when we want to improve student gains. When we have no good learning sources, no good school buildings lacking technological facilities for the students, how can we expect them to learn better and further? When it comes to today's generation and young people, the very first learning source is technology. They are born into a technological world. So, to add to their gains and for their benefits, we need to have technologically well-equipped classrooms and good technological sources or media". (Ahmet)

In sum, most of the teachers participating in this study attached importance to the physical dimensions of classroom learning environment. That is, for most teachers, physical characteristics of their classes like brightness, cleanliness, spaciousness, comfortable desks and

the use of good technological tools and media were facilitative to students' learning. Moreover, some of the teachers mentioned the contribution of such characteristics to students' motivation and happiness which in turn lead to increased levels of learning and course achievement on the part of the students.

Social Learning Environment Characteristics Facilitating Student Outcomes

Almost all of the interviewees agreed that social relationships among all stakeholders in the classrooms are important dimensions of any learning environment. Social relationships included teacher-to-student and student-to-student communication and interaction in the classrooms. They also mentioned some side characteristics adding to the social relationships and social dimensions of classroom learning environment. Given all of these characteristics categorized by the researchers as the social dimension characteristics, it is seen that teachers' communicative and interpersonal behavior was the most reported learning environment characteristic that is believed to have a significant effect on student outcomes. In this essence, one of the teachers mentioned the importance of teachers' communicative behavior towards the students as follows:

> *"In my opinion, it is the teacher that is making the class a real learning environment for the students. When students love their teachers, have a good communication and relationship with their teachers, then they get more attentive to and motivated for the lesson. When you have no communication and relationship with your teacher, when you feel afraid to talk to your teacher in the class, when you feel your teacher is distant to your feelings and you, how can you want to learn anything in her/his class? Does this teachers' course offer a learning environment for you?" (Mete)*

Some teachers even pointed out the superiority of teacher behaviors over physical classroom conditions. That is, in contrast to the above section concerning the importance of physical characteristics of learning environment to promote student outcomes, a considerable number of teachers emphasized the effects of positive teacher behavior, recognized as the extent to which teachers are encouraging, helpful, friendly and interested in their students, beyond the effects of favorable physical classroom conditions and characteristics. One of the teachers explained her ideas concerning this as in the following:

> *"In my opinion, in order to have a positive classroom environment, the teacher should be pleasant, sincere and talkative. If I need to improve my learning environment, I pay attention to it first and act accordingly. Technological disruptions and problems may be experienced in the classroom and students may tolerate this and the negative classroom environment may not be a major obstacle for the students' learning. However, if there is a smiley, grumpy teacher in their classrooms, this will adversely affect students in the name of learning and therefore students may experience a negative learning environment. In the long run, even success and attitudes towards the course may be affected. Therefore, I think that positive teacher behavior and attitude towards the students is the most important characteristic of the classroom which makes the learning environment positive." (Semra)*

A few teachers emphasized the importance of social dialogues and communication between the students as an important asset and dimension of the classroom learning environment. When students have good relationships with their peers, they feel more relaxed and comfortable to participate in classroom work and in this way classroom atmosphere becomes open to students' learning, cooperation and involvement. Moreover, teachers should be responsible for the students' working in a friendly atmosphere and being supportive of each other. One of the interviewees explained peer relationships as an important learning environment dimension as in the following:

> *"Students' relationship and communication with each other is an important characteristic of* the *class. When they have a good, respectful and sincere relationship with each other, they can easily cooperate for classroom work, become more directed towards and involved in the course content and activities and in this way, they become much more successful in this lesson. So, interaction among the students is important and teachers should encourage students to respect and support their peers for the sake of promoting more effective and positive classroom learning environments." (Ayşe)*

A comment should be added here pertaining to the teachers' emphasis upon the provision of equity in the classroom as another factor in terms of social facets of the classroom learning environment. In this regard, a few teachers reported that in order to provide a classroom learning environment promoting students' gains, teachers should treat their students equally with regard to their turns in asking and answering questions or other work shares in the classrooms. Moreover, they asserted that teachers should encourage and praise not only the high achievers but also those with lower proficiency levels. One of the interviewees explained this idea as in the following:

> *"When teachers treat equally to their all students, that is, both to those who are high achievers and to those who are low achievers, we can then say that this classroom and its learning environment gets more facilitative and contributive to students' achievement and learning." (Yağız)*

Overall, interviewees also attached a certain degree of importance to the social atmosphere of the classrooms shaped by the mutual relationships, dialogues and communicative behaviors of the all human beings within the classrooms. Furthermore, the utilization of equal treatment and the involvement and encouragement of students by the teachers in the classrooms add to effective and positive learning environment atmosphere supportive of students' outcomes.

Assessment-based Learning Environment Characteristics Facilitating Student Outcomes

Though this was mentioned fairly less compared to the social and physical characteristics of the classrooms mentioned earlier in the above account, course assessment methods were also found to be an important dimension in the learning environment contributing to student gains. The use of assessment systems which were never applied in the course and which did not overlap with the course routine leads to such perceptions of fear and uncertainty on the part of the students, thus resulting in the formation of a negative learning environment in the classrooms. Therefore, congruence between real classroom work and course assessment methods should be taken into consideration to create classroom learning environments that will facilitate student outcomes. One of the participants expressed her opinions about this subject as follows:

> *"The evaluation system of the course is a crucial element of the learning environment. In the Turkish education system, what students are most worried about the course is the assessment method of the course and the exams. For this reason, I care about the elimination of such concerns of the students for my own course. I argue that the learning environment may be more beautiful and positive when course evaluation methods are in parallel with the way the course is conducted. In fact, the more we apply transparent and open assessment systems and the more familiar the students become with these, the more positive and beautiful the learning environment becomes." (Fatma)*

A few participants mentioned that assessment is an important and inseparable dimension of the classroom learning environment; however, this dimension is often disregarded in the Turkish

education system. One of the interviewees explained his criticism about the lack of a well-organized and reliable testing system as in the following:

> *"Assessment and assessment methods used in the classroom are perhaps the most important dimension of the classroom learning environment. I say this because when I look back at my own period as a student years ago, I almost completely remember how I was tested in a lesson and what results I got from the tests of this course. Good, valid, reliable, well-planned course assessment systems are needed for students' benefits. Students become less stressed, happier and more successful when they have all these favorable conditions in terms of measurement and assessment. One critical point for me here is that our education system is not very good at organizing these favorable conditions. Students often feel afraid of course assessment. This fear creates a dark black chaotic and undecisive learning environment for the students." (Ahmet)*

To summarize, the lack of a valid and reliable measurement and evaluation systems in the classrooms leads to learning environments hindering for positive cognitive and affective student outcomes. In this sense, there should be an alignment between teaching and testing situations and assessment conditions should be valid and meaningful to students. Teachers should try to utilize appropriate measurement systems in order to create a positive and effective learning environment for their students.

Results and Discussion

This study is a qualitative research study conducted in line with the domain of learning environment research in terms of its main focus of investigation. The main focus of investigation was on the teachers' perceptions of learning environment and its relevant characteristics. In this sense, this study was conducted with the basic premise that teachers' perceptions and thoughts about classroom learning environment factors and conditions should be understood and learned prior to arranging, changing or utilizing these factors and conditions. In most of the literature within the domain of learning environments research, students were asked about their perceptions pertaining to the classroom environment factors. The results of this study showed that teachers could be valuable sources of data to gain insights and information about classroom learning environment characteristics with most results aligning with the results from the quantitative studies in the literature. In this essence, when the

conceptual perceptions of the teachers about the term "learning environment" were examined, it was seen that the teachers who participated in this study considered the concept of learning environment mainly or firstly as a physical construct. Although they had other concepts and connotations about learning environment in their minds, the majority of the participants emphasized that physical characteristics form more concreate and visual understandings for them. In other words, although teachers mentioned the characteristics of the learning environment that may be involved in a number of social and psychosocial dimensions, these characteristics came after the physical characteristics and conditions of the learning environment. Such conceptualizations of the teachers aligned with the literature in that the materials environment dimension or sub-scale was mentioned and included in most of the data collection instruments (i.e. in most of the learning environment scales) and these subscales appeared to generate valid and reliable data for researchers. For instance, there was a Materials Environment Subscale in the Learning Environment Inventory developed by Fraser, Anderson, and Walberg (1982). Resource Adequacy Subscale of School-Level Environment Questionnaire (Fisher & Fraser, 1990) similarly focused on the physical characteristics of the classroom learning environments. These two instruments set the foundations for further data collection instruments and research studies (Fraser, 2002).

When teacher opinions about the characteristics of the learning environment which they found effective and important to enhance positive student outcomes were taken into consideration, physical characteristics of the classrooms were frequently mentioned by the interviewees. In this context, characteristics such as lighting, temperature, organization of the desks and boards and the type of the course materials used were reported to be important by the participants. Thus, teachers from this study recommended that favorable conditions about the above conditions should be provided to the students to enhance their cognitive and affective outcomes of schooling. In this essence, it is seen that the results from this study about the facilitative roles of physical classroom characteristics upon student outcomes corroborate the conclusions suggested by Higgins, Hall, Wall, Woolner and McCaughey (2005). The participant teachers of this study had emphasized the positive effects of good physical classroom conditions upon students' motivation and achievement. In their extensive review of the studies on school environments, Higgins and his associates (2005) similarly reported that good physical conditions promote students' comfort, attitudes towards the school and wellbeing.

Social and interpersonal relationships were also emphasized by the participant teachers in this study. Such results also align with the results in the literature gained about the teacher interpersonal behavior which is another venue of investigation for most learning environment researchers. The variable of teacher interaction or also called as teacher interpersonal behavior is another component of learning environments research that has been widely investigated by the researchers and this variable was consistently found to be a strong predictor of students' cognitive and affective outcomes (Fraser, 2002; den Brok, 2001, 2018). Therefore, it can be suggested that teacher training programs should include trainings and content related to the importance of the social and psychosocial aspects of learning environments. Teacher candidates should be trained to achieve good teacher-student relationships and to have a favorable interpersonal approach in their communication and interactions with the students. Testing and assessment practices and methods were also considered important in order to create positive learning environment and help students become more successful and happier. The links between assessment practices and student outcomes were similarly reported in the previous studies in the literature (Dorman, Fisher, & Waldrip, 2006; Koul, Fisher and Earnest, 2006; Mutlu & Yıldırım, 2019).

Overall, the use of a qualitative research design has contributed to the researchers' in-depth understandings of a number of factors that might promote or hinder student outcomes. Therefore, future qualitative studies should be conducted to understand the complicated nature of classroom learning environment and the factors hindering or facilitating the student outcomes within the classrooms.

Statements of ethics and conflict of interest

"I, as the Corresponding Author, declare and undertake that in the study titled as *"Teachers' Conceptual Perceptions and Thoughts about Learning Environment"*, scientific, ethical and citation rules were followed; Turkish Online Journal of Qualitative Inquiry Journal Editorial Board has no responsibility for all ethical violations to be encountered, that all responsibility belongs to the author/s and that this study has not been sent to any other academic publication platform for evaluation. "

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Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 3, July 2020: 393-416

DOI: 10.17569/ tojqi.688337

Research Article

Sustainability in Accounting Education Given by Turkey Higher Education Institutions[1]

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Abstract

Nowadays, sustainability and sustainable development objectives should become the focus of all operations. As a result of this requirement, the roles expected from the professional accountant and the competencies required by the professional accountant have changed. It is stated that professional accountants have important roles in creating value, maintaining value and reporting for all capital elements. In order to carry out these roles successfully, professional accountants should be trained in sustainability issues. In this study, it is aimed to examine the existence, number and intensity of courses related to sustainability in accounting curricula of higher education institutions in our country. For this purpose, criterion words related to sustainability themes were determined and accounting curricula were subjected to content analysis with Maxqda 2020 program using criterion words. According to the results of the analysis, it can be said that the number of courses related to sustainability has a very low percentage of the total number of courses in the curriculum.

Keywords: *Accounting education of Turkey, sustainability, environment, social*

[1] The ethical committee permission is not required in this study since the data were gathered before 2020.

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Received: 12.02.2020, Accepted: 27.07.2020

Türkiye Yükseköğretim Kurumlarında Verilen Muhasebe Eğitiminde Sürdürülebilirlik

Öz

Günümüzde, sürdürülebilirlik ve sürdürülebilir kalkınma amaçları tüm faaliyetlerin odak noktası haline gelmiştir. Bunun bir sonucu olarak, muhasebe meslek mensubundan beklenen roller, muhasebe meslek mensubunun sahip olması gereken yetkinlikler de değişmiştir. Muhasebe meslek mensuplarının tüm sermaye unsurları için değer yaratma, yaratılan değeri sürdürme ve raporlamada önemli rolleri olduğu ifade edilmektedir. Bu rollerin başarıyla yürütülmesi için muhasebe meslek mensuplarının sürdürülebilirlik konularında da eğitim alması gerekmektedir. Bu çalışmada, Ülkemizde yükseköğretim kurumları muhasebe müfredatlarında sürdürülebilirliğe ilişkin derslerin varlığı, sayısı ve yoğunluğunun incelenmesi amaçlanmıştır. Bu amaç doğrultusunda, sürdürülebilirlik temalarına ilişkin ölçüt kelimeler belirlenmiş, muhasebe müfredatları belirlenen ölçüt kelimeler kullanılarak Maxqda 2020 programı ile içerik analizine tabi tutulmuştur. Analiz sonuçlarına göre, sürdürülebilirliğe ilişkin ders sayısının müfredatta bulunan toplam ders sayısının çok düşük bir yüzdesine sahip olduğu söylenebilir.

Anahtar Kelimeler: *Türkiye'de muhasebe eğitimi, sürdürülebilirlik, çevre, sosyal*

Introduction

Professional accountant is defined as

> *"an individual who achieves, demonstrates, and further develops professional competence to perform a role in the accountancy profession and who is required to comply with a code of ethics as directed by a professional accountancy organization or a licensing authority" (IFAC-IAESB, 2017: 21).*

In order for a person to be a professional accountant, she/he must complete her/his vocational education and have professional competence. According to International Federation of Accountants-International Accounting Education Standards Board (IFAC-IAESB) (2017), professional knowledge, professional skills and professional values, ethics and attitude should be gained in accounting education.

In Turkey, the conditions for being a professional accountant has regulated by The Professional Law Numbered of 3568. In Article 4 of the Law No. 3568 (Law), general conditions for being a profession, special conditions for being a free accountant and financial advisor in Article 5, and provisions on internship in Article 6 are regulated. According to those, in order to become a professional accountant (certified public accountant), it is necessary to graduate from the law, business, economics, accounting, banking, public administration and political sciences undergraduate or graduate departments of universities, to be successful in the starting an internship examination that is done by the Basic Education and Internship Center (Temel Eğitim ve Staj Merkezi-TESMER), to have received the certified public accountant license after the exam that has been done after at least 3 years of internship. According to Article 2 of the Law, certified public accountant regulate the books, documents and declarations of enterprises, establish and develop accounting systems, organize accounting, finance, financial legislation, and provide consultancy on these matters, and can inspect and control all these issues. According to the 9th article of the law, at least 10 years of professional accountant with the title of freelance accountant can be a certified accountant on condition that they pass the exam and get a license. Chartered accountants can perform the duties of independent accountant financial advisor, other than keeping books. However, "chartered accountants cannot keep accounting books, cannot open an accounting office and cannot be partners in accounting offices" (Law No. 3568, Article 2).

Ayboğa (2003) emphasized the importance of the accounting profession as follows:

> *"The accountancy profession is an institution that needs to be emphasized because it is the only element that will provide reliable information in determining the resources, especially for the countries at development level, and it is the only way to expand the audit function nationwide" (Ayboğa, 2003: 341).*

Increased in the risk of exhaustion of scarce resources due to globalization has caused the concepts of sustainability and sustainable development to be the focus of all activities. In other words, today, effective distribution and use of scarce resources have become the most important issue for the whole world. Therefore, creating long-term value, and more importantly, creating net positive value should be the main objective for all capital elements used and affected by the business.

According to International Federation of Accountants (IFAC) (2019a), the main trends today are long-term success and performance in terms of multiple capital elements, risk management for multiple capital elements, technology and sustainability-based business models that will provide more value to customers and stakeholders at low cost. In order to catch up with these trends and to be successful, professional members should "change their path from balance sheet accounting to business and value creation accounting" (IFAC, 2019a: 10). The transition from balance sheet accounting to business and value creation accounting expressed by IFAC (2019a) is given in Figure 1.

Figure 1. The journey from accounting fort he balance sheet to accounting for the business and value creation
Source**:** IFAC, 2019a: 10

As seen in Figure 1, the concept of accounting for the business refers to the execution and reporting of business activities focused on creating and maintaining value. “Value creation, the process that results in increases, decreases or transformations of the capitals caused by the organization’s business activities and outputs” (International Integrated Reporting Council-IIRC, 2013: 33). In today's world where sustainable development concept and goals are extremely important, value creation should not be evaluated only in terms of financial capital. It is an inevitable fact that in order to achieve business goals and be successful, it should be focused on creating value for social capital, human capital and natural capital, which are referred to as non-financial capital elements, as well as financial capital, intellectual capital and produced capital.

There are certain roles assigned to professional accountants to achieve the goal of creating value in terms of all capital elements. According to IFAC (2019c), the professional accountants have seven important roles in increasing their contribution to strong, sustainable businesses, financial markets and economies, including co-pilot role, navigator role, brand protector role, storyteller role, digital and technology enabler role, process and control expert role, trusted professional. According to IFAC (2011), the roles of professional accountants are the roles of creating sustainable value, providing sustainable value, preserving sustainable value and reporting sustainable value.

The differentiation of the roles and competencies expected from professional accountants will also lead to differences in the job and positions of professional accountants. The Chief Value Officer (CVO) proposed by Mervyn King and Jill Atkins, the sustainability accounting manager position proposed by Institute of Management Accountants-IMA (2018) is one of the most important examples of differentiation in the job and positions of the professional accountant. According to King (2017), the chief financial officer (CFO) must be reshaped and must be the Chief Value Officer (CVO), as they provide the real change in the business.

Proposing these new competencies, jobs and positions is an indication that information production on non-financial issues is expected, as well as generating financial information from the accounting profession. These developments naturally require some changes and developments in the education of the professional accountant. Sustainability issues should also be considered in the education of professional accountants.

Based on this, the purpose in this study is examine to presence, number and intensity course related to sustainability courses in accounting curriculum in the higher education institutions in Turkey which providing training in associate degree, bachelor degree, master degree and doctoral degree. For this purpose, in this study, the curriculum of accounting education in Turkey higher education institutions will be subjected to content analysis with analysis program in Maxquda 20.

Literature Review

There are studies in the literature that examine the relationship between accounting education and sustainability. Some of these studies have been examined in here.

Chulian (2011) aimed to investigate whether the addition of a sustainability accounting course in business curriculums influences students' perceptions of sustainable development. To this end, students were asked questions at the beginning and end of the course period. In line with the answers received from the students, it was observed that there was a difference in students' perceptions of sustainable development at the beginning and end of the course period.

In their study, Mburayi and Wall (2018) conducted a literature review to determine to what extent and how sustainability is included in the accounting and finance curriculums in business schools. As a result of their work, they concluded that accounting and finance lag behind when compared to other management disciplines, and that corporate loyalty is the strongest obstacle in integrating sustainability into accounting curricula.

Peyrovan (2019) conducted a survey study in order to reveal the views of accounting students about sustainable development and how sustainable development relates to their future, and the inclusion of sustainable development in accounting curricula. As a result of the survey, it was revealed that the students have positive perceptions towards sustainable development, but they do not have a positive attitude towards the inclusion of sustainable development in the accounting curricula.

Onyango et al. (2018) conducted their studies to determine the relationship between social reporting, environmental reporting and sustainability accounting. As a result of their studies, they stated that universities should include sustainability issues in their curricula.

Zulkifli (2011) investigated the perspectives of accounting educators in social and environmental accounting elements and roles in Malaysia and their interest in social and environmental accounting. As a result of the research, it has concluded that accounting educators have a positive attitude towards the elements that are used to develop moral awareness on social and environmental issues, and that they see social and environmental accounting education as an appropriate tool to raise awareness.

Güney and Damar (2016) tried to examine the concept of sustainability in terms of accounting profession and its place in accounting education.

Boyce et al. (2019) aimed to determine the degree of liberality and sociability in their accounting curricula as part of the educational reform carried out at Australian and New Zealand universities. For this purpose, they analyzed the websites of 39 universities and analyzed the frequency of ethical, social, environmental and sustainability words in their accounting curriculum with NVIVO analysis program.

Hazelton and Haigh (2010) wrote the results of their efforts to include sustainable development principles in their accounting curricula. They stated that they have achieved some success as a result of their efforts to include sustainable development principles in their accounting curricula. However, they stated that their attempts were blocked since a continuous change is not wanted by professional student societies and the curriculum consists of many lessons for the development of professional skills.

Methodology

Purpose of the Study

In order to adapt to the requirements of the age, professional accountants and candidates must increase their technological knowledge and skills. Another requirement is that professional accountants and candidates have the competence to create and report on sustainable value in

order to protect the rights of future generations to meet their needs. Accounting education has an important role in the training of professional accountants with these competencies.

According to the 5th article of the Law No. 3568, one of the special conditions of being certified public accountant is to be a graduate in law, business, economics, accounting, banking, public administration and political sciences. Those who have a bachelor's degree from other disciplines may have one of the special conditions of being a profession if they complete their postgraduate education in one of these disciplines. It should be stated that those who have graduated at the associate degree level in our country can enter the Vertical Transfer Exam held by the Turkish Student Selection and Placement Center (T.C.Öğrenci Seçme ve Yerleştirme Merkezi-ÖSYM) and pass their undergraduate programs related to their departments.

In line with these explanations, the aim of this study is to examine the existence, number and intensity of the courses related to sustainability in the curricula of higher education institutions that provide accounting education at associate, undergraduate and graduate levels in our country.

Participants and Data Collection Instruments

In this study, higher education institutions that provide accounting education in associate, undergraduate, graduate degree in Turkey was selected as research universe. As of December 2019, information on the universities that provide accounting education at the undergraduate and graduate levels that constitute the research universe is given in Table 1. YÖK Atlas, which was put into service by the Higher Education Institution (Yükseköğretim Kurumu-YÖK), was used to determine the research universe seen in Table 1.

According to information obtained from the YÖK Atlas, "Accounting and Tax Applications" program in associate degree from 96 universities' vocational schools in Turkey are 288. When these programs are analyzed, it is seen that some universities have standardized their accounting curricula in vocational schools. Therefore, standardized accounting curricula are included in the study as a single curriculum, and 129 curricula at the associate degree were examined. Also in this study, 13 program curricula at undergraduate level, 35 program curriculum at graduate level and 13 program curriculum at doctorate level were examined. Information on the courses

forming the curriculum was obtained from the information package available on the universities' websites.

Table 1
Accounting programs curriculum that examined within the scope of the research

Program Degree	University	Faculty / Academy	Curriculum	Number of Curriculum Reviewed	Number of Courses
Associate		Vocational High Schools	288 "Accounting and Tax Applications" program curriculum	129	7461
Undergraduate	Uşak	School Of Applied Sciences	Accounting Information Systems	13	381
	İstanbul Okan	Faculty of Business and Administrative Sciences	Accounting and Auditing		51
	İzmir Ekonomi	Faculty of Business	Accounting and Auditing		80
	Kayseri	School Of Applied Sciences	Accounting and Financial Management		54
	Necmettin Erbakan	School Of Applied Sciences	Accounting and Financial Management		71
	Başkent	Faculty of Commercial Sciences	Accounting and Financial Management		75
	İstanbul Aydın	Faculty of Economics and Administrative Sciences	Accounting and Financial Management		77
	Burdur Mehmet Akif Ersoy	Bucak Zeliha Tolunay School of Applied Technology and Business	Accounting and Financial Management		57
	Muğla Sıtkı Koçman	Bucak Zeliha Tolunay School of Applied Technology and Business	Accounting and Financial Management		86
	İstanbul Arel	School of Applied Sciences	Accounting and Financial Management		64
	Afyon Kocatepe	Bolvadin School of Applied Sciences	Accounting		73
	Trakya	Uzunköprü School of Applied Sciences	Accounting		286
	Girne Amerikan	School of Applied Social Sciences	Accounting		59
Master	Afyon Kocatepe	Institute of Social Sciences-Business Administration-Thesis	Accounting Finance	35	22
	Ağrı İbrahim Çeçen	Institute of Social Sciences-Business Administration	Accounting Finance		49
	Akdeniz	Institute of Social Sciences-Business Administration-thesis and non-thesis	Accounting Finance		40
	Altınbaş	Institute of Graduate Studies-Department of Business Administration-thesis and non-thesis	Accounting Auditing		12
	Anadolu	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting Finance		16

Atılım	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting and Auditing	23
Balıkesir	Institute of Social Sciences-Thesis	Accounting Finance	19
Başkent	Institute of Social Sciences-Department of Business Administration-Thesis and Non-thesis	Accounting and Finance	24
Beykent	Institute of Social Sciences-Department of Business Administration-Thesis and Non-thesis	Accounting Finance	25
Burdur Mehmet Akif Ersoy	Institute of Social Sciences-Department of Accounting and Finance-Thesis	Accounting and Finance	35
Uludağ	Institute of Social Sciences-Department of Business Administration-Thesis and Non-thesis	Accounting and Auditing	38
Dokuz Eylül	Institute of Social Sciences-Department of Business Administration-Thesis and Non-thesis	Accounting	15
Ege	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting	22
Hacettepe	Institute of Social Sciences-Thesis	Accounting Finance	16
Işık	Institute of Social Sciences-Thesis and Non-thesis	Accounting and Auditing	11
İnönü	Institute of Social Sciences-Thesis	Accounting Finance	32
İstanbul Arel	Institute of Social Sciences-Thesis and Non-thesis	Accounting Auditing	24
İstanbul Aydın	Institute of Graduate Studies-Thesis	Accounting Auditing	9
İstanbul Bilgi	Institute of Graduate Studies-Non-Thesis	Accounting Auditing	25
İstanbul Okan	Institute of Social Sciences-Thesis and Non-thesis	Accounting Auditing	25
İstanbul	Institute of Social Sciences-Thesis	Accounting	11
İzmir Demokrasi	Institute of Social Sciences-Thesis	Accounting Finance	30
Kayseri	Institute of Graduate Studies-Department of Accounting And Finance Management -Thesis	Accounting	22
Kırıkkale	Institute of Social Sciences-Thesis	Accounting Finance	25
Kocaeli	Institute of Social Sciences-Thesis	Accounting Finance	30
Dumlupınar	Institute of Social Sciences-Thesis	Accounting Finance	19
Celal Bayar	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting Finance	23
Marmara	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting Finance	21
Muğla Sıtkı Koçman	Institute of Social Sciences-Thesis	Accounting Finance	36

	Osmaniye Korkut Ata	Institute of Social Sciences-Thesis and Non-thesis	Accounting Finance		43
	Pamukkale	Institute of Social Sciences-Department of Business Administration-Thesis and Non-thesis	Accounting Finance		22
	Sakarya	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting Finance		24
	Süleyman Demirel	Institute of Social Sciences-Department of Business Administration-Thesis	Accounting Finance		75
	Trakya	Institute of Social Sciences-Thesis and Non-thesis	Accounting Auditing		33
	Yeditepe	Institute of Social Sciences-Thesis	Accounting Finance		21
Doctorate	Anadolu	Institute of Social Sciences-Department of Business Administration	Accounting	13	16
	Atatürk	Institute of Social Sciences-Department of Business Administration	Accounting Finance		16
	Balıkesir	Institute of Social Sciences	Accounting Finance		22
	Başkent	Institute of Social Sciences-Department of Business Administration	Accounting Finance		17
	İnönü	Institute of Social Sciences	Accounting Finance		35
	İstanbul Aydın	Institute of Social Sciences	Accounting Auditing		17
	İstanbul	Institute of Social Sciences	Accounting		12
	Kırıkkale	Institute of Social Sciences	Accounting Finance		25
	Kocaeli	Institute of Social Sciences	Accounting Finance		32
	Celal Bayar	Institute of Social Sciences	Accounting Finance		37
	Muğla Sıtkı Koçman	Institute of Social Sciences	Accounting Finance		29
	Niğde Ömer Halisdemir	Institute of Social Sciences	Accounting Finance		29
	Sakarya	Institute of Social Sciences	Accounting Finance		18

In the curricula of the accounting programs analyzed, words representing sustainability topics were determined in order to examine the existence, number and intensity of courses related to sustainability. These words are given in Table 2. In order to determine the presence, number and density of the criterion words given in Table 2, the curricula within the scope of the sample were subjected to content analysis with Maxqda 2020 analysis program, and interactive citation matrix and word clouds were prepared.

Table 2
Criterion words used in the research

Sustainability Theme Reviewed	Criteria Words
Social	Sosyal
	Toplumsal
	Toplum
	İnsan
	Eşitlik
Ethic	Etik
	Etiği
	Değer
	Ahlak
Environment	Çevre
	Doğa
	Yeşil
	İklim
	Ekoloji
Sustainability	Sürdürülebilirlik
	Sürdürülebilir

Findings

In 129 associate degree accounting curricula examined within the scope of the research, the frequency and percentage of the total number of courses representing social, ethical, environmental and sustainability themes are given in Table 3. As seen in Table 3, the frequency of social themed words is 191, the frequency of ethical-themed words is 110, and the frequency of environmental themed words is 64. It is seen that sustainability themed words are not included in the curriculum examined. In addition, in the curriculum examined, social-themed words constitute 2.56% of the total number of courses, ethical-themed words constitute 1.47% of the total number of courses, and environmental-themed words constitute 0.86% of the total number of courses.

Table 3
Number of courses on sustainability themes in associate curriculum

Sustainability Theme	Frequency	%	Total Number of Courses	% of Total Number of Courses
Sosyal	191	52,33	7461	2,56
Etik	110	30,14	7461	1,47
Çevre	64	17,53	7461	0,86
Sürdürülebilirlik	0	0,00	7461	0
Total	365	100,00		

Universities providing accounting education at the undergraduate level, the frequency of the criterion words representing the social, ethical, environmental and sustainability themes and the percentage of the total number of courses are given in Table 4. As seen in Table 4, compared to other curricula, there are more courses on social, ethical, environmental and sustainability in Uşak University School of Applied Sciences Accounting Information Systems curriculum. Looking at the total number of accounting curricula that are trained at the undergraduate level, social-themed words 4.66% of the total number of lessons, ethical-themed words 1.41% of the total number of lessons, environmental-themed words 1.62% of the total number of lessons and sustainability-themed words 0.3% of the total number of lessons constitutes the reputation.

Table 4
Number of courses on sustainability themes in undergraduate curriculum

University	Sosyal	Etik	Çevre	Sürdürülebilirlik	Total Number of Courses	% of Total Number of Courses			
						Sosyal	Etik	Çevre	Sürdü.
Uşak	20	5	15	3	381	5,25	1,31	3,94	0,79
İstanbul Okan	0	1	0	0	51	0	1,96	0	0
İzmir Ekonomi	3	3	1	0	80	3,75	3,75	1,25	0
Kayseri	1	1	0	0	54	1,85	1,85	0	0
Necmettin Erbakan	2	1	0	0	71	2,82	1,41	0	0
Başkent	1	1	0	0	75	1,33	1,33	0	0
İstanbul Aydın	1	1	0	0	77	1,29	1,29	0	0
Burdur Mehmet Akif Ersoy	0	1	0	0	57	0	1,75	0	0
Muğla Sıtkı Koçman	1	1	0	0	86	1,16	1,16	0	0
İstanbul Arel	2	1	1	0	64	3,125	1,56	1,56	0
Afyon Kocatepe	2	1	1	0	73	2,74	1,37	1,37	0
Trakya	8	2	5	1	286	2,79	0,69	1,75	0,35
Girne Amerikan	2	1	0	0	59	3,39	1,69	0	0
Total	43	20	23	4	1414	4,66	1,41	1,62	0,3

Interactive citation matrix prepared for undergraduate accounting curricula is given in Table 5, and word clouds on social, ethical, environmental and sustainability themes are given in Figure 2. As seen in Table 5, social responsibility, communal responsibility, environment and sustainability courses are included in some of the undergraduate degree accounting curricula, while it is seen that ethics theme includes accounting ethics or professional ethics courses.

Table 5
Interactive citation matrix for undergraduate level curricula

University	Sosyal	Etik	Çevre	Sürdürülebilirlik
İstanbul Okan		Muhasebe Mevzuatı ve Etik		
Trakya	Güncel Sosyal Politika Sorunları; Sosyal Güvenlik Sisteminde Gelişmeler; Sosyal Devlet-Sosyal Siyaset Sosyal Hukukta Güncel Sorunlar; Türkiye ve AB'nin Karşılaştırmalı Sosyal Yapısı; Sosyal Ağ Analizi; Toplumsal Cinsiyet Eşitliği; Sosyal Sorumluluk Uygulamaları	Meslek Etiği Bilişim Etiği	Güncel Çevre Sorunları; Çevresel Sürdürülebilirlik; Çevre Koruma; Çevre Tasarımında Katılım; Ekoloji ve Çevre Bilimi	Çevresel Sürdürülebilirlik
Kayseri	Sosyal Sorumluluk ve İş Ahlakı	Sosyal Sorumluluk ve İş Ahlakı		
Muğla Sıtkı Koçman	Mesleki Sorumluluk ve Etik	Mesleki Sorumluluk ve Etik		
İstanbul Aydın	Sosyal Sorumluluk ve Etik	Sosyal Sorumluluk ve Etik		
İzmir Ekonomi	Akademik ve Sosyal Oryantasyon; İnsan ve Toplum; Toplumsal Bilinç ve Etik Değerler	Toplumsal Bilinç ve Etik Değerler; Muhasebe Etiği Projesi; İşletme Etiği	Perakende Çevresi	
İstanbul Arel	İş ve Sosyal Güvenlik Hukuku; Sosyal Sorumluluk ve Topluma Hizmet Uygulaması	Mesleki Sorumluluk ve Etik	Çevre Koruma; İş Sağlığı ve Güvenliği	
Necmettin Erbakan	Toplumsal Sorumluluk; İş ve Sosyal Güvenlik Hukuku	Muhasebe Meslek Hukuku ve İş Etiği		
Girne Amerikan	Sosyoloji; Kamu ve Sivil Toplum Kuruluşları Muhasebesi; Sivil Toplum Örgütleri	Meslek Etiği		
Burdur Mehmet Akif Ersoy		Muhasebe Meslek Hukuku ve İş Etiği		
Başkent	İş ve Sosyal Güvenlik Hukuku	Muhasebe Meslek Mevzuatı ve Etiği		
Afyon Kocatepe	Çevre Sorunları ve Toplumsal Sorumluluk; İş ve Sosyal Güvenlik Hukuku	Meslek Hukuku ve İş Etiği	Çevre Sorunları ve Toplumsal Sorumluluk	
Uşak	Sosyal Sorumluluk ve Topluma Hizmet Uygulaması; Gündemin Sosyolojisi; Sosyal Sorumluluk Bilinci; Kent, Toplum ve Kültür; Toplumsal Cinsiyet ve Eğitim; Sosyal Eşitsizlik ve Sosyal Değişme; Sosyal Eşitsizlik ve Sosyal Değişme; Günlük Hayat ve Toplum; Sosyal Pazarlama; Sosyal Medya ve Gündem; İnsan, Toplum ve Davranış; Türkiye'de Kır Sosyolojisi Araştırmaları; Sosyal Pazarlama; Toplumsal Cinsiyet ve Teknoloji; Toplumda Cinsiyet Eşitliği; Toplumsal Sağlık ve Egzersiz; Sosyal Teori; Günümüz Toplumunda Stres ve Çene Sistemi Üzerine Etkileri; Sporun Sosyal Tarihi; Medya ve Toplumsal Cinsiyet	Etik Karar Verme; Karakter ve Değerler Eğitimi; Muhasebe Meslek Mevzuatı ve Meslek Etiği; Etik; Tarihi ve Turistik Değerleri İle Uşak	Enerji Üretimi ve Çevresel Sorunlar; Madencilik Faaliyetleri ve Çevresel Etkileri; Enerji ve Çevre; Çevre Bilinci ve Doğayı Koruma; Çevre Koruma; Ekolojik Tarım; Ekolojik Okuryazarlık; Spor ve Çevre; Enerji ve Çevre; Çevre Sağlığı; İklim Değişikliği ve Tarım; Çevre Muhasebesi; Eski Çağ'da Uşak ve Çevresi; Kentleşme ve Çevre; Çevremizdeki Canlılar	Tekstilde Sürdürülebilirlik; Sürdürülebilir Enerji Kaynakları; Sürdürülebilir Tarım

Figure 2. Word clouds on undergraduate degree social, ethical, environment and sustainability themes

In universities that offer accounting education at the master's degree, the frequency of the words on social, ethical, environmental and sustainability themes and their percentage in the total number of courses are given in Table 6 and word clouds related to social, ethical, environmental and sustainability themes are given in Figure 3. As seen in Table 6, the number of socially themed courses in master's accounting programs whose curriculum is examined constitutes 0.44% of the total number of courses, ethical themed courses constitute 3.44% of the total number of courses, environmental themed courses constitute 0.33% of the total number of courses, and sustainability themed courses constitute 0.22% of the total number of courses. However, it has been observed that there are no courses on social, environmental, ethical and sustainability themes in master degree accounting curricula that are trained in Afyon Kocatepe, Balıkesir, Beykent, Burdur, Dokuz Eylül, İnönü, İstanbul Aydın, İstanbul Okan, Kayseri, Kocaeli, Işık, Marmara and Pamukkale universities.

Table 6
Number of courses on sustainability themes in master degree curriculum

University	Sosyal	Etik	Çevre	Sürdürülebilirlik	Total Number of Courses	% of Total Number of Courses			
						Sosyal	Etik	Çevre	Sürdürüle.
Sakarya	0	0	0	1	24	0	0	0	4,17
Ağrı İbrahim Çeçen	1	2	1	0	49	2,04	4,08	2,04	0
Akdeniz	0	2	1	0	40	0	5	2,5	0
Afyon Kocatepe	0	0	0	0	22	0	0	0	0
Altınbaş	0	1	0	0	12	0	8,33	0	0
Anadolu	0	2	0	0	16	0	12,5	0	0
Atılım	0	2	0	0	23	0	8,69	0	0
Balıkesir	0	0	0	0	19	0	0	0	0
Başkent	1	2	0	0	24	4,17	8,33	0	0
Beykent	0	0	0	0	25	0	0	0	0
Burdur Mehmet Akif Ersoy	0	0	0	0	35	0	0	0	0
Celal Bayar	0	1	0	0	23	0	4,35	0	0
Dokuz Eylül	0	0	0	0	15	0	0	0	0
Dumlupınar	0	2	0	0	19	0	10,52	0	0
Ege	0	1	0	0	22	0	4,55	0	0
İzmir Demokrasi	1	3	0	0	30	3,33	10	0	0
İnönü	0	0	0	0	32	0	0	0	0
İstanbul Arel	0	1	0	0	24	0	4,17	0	0
İstanbul Aydın	0	0	0	0	9	0	0	0	0
İstanbul Bilgi	0	2	0	0	25	0	8	0	0
İstanbul Okan	0	0	0	0	25	0	0	0	0
İstanbul	0	1	0	0	11	0	9,09	0	0
Işık	0	0	0	0	11	0	0	0	0
Kayseri	0	0	0	0	22	0	0	0	0
Kırıkkale	0	1	0	0	25	0	4	0	0
Kocaeli	0	0	0	0	30	0	0	0	0
Marmara	0	0	0	0	21	0	0	0	0
Muğla Sıtkı Koçman	0	2	0	0	36	0	5,56	0	0
Osmaniye	0	1	0	0	43	0	2,33	0	0
Pamukkale	0	0	0	0	22	0	0	0	0
Süleyman Demirel	1	1	1	1	75	1,33	1,33	1,33	1,33
Trakya	0	1	0	0	33	0	3,03	0	0
Uludağ	0	2	0	0	38	0	5,26	0	0
Yeditepe	0	1	0	0	21	0	4,76	0	0
Toplam	4	31	3	2	901	0,44	3,44	0,33	0,22

Figure 3. Word clouds on master degree social, ethical, environment and sustainability themes

The interactive citation matrix prepared with Maxqda 2020 regarding the analyzed curricula of universities providing accounting education at master's level is given in Table 7. As seen in Table 7, within the scope of accounting education at master's level, the number of courses related to ethical criterion is higher compared to other sustainability criteria. In addition, there are courses on natural resources economics within the scope of environmental criteria at Sakarya University, and environmental accounting courses at Süleyman Demirel University. It is noteworthy and positive situation that there is a Sustainable Business course in Sakarya University graduate accounting curriculum, and integrated reporting, which is a relatively new corporate reporting approach, is included within the scope of Süleyman Demirel University graduate accounting curriculum.

Table 7
Interactive citation matrix for master's level curricula

University	Sosyal	Etik	Çevre	Sürdürülebilirlik
Sakarya				Sürdürülebilir İşletmeler
Ağrı İbrahim Çeçen	Örgüt Sosyolojisi	Bilimsel Araştırma Yöntemleri ve Yayın Etiği Dersi Değerler Eğitimi	Doğal Kaynaklar Ekonomisi	
Akdeniz		Bilimsel Araştırma Yöntemleri ve Yayın Etiği Dersi Değerler Eğitimi	Doğal Kaynaklar Ekonomisi	
Altınbaş		Araştırma Yöntemleri ve Bilimsel Etik		
Anadolu		Bilim Etiği ve Araştırma Teknikleri Meslek Hukuku ve Etik		
Atılım		Bilim Eğitim ve Etik Bilimsel Araştırma Yöntemleri ve Yayın Etiği		
Başkent	İş ve Sosyal Güvenlik Hukuku	Araştırma Yöntemleri ve Araştırma Etiği Mesleki Etik ve Bağımsızlık		
Celal Bayar		Bilimsel Araştırma Yöntemleri ve Yayın Etiği		
Dumlupınar		Bilimsel Araştırma ve Etik Finansal Muhasebe ve Etik		
Ege		Bilimsel Araştırma Yöntemleri ve Etik		
İzmir Demokrasi	Kurumsal Sosyal Sorumluluk ve Etik	Bilimsel Araştırma Yöntemleri ve Yayın Etiği Muhasebe Mesleği ve Etik Kurumsal Sosyal Sorumluluk ve Etik		
İstanbul Arel		Meslek Mevzuatı ve Etik		
İstanbul Bilgi		Araştırma Yöntemleri ve Etik		
İstanbul		Bilimsel Araştırma Teknikleri ve Yayın Etiği		
Kırıkkale		Bilimsel Araştırma ve Yayın Etiği		
Muğla		Bilimsel Araştırma Teknikleri ve Yayın Etiği Muhasebe Meslek Etiği		
Osmaniye		Muhasebede Etik		
Süleyman Demirel	İş ve Sosyal Güvenlik Uygulamaları	Muhasebe Kültürü ve Etiği	Çevre Muhasebesi	Entegre Raporlama
Trakya		Araştırma ve Yayın Etiği		
Uludağ		Araştırma Teknikleri ve Yayın Etiği Denetimde Etik		
Yeditepe		Araştırma Yöntemleri ve Etik		

In universities that offer accounting education at the doctorate degree, the frequency of the words on social, ethical, environmental and sustainability themes and their percentage in the total number of courses are given in Table 8 and word clouds related to social, ethical, environmental and sustainability themes are given in Figure 4. As seen in Table 8, the number of socially themed courses in doctorate degree accounting programs whose curriculum is examined constitutes 0.79% of the total number of courses, ethical themed courses constitute 2,63% of the total number of courses, environmental themed courses constitute 0.26% of the total number of courses, and sustainability themed courses constitute 0.79% of the total number of courses. However, it was observed that there are no courses on social, environmental, ethical and sustainability themes in the doctorate degree accounting curricula that are trained at Balıkesir, Başkent and İnönü universities.

Table 8
Number of courses on sustainability themes in doctoral curricula

University	Sosyal	Etik	Çevre	Sürdürülebilirlik	Total Number of Courses	% of Total Number of Courses			
						Sosyal	Etik	Çevre	Sürdürülebilirlik
Anadolu	0	0	0	1	16	0	0	0	6,25
Atatürk	0	1	0	0	16	0	6,25	0	0
Balıkesir	0	0	0	0	22	0	0	0	0
Başkent	0	0	0	0	17	0	0	0	0
İnönü	0	0	0	0	35	0	0	0	0
İstanbul Aydın	1	1	0	0	17	5,88	5,88	0	0
İstanbul	0	1	0	0	12	0	8,33	0	0
Kırıkkale	0	2	0	0	25	0	8	0	0
Kocaeli	0	1	0	0	32	0	3,125	0	0
Celal Bayar	0	1	0	0	37	0	2,70	0	0
Muğla Sıtkı Koçman	0	1	0	0	29	0	3,45	0	0
Niğde Ömer Halisdemir	0	1	0	0	29	0	3,45	0	0
Sakarya	1	0	0	1	18	5,56	0	0	5,56
Süleyman Demirel	1	1	1	1	75	1,33	1,33	1,33	1,33
Toplam	3	10	1	3	380	0,79	2,63	0,26	0,656

Figude 4. Word clouds on doctorate degree social, ethical, environment and sustainability themes

The interactive citation matrix prepared with Maxqda 2020 regarding the curricula at universities that provide accounting education at doctoral level is given in Table 9. As seen in Table 9, within the scope of accounting education at doctoral level, the number of courses related to ethical criterion is higher compared to other sustainability criteria. In addition, Sakarya University has social accounting approaches course within the scope of social criteria, and Süleyman Demirel University has environmental accounting course within the scope of environmental criteria. In addition, it is remarkable and positive situation that there is a sustainability reporting course in Anadolu University's doctorate accounting curriculum, sustainable businesses course in Sakarya University doctorate accounting curriculum.

Table 9
Interactive citation matrix for doctorate degree curricula

University	Sosyal	Etik	Çevre	Sürdürülebilirlik
Anadolu				Sürdürülebilirlik Raporlaması
Atatürk		Bilim Eğitim ve Etik		
Balıkesir				
Başkent				
Celal Bayar		Bilimsel Araştırma Yöntemleri ve Yayın Etiği		
İnönü				
İstanbul Aydın	Sosyal Bilimlerde Araştırma Yöntemleri ve Etik	Sosyal Bilimlerde Araştırma Yöntemleri ve Etik		
İstanbul		Bilimsel Araştırma Teknikleri ve Yayın Etiği		
Kırıkkale		Bilimsel Araştırma ve Yayın Etiği Muhasebede Meslek Etiği		

Kocaeli		Muhasebede Etik	
Muğla Sıtkı Koçman		Bilimsel Araştırma Teknikleri ve Yayın Etiği	
Niğde Ömer Halisdemir		Bilimsel Araştırma Teknikleri ve Yayın Etiği	
Sakarya	Sosyal Amaçlı Muhasebe Yaklaşımları		Sürdürülebilir İşletmeler

Discussion and Conclusion

The accounting profession has emerged in order to report the assets and resources of individuals or institutions by recording their income and expenses, thereby meeting the information needs of the related parties. Today, although the accounting profession continues to exist for this purpose, there are some developments and changes that have led to the addition of new expectations from the accounting profession. The necessity to pay attention to the concept of sustainability and technological advances are the leading ones. These developments and changes have created the expectation that the professional accountant will fulfill the roles of creating and maintaining financial value related to business activities and operating results, as well as creating, maintaining and reporting roles for non-financial capitals. In order to fulfill these roles expected from the professional accountant, some changes must be made in the accounting education of the professional accountant and professional accountant candidates. According to Federation of European Accountants-FEE (2008), professional accountant can help create a sustainable environment by developing itself in strategy development, process improvement and performance measurement. In this regard, "*sustainability issues should be integrated into accounting education curricula*" (FEE, 2008: 8).

In this study, it is aimed to examine the existence, number and intensity of the courses related to sustainability in higher education institutions in our country. For this purpose, information on associate, undergraduate and graduate accounting programs and curricula were obtained from YÖK Atlas and websites of universities. In this program curricula, criterion words related to sustainability themes have been determined in order to locate sustainability. In order to determine the presence, frequency and density of criterion words in the curricula, the information obtained from the accounting curricula of the universities were subjected to content analysis with the Maxqda 2020 program, and the number of courses related to sustainability, the percentage of the total number of courses, interactive citation matrix and word clouds were

created. It is possible to express the general evaluations made as a result of the analysis as follows:

- At each educational level, the number of courses on sustainability is a very small percentage of the total number of courses in the curriculum.
- In master's and doctorate degree programs, it is seen that there are no sustainability courses in some universities' accounting curricula.
- In some curricula, the student has the opportunity to choose courses from elective courses of other departments where education is given in the relevant unit or elective courses of other units where education is given in the university. Providing the opportunity to take elective courses from other departments or units caused high number of courses related to sustainability in the curriculum of the program.
- In the curriculum review conducted in this study, all compulsory and elective courses in the curriculum are included in the review. Considering that elective courses are opened in line with Bologna ECTS values, it is not possible to open all elective courses in the curriculum as semester courses. Therefore, in order to achieve more accurate results, it is necessary to know whether these courses are opened in the semester as well as the existence and number of courses related to sustainability. This situation can be described as the constraint of this research.
- Most of the courses on ethics that represent the sustainability theme consist of accounting ethics, professional ethics, scientific research and publication ethics.
- In the accounting curricula examined, some lessons were found that can be said to be important in terms of sustainability in accounting education. These include:

University	Program Degree	Courses
Anadolu University	Doctorate	Sürdürülebilirlik Raporlaması
Süleyman Demirel University	Master	Çevre Muhasebesi Entegre Raporlama
Sakarya University	Master Doctorate	Sürdürülebilir İşletmeler
	Doctorate	Sosyal Amaçlı Muhasebe Yaklaşımları
Uşak University	Undergraduate	Çevre Muhasebesi

In line with these reviews and evaluations, it may be suggested to increase the number of courses related to sustainability in accounting curricula and to include sustainability and sustainable development objectives in all course contents.

Statements of ethics and conflict of interest

"I, as the Corresponding Author, declare and undertake that in the study titled as *"Sustainability in Accounting Education Given by Turkey Higher Education Institutions"*, scientific, ethical and citation rules were followed; Turkish Online Journal of Qualitative Inquiry Journal Editorial Board has no responsibility for all ethical violations to be encountered, that all responsibility belongs to the author/s and that this study has not been sent to any other academic publication platform for evaluation. "

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Turkish Online Journal of Qualitative Inquiry (TOJQI)
Volume 11, Issue 3, July 2020: 417-435

DOI: 10.17569/ tojqi.641786

Research Article

Views of Prospective Teachers and Supervisors on a Practicum Program: A Case Study[1][2]

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Abstract

Practicing what has been learned throughout the teacher education programs in Turkey is accepted as the end point of the preservice teaching career. This period of practice teaching serves as the time to implement theory into practice under the supervision of faculty members. In this study, the major purpose was to investigate the views of supervisors and preservice teachers regarding the practice teaching program which was redesigned to overcome some limitations of the current one. As a second purpose, the commonalities and differences between the self-reflections of preservice teachers and feedback provided by the supervisors on a specific practice teaching session in the final term were also investigated. To gather data, six preservice teachers majoring in language teaching and two faculty members were assigned to respond to two different written guidelines provided with these purposes. Written responses were analyzed through content analysis and open-coding. Results showed that both preservice teachers and supervisors think that redesigned program has many strengths such as time allocated to practice and feedback sessions. However, they also believe that, active practice teaching only in the final year is the weakness of this new program. The analysis of the written documents after the practice teaching of prospective teachers showed that prospective teachers gained a great reflective

[1] The ethical committee permission is not required in this study since the data were gathered before 2020.
[2] The initial findings of the study were presented at the " 2019 ITEAC III. International Teacher Education and Accreditation" held in Ankara (Turkey) on 30th of November-1st of December 2019.
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Received: 02.11.2019, Accepted: 24.07.2020

perspective throughout their education. There are also some differences in their reflections and feedback from supervisors about the use of materials, planning and use of methods. This study has specific implications for language teacher education programs and teacher trainers.

Keywords: *Practice teaching, prospective teachers, supervisors, teacher education*

Öğretmen Adaylarının ve Gözetmenlerin Uygulama Öğretimi Programına İlişkin Görüşlerinin İncelenmesi: Bir Durum Çalışması

Öz

Türkiye'deki öğretmen yetiştirme programlarında öğrenilenleri uygulamak, öğretmen adaylığı kariyerinin son noktası olarak kabul edilmektedir. Bu uygulama öğretimi dönemi, teoriyi öğretim üyelerinin gözetiminde uygulamaya geçirme zamanı olarak hizmet eder. Bu çalışmada asıl amaç, mevcut öğretimin bazı sınırlamalarının üstesinden gelmek üzere yeniden tasarlanan uygulama öğretimi programı ile ilgili gözetmenlerin ve öğretmen adaylarının görüşlerini incelemektir. İkinci bir amaç olarak, öğretmen adaylarının öz yansımaları ile son dönemde belirli bir uygulama oturumunda gözetmenler tarafından sağlanan geri bildirimler arasındaki ortaklıklar ve farklılıklar da araştırılmıştır. Veri toplamak için, dil öğretiminde uzmanlaşmakta olan altı öğretmen adayı ve iki öğretim üyesi bu amaçlar doğrultusunda geliştirilen iki farklı yazılı ankete cevap vermek üzere görevlendirilmiştir. Yazılı yanıtlar içerik analizi ve açık kodlama ile analiz edilmiştir. Sonuçlar hem öğretmen adaylarının hem de gözetmenlerin yeniden tasarlanan programın uygulama ve geri bildirim oturumlarına ayrılan zaman gibi birçok güçlü yönü olduğunu düşündüğünü göstermiştir. Bununla birlikte, sadece son yılda aktif uygulama öğretiminin bu yeni programın zayıflığı olduğuna da inanıyorlar. Öğretmen adaylarının uygulamalı öğretimi sonrası yazılı belgelerin incelenmesi öğretmen adaylarının eğitimleri boyunca büyük bir yansıtıcı perspektif kazandıklarını göstermiştir. Ayrıca, malzemelerin kullanımı, yöntemlerin planlanması ve kullanımı konusunda gözetmenlerden yansımalarında ve geri bildirimlerinde bazı farklılıklar vardır. Bu çalışmanın dil öğretmeni eğitim programları ve öğretmen eğitmenleri üzerinde belirgin etkileri vardır.

Anahtar Sözcükler: *Uygulama öğretimi, öğretmen adayları, öğretmen gözetmenleri, öğretmen eğitimi*

Introduction

As a result of the demographic changes in the world and more specifically in the east and south-east region of our country, Turkey, new graduate teachers have to educate students with various backgrounds that are mostly different from their own. Especially with the increasing number of minority students in the country, preservice teachers need to be well-prepared for teaching diverse learners with the awareness and knowledge of teaching multicultural learners. Additionally, it is also known that many preservice teachers come to class with little or no knowledge of how to teach under such conditions. Recent studies indicate that course content and pedagogy have to be linked to field experience and "interwoven with multicultural course work to foster the aims of culturally responsive teaching" (Vavrus, 2002, p. 96). In order to prevent teacher failure, burnout and attrition resulting from this situation and lack of practice teaching experience, the academics in the English Language Teaching department redesigned the current practice teaching program.

The properties of practice teaching have been discussed in the field. Especially about the early start of teaching experience has received great attention. To exemplify, Pease (1995) indicates that early field experience impact preservice teachers in a positive way. Moreover, it is stated that preservice teachers who are provided with early field experiences with diverse groups of learners become more willing to teach these groups (Coballes-Vega, 1992; Burns, Grande and Marable, 2008). In a similar sense, Heinemann, Obi, Pegano and Weiner (1992) reported that the earlier preservice teachers gain field experience, the greater personal teaching efficacy, flexibility and awareness they demonstrate. Additionally, Zeichner (1995) insists that while deciding on the properties of the practice teaching, the length, who supervises it, and where it will take place should be considered. Feiman-Nemser and Buchman (1985) also argue that following three questions need to be asked about the role of practice teaching in learning to teach; (a) What is the preservice teacher learning in the here and now about being a teacher, about pupils, classrooms, and the activities of teaching?, (b) How do these lessons of experience relate to the central purpose of teaching-helping pupils learn?, (c) To what extent do these lessons of experience foster the students' capacity to learn from future experience?

Therefore, to be able to respond to above questions, practice teaching should be viewed as an important opportunity for teacher learning instead of being a time period to demonstrate the things previously learned. In a parallel view, Goodlad (1990) states that preservice teachers learn how to handle teaching in a classroom all alone, thus, they should be provided with repeated occasions to experience rather than practicing teaching in one classroom under the supervision of one teacher/academic. In addition to all these ideas and properties, during practice teaching preservice teachers' awareness regarding the significance of continuous professional development. In other words, preservice teachers should learn some strategies, such as action research and reflection, for this specific purpose. Dewey (1934) earlier in the previous century, suggested that no matter what teacher educators do to prepare preservice teachers for teaching, they can only prepare them to start teaching. He concludes in his good old article that unless teacher education programs equip preservice teachers with the necessary knowledge and awareness for their own professional development to continue learning which requires continuous education, it is miseducative. In this line, it is a common belief that practice teaching should be formed with strong emphasis on development of preservice teachers in terms of both proficiency in teaching and awareness of continuous professional development. The underlying idea of all these discussions is the belief that "knowledge of teaching differs from knowledge about teaching. Whereas it might be possible to learn about teaching in theoretical courses, the knowledge of teaching, the professional content knowledge of teachers (Shulman, 1987) can only be acquired by active engagement in teaching" (cited in Smith and Lev-Ari, 2005).

Various forms of practice teaching have been suggested in the literature (Buchberger and Busch, 1988); however, three major conceptual approaches have been fore fronted; (1) the apprenticeship, (2) applied science, and (3) inquiry-oriented practice teaching (Zeichner, 1996). In the apprenticeship approach requires preservice teachers spend their time in schools observing an experienced model before engaging in their own practical experience. With the application of applied science approach, the length of the practice teaching decreases. Being the most common approach, the theory of teaching is studied, and then preservice teachers gradually get engaged in teaching by implementing the theory into practice. Recently, the inquiry-oriented model has been favored and put into action. While teacher education takes place in schools, preservice teachers are required to be inquirers and encouraged to reflect on their experiences with the support of supervisors and cooperating teachers in the process.

Therefore, they learn to take the responsibility of their own learning through inquiry and they also become reflective practitioners by being in such a period (Schon, 1983). Today, teacher education is less commonly viewed as a pure applied science (Eisner, 2002); instead many teacher education programs combine the applied science and the inquiry-oriented approach.

With these ideas in mind, the former practice teaching model suggested by Higher Education Council was redesigned. The former one has been offered as a course in the last year of teacher education program in both semesters for six hours a week. It has been planned to allow preservice teachers practice teaching at least four times under the supervision of the mentor teacher in each semester. As it is clear, this former program is based on only applied science model. That's why, the teacher educators in the department decided to redesign this former model by applying the combination of all the three approaches defined previously; apprenticeship, applied science and inquiry-based approach. In this combined model, as has been suggested in the literature, preservice teachers are required to observe as many experienced teachers as possible to form a kind of schema in their minds for the ideal language teacher in their first year which can be called as the application of the apprenticeship model. With this approach, they start their experience only by doing weekly observations in language classes with diverse group of learners without teaching. They are also provided with the opportunity to engage in the school culture, observe the hardships and strategies applied by different language teachers. During this period, they are required to take field notes, and discuss their experience with peers and the supervisors in-class weekly. In the second and third year of the program, these preservice teachers continue their observations in a more guided way. They are required to do their observations depending on the theory they are instructed in the department. Even though they are not asked to practice teaching officially, they teach unofficially (e.g. pre-teaching, doing an activity etc.). In some exceptional cases, the teachers at cooperating schools can be asking them to substitute when needed. In this sense, applied science approach starts to be used. And in the last year of their teacher education program, they are engaged in the official practice teaching program offered by Higher Education Council which is expected in the form of applied science approach. However, with the awareness of the significance of developing a disposition and capability to teach them take responsibility for their own professional development every student is required to conduct an action research on a problem they have observed. They also start writing self-reflections after each practice

teaching session in the third and the fourth year. Therefore, this redesigned program also applies inquiry-based approach together with the action research and self-reflections.

The objectives of this redesigned program can be listed as follows; (a) engaging preservice teachers in field experience from the very beginning of the teacher education program, (b) gaining them with experience in different aspects of teacher education (i.e. classroom management, rapport with students, teaching strategies and approaches, materials use, presentation and instruction techniques, and testing), (c) helping them to become reflective practitioners who can apply what they learn during their education and who can take the control of their own professional development, (d) raising their awareness about the professional development through strategies such as action research and reflective practice.

In this study, the purpose is twofold; (a) how preservice teachers and university supervisors view redesigned practice teaching program and (b) how both parties view a specific practice teaching session.

Methodology

Settings and Participants

This research was conducted in an ELT department of a foundation university in the south-east part of Turkey. As it was explained previously, the learner profile in this region consists of different minority groups which make the academics consider the situation in planning the components of the language teacher education program. At the time of the study, there were 156 students in the department and 23 of them were senior level students who all engaged in the whole redesigned practice teaching program. Six preservice teachers (two male, four female) and two university supervisors who all completed their practice teaching volunteered to take part in the study. Participating supervisors were the supervisors of the participating preservice teachers.

Data Collection and Analysis

A qualitative research design was chosen because it allows deep analysis of the text that may not be obtained from survey-based research. In this qualitative study, the data were collected through reflective essays. Reflection is an intentional, dynamic process that allows improvement in one's actions, abilities, and knowledge by learning from experiences (Boud, Keogh & Walker, 1985). Participating preservice teachers and supervisors were given two different guidelines in the last week of four-year long practice teaching program. In the first one, they were asked to reflect on the weaknesses and strengths of the program as a whole. In the second one, both the preservice teachers and the supervisors were required to reflect on the last teaching practice session. Preservice teachers reflected on their own weaknesses and strengths and supervisors also reflected on the teaching practice of the preservice teachers they observed during their teaching. The guidelines were sent online and the participants were asked to send back the reflective essays the following day online.

Data gathered from reflections were analyzed through open coding strategy. Open coding involves applying codes that are derived from the text (emergent codes) instead of priori codes that are imposed (Strauss & Corbin, 1998). Essays written by the participants were analyzed for commonly emerging codes by two researchers to meet the inter-rater reliability concern. 93% agreement was reached. Agreed codes were accepted and the disagreed ones were negotiated. Differing ideas were also discussed.

Trustworthiness of Qualitative Data

In order to ensure the reliability and validity of the qualitative data gathered from interviews and essays, trustworthiness criteria proposed by Guba and Lincoln (1985) were used. This evaluation was done according to four criteria they suggested; credibility, transferability, dependability and confirmability. To ensure the credibility of the qualitative data, background qualifications and experience of the researcher and member checks were used as suggested techniques by Guba and Lincoln (1985). To ensure transferability, thick description was the suggested technique. By providing description of context in which the study was conducted and the participants, the results of the study can be transferred to similar contexts. The research design, its implementation, the data collection procedures and the analysis were all explained in a very detailed way to accomplish dependability. To ensure the confirmability of the data,

thick description of the program with all documents and the post facto notes of the researcher helped. And the results approved the reliability of the data.

Ethical Issues

The ethical committee permission is not required in this study since the data were gathered before 2020.

Results

The essays written by the supervisors and the preservice teachers were analyzed for the investigation of the first purpose of the study which is about preservice teachers' and university supervisors' views regarding the redesigned practice teaching program as a whole. In the following table common codes are provided (see table 1). As can be seen, both supervisors and preservice teachers agreed on some weaknesses (i.e. practicing teaching only in the last year, quality of feedback received from cooperating teachers), and strengths (time allocated to practice teaching, guided observations, class discussions, continuous feedback sessions and peer feedback) of this redesigned program. On the other hand, each party mentioned some other strengths and weaknesses. For instance, supervisors think that reflective essays written by the preservice teachers is a strength but preservice teachers think the contrary. Additionally, even though the preservice teachers agree with the supervisors about the importance of peer feedback, they are not happy with the quality of feedback given. The same is applicable for the feedback provided by the cooperating teachers. Some other weaknesses are also explained. As for the supervisors, lack of conversation with cooperating teachers and school administrators and the documentation procedures they need to complete cause some weaknesses. Preservice teachers, on the other hand, consider the timing of the feedback, receiving oral feedback and the quality of cooperating teachers' feedback as other weaknesses.

Table 1

Codes regarding Practice Teaching Program

Supervisors		Preservice Teachers	
Strengths	Weaknesses	Strengths	Weaknesses
Early start	Practicing teaching only in the last year	Early Start (N=6)	Practicing teaching officially only in the last year(N=3)

Guided observation		Guided observation (N=4)	Oral feedback from supervisors (N=5)
Class Discussions		Class discussions (N=4)	Number of class discussion hours (N=6)
Continuous feedback sessions		Continuous feedback sessions (N=6)	Timing of feedback
	Feedback from cooperating teachers	Feedback from cooperating teachers (N=6)	Quality of feedback received from cooperating teachers (N=6)
Peer feedback		Peer feedback (N=6)	Quality of peer feedback(N=4)
	Lack of conversation with cooperating teachers and school administrators		
	Documentation Procedures		
		Time spent in schools (N=6)	
Writing reflective essays			Writing reflective essays

As can be seen in the above table, both supervisors and the preservice teachers agree that early start of the practice teaching, guided observation in the first two years, discussion done in the class after practice teaching with the teacher trainers, continuous feedback sessions held with the supervisors, peer feedback and writing reflective essays are the strengths of the newly developed practice teaching period. Some sample quotations representing these codes are as follows;

Regarding the advantage of *early start* one of the supervisors stated that;

> *"I always believe that the teaching requires intensive experience. So the earlier, the better." (Supervisor A)*

In a similar line, one of the preservice teachers declared the following quote;

> *"I feel lucky because we can start gaining experience from the very beginning. We do not need to wait till the last year as the students in other faculties." (PT B)*

In addition, guided observation required preservice teachers to do is accepted as another strength of the program by both groups.

"Since they start observations in the first year without receiving adequate theory, we need to provide guidance. This helps them understand what to do" (Supervisor B)
"Actually, when I was a first grader, I was not that much aware of what to do. So the guiding notes and questions given by our supervisors supported me a lot." (PT D)

Discussion done in the class after practice teaching with the academic supervisor is also accepted as another strength.

"Coming to class with lots of experience and examples to share, they had the chance to discuss and share ideas with us and peers. I believe that it adds a lot to their development." (Supervisor A)

"Class discussions is the only time that we can share ideas, discuss and talk about the models that we observe. The effect of this time period is also very valuable in the last year." (PT B)

Moreover, continuous feedback sessions held with the supervisors considered as one of the strengths.

"We always try to support our students with individual or group feedback after every observation session or practice teaching session. And we always receive great appreciation" (Supervisor, A)

"If there were no feedback sessions, this program would be incomplete. It is the most important piece of this puzzle". (PT 5)

Peer feedback was also stated among the strengths of the new program by both parties. Following quotations demonstrate feelings of the participants.

"Peers can sometimes act as a mirror. They can be harsh but if they are to the point, their criticism lead to development." (Supervisor B)

"As the peer, I always tried to make constructive criticisms. Because this is what I expect from my peers. We can be more comfortable while giving or receiving feedback from each other compared to our sessions with our supervisors." (PT 6)

There is also one other strength which was only stated by the preservice teachers; time spent in the schools.

"The total time that we have been pending in schools during our program is nearly 450 hours which is really quite a lot. If we can use this time for our benefit, we can start teaching with great experience compared to our peers in other faculties." (PT 4)

On the other hand, writing reflective essays was accepted as a strength by the supervisors, however preservice teachers considered it among the weaknesses for the reasons stated in the following quotations.

> *"Reflection is one of the basic responsibilities and skills our students develop. We give utmost importance to the improvement of this skill. That's why they are responsible to write reflections after each session in schools". (Supervisor A)*

> *"We are aware that being reflective is very important for our professional development. However, there should be a limit. It loses its importance and turn out to be a burden when we are forced to write a lot." (PT1)*

On the contrary to these strengths, both groups agreed on only one weakness; practicing teaching officially only in the last year. Except for this weakness, supervisors stated "feedback given by the cooperating teachers, lack of conversation with cooperating teachers and school administrators and documentation procedures" as the other weaknesses. According to preservice teachers, on the other hand, "oral feedback given by the supervisors, number of in-class discussion hours, timing of feedback, quality of feedback received by the cooperating teachers and the peers" were the weaknesses of the new practice teaching program. Some quotations representing these codes are given below.

One of the supervisors declared her negative feeling regarding the feedback provided by the cooperating teachers as follows;

> *"Depending on my observation and negotiation with the preservice teachers, cooperating teachers tended to give very limited feedback. They sometimes just said "it was good/bad" without any reasons and suggestions." (Supervisor A)*

Supervisors were also not happy with the lack of dialogue with cooperating teachers and school administrators and long and detailed documentation procedures required by the Ministry of Education (MoE).

> *"There is always a dialogue problem with schools. They are not very open to cooperation. They think that we need them. However, this opportunity can be used for mutual development."*

> *"Ministry of education, cooperating schools and our faculty require us to prepare many files and documents which is very much time consuming. We actually prefer to give feedback to our students instead."*

When the weaknesses stated by the preservice teachers were considered, it is obvious that they are not very much happy with the "type" and "quality" of the feedback received by the supervisors, cooperating teachers and peers.

> *"We always received detailed feedback, however, our supervisors preferred to give oral feedback. If it was in a written for, it would be more permanent and we could go back and check our progress." (PT 4)*

> *"I prefer to receive feedback right after my practice teaching or even in the following week. If it is given much later, I could forget or my supervisor could forget some details." (PT1)*

> *"I cannot say that we received effective feedback from cooperating teachers. They were always very busy, or just did not want to spend time for feedback." (PT3)*

They also felt that the number of class hours when they had the chance to discuss and share their practice teaching experiences with supervisors and peers is very few.

> *"Starting from the very beginning of our program, we are given chance to discuss what we have done in the classrooms that we were assigned. However, sometimes, it was not enough. It was only two hours and we were 12 students. I mean, every student could only talk nearly 5-10 minutes" (PT 2)*

As the second objective of the research, participating preservice teachers were asked to reflect on their last practice teaching session and the supervisors gave their feedbacks on the teaching of these preservice teachers in the written form. The analysis of these documents revealed some common and different codes (see table 2). As can be seen in the following table, the reflections of preservice teachers and the feedback supervisors provided right after the last practice teaching session revealed three common strengths of the preservice teachers; lesson planning skills, classroom management skills and communication with students. On the contrary, even though supervisors considered following lesson plan as one of the strengths, preservice teachers believed it is weakness to follow the lesson plan strictly. The weaknesses stated by the supervisors mentioned in their feedbacks are related to their pedagogical/content knowledge such as pronunciation and giving directions.

Table 2.
Codes about the Views of Supervisors and Preservice Teachers about the Last Practice Teaching Session

Supervisors		Preservice Teachers	
Strengths	Weaknesses	Strengths	Weaknesses
Lesson Planning	Pronunciation	Lesson Planning (N=6)	

Following Lesson plan	Giving directions		Necessity to follow lesson plan strictly (N=4)
Communication with students		Communication with students (N=4)	Controlling emotions (N=5)
Classroom management		Classroom Management (N=6)	

Regarding lesson planning the ideas of both groups can be seen in the following quotations.

> *"It is a skill that we observe generally in experienced teachers. Planning a lesson with the activities, approaches and techniques requires some experience. I am glad that they managed to prepare a well-organized plan". (Supervisor A)*
> *"It is the most time consuming part of my practice. I really worked hard in this planning stage. When I start to follow it in the class and saw that everything was going smooth, I felt really comfortable and happy." (PT 5)*

As the other strengths of the preservice teachers, both of the groups agreed on their skills to manage the classroom and communicate with students.

> *"The atmosphere in the class was very stress-free, all the students were on task. This is mostly because of the good relationship with students." (Supervisor A)*

> *"The rapport I have with students encouraged me in the class. I chose the topics according to their interest on purpose. And we all had fun." (PT4)*

> *"It is fact that, managing a class requires a lot of experience and good teaching skills. I am really happy to see that the plan was implemented without any management problems." (Supervisor B)*

> *"Thanks to the experience we gained throughout the program, we had the chance to observe and apply different management strategies till this session. I mean, we had the chance to practice, try and learn. I do not have difficulty in deciding what to do when a problem occurs." (PT 2)*

The weaknesses stated by participants were different. To illustrate, despite the supervisors' consideration of following lesson plan as one of the strengths, preservice teachers believed it is weakness to follow the lesson plan strictly.

> *"We suggest our students to follow the plan during their practice teaching and novice years. Reflection on action requires some time and experience and if they cannot make good changes, both the students and they can be affected negatively."(Supervisor A)*

> *"Despite having a well-planned lesson plan, sometimes I wanted to add some extra activities but because of the anxiety of being graded, I could not do it. This caused a little demotivation". (PT 1)*

Supervisors thought that preservice teachers' pronunciation skill and their skill to give directions during activities had to be improved.

> *"Unfortunately, the pronunciation of our students sometimes caused communication to breakdown in the classroom. It is one of the urgent problems they need to overcome." (Supervisor B).*

> *"It is clear that they generally have difficulty in simplifying the language while giving directions." (Supervisor A)*

> *As a final weakness, participating preservice teachers stated that they had difficulty in controlling their emotions.*

> *"I knew that I was going to be graded during and after my teaching by both the cooperating teacher and the supervisor. This situation caused great nervousness and sometimes I had difficulty in controlling my emotions and focusing on the lesson." (PT 3)*

Discussion and Conclusion

In this study, first of all it was aimed to explore the ideas of supervisors and preservice teachers about the redesigned practice teaching program according to the suggested approaches in the field. Also, the common and contrary views of both parties regarding the last practice teaching session which can be accepted as the demonstration of the practice teaching experience gained throughout the four-year long teacher education program were investigated through reflective essays.

In the redesigned program some problems and criticisms declared by the preservice teachers and teacher educators in education faculties were tried to overcome. The criticisms were mainly about the late start of the practice, limited number of observation hours, not spending enough time to discuss on the observed issues and teaching experience. Taking all these concerns into consideration, practice teaching period was formulated to start from the very beginning of the teacher education program. As a result, preservice teachers in the program started their practice in the first year by doing observations. As Pease (1995) indicated, both participating groups appreciated this situation in their writings. And when they reflected on the last practice teaching

session, they indicated that, improved communication and classroom management skills of preservice teachers were mainly because of this feature of the redesigned program. Therefore, this result supported many results of various research in the field (e.g. Pease, 1995; Heinemann, Obi, Pegano & Weiner and Bookart, 1997). Moreover, the length was also significant in terms of providing enough opportunity to the preservice teachers to help them learn about management skills as Goodlad (1990) stated. Another necessity for the improvement of these skills is providing repeated occasions for adequate experience instead of practicing teaching in few classrooms with only one supervisor and one cooperating teacher. It is for sure that the more models they observe, the more experience they gain, the more strategies and approaches they try, the better teacher candidates with improved teaching skills they become. In order to achieve this purpose, preservice teachers got engaged in apprenticeship approach in the first and second years. And in the third and fourth years, the same group started to implement applied science (gradually getting engaged in teaching by implementing the theory into practice) and inquiry-oriented (research to find solutions to the problems in the classroom) approach. As a result, both groups of participants indicated lesson planning skills, management skills, communication skills as strengths after the practice teaching session. Moreover, the preservice teachers indicated "the need to follow the lesson plan strictly" as a weakness which means that they are skilled enough to reflect in and on action and take the control of their own teaching. This expertise is obviously the result of inquiry-based approach by the help of which they learned how to develop professionally. Continuous reflection of the preservice teachers and the class discussions were also believed to be effective to improve teaching skills (Zeichner, 1996). However, the number of reflective essays that the preservice teachers were required to write were indicated as a burden by the preservice teachers. This shows that the real aim of this task could have been managed better if the number was less. Furthermore, the preservice teachers stated their positive ideas about the feedback sessions with supervisors. However, they desire to receive feedback in a written form as well to be able to remember and check their progress in future. This awareness and consciousness of these participants indicate their agency to take responsibility for their own professional development. However, the reality about the time limitations of supervisors prevent them from giving written feedback to some extent. Despite not being directly related to the content of the newly developed program, another point mentioned especially by the supervisors is the lack of communication with cooperating teachers and schools. Moreover, supervisors complained about documentation procedures of practicum period which requires time and energy. However, due to the

requirements of Ministry of education and higher education council, documents such as the progress report, official payment documents, attendance lists should be kept by the supervisors.

To conclude, the study showed that, the redesigned program helped overcome the problems (e.g. late start of the practice, limited number of observation hours, not spending enough time to discuss on the observed issues and teaching experience) generally shared in the field. The length, the tasks, unguided and guided observations, creating more opportunities for practice teaching were appreciated by both parties. Moreover, being engaged in reflective action research cycle in the last year of the program, helped them to become reflective practitioners who can take the responsibility of their own profession. However the results also showed that, despite the increased amount, in order to help preservice teachers learn control their emotions and become real reflective teachers, the number of teaching hours should be increased and the number of reflection essays should be decreased and assigned in a more planned way. As a final point, preservice teachers stated that being graded affected their decision making skills and controlling emotions negatively. In order to overcome this problem, self-evaluation and peer evaluation and formative assessment will be considered.

Implications

This study has some significant implications for language teacher education, higher education council, ministry of education, schools and school administrations. To begin with, teacher educators in the education faculties should consider the complaints and criticisms of their students and try to take action to help them become well-prepared practitioners before they start their career. This is important to prevent the attrition and burnout rates which is very high in the first a few years of the teaching profession.

Secondly, the results of this study can act as a guide for the higher education council to revise the practicum period of the education faculties. They can officially plan, design and offer a better program by taking the results of this study into consideration.

Finally, the dialogue between the schools and universities is very valuable and significant to improve the quality of teaching and to connect theory and practice. That is to say, schools and administrations should be informed about the expectations in detail by the faculties. Their

awareness should be raised about the significance of this process for the future of preservice teachers with the weekly or monthly meetings.

Limitations and Suggestions for Further Research

As many case studies have, this study also has some limitations such as lack of generalizability. Due to the limited number of participants in only one setting, the results may not be generalizable to other contexts. Additionally, by being only qualitative, the results may not be robust. So, triangulating the qualitative findings with other quantitative sources can increase the reliability of the findings. Therefore, further research is suggested to overcome these limitations. In other words, the number of data tools can be increased and same study can be conducted in various settings for generalizability.

Statements of ethics and conflict of interest

"I, as the Corresponding Author, declare and undertake that in the study titled as *"Views of Prospective Teachers and Supervisors on a Practicum Program: A Case Study"*, scientific, ethical and citation rules were followed; Turkish Online Journal of Qualitative Inquiry Journal Editorial Board has no responsibility for all ethical violations to be encountered, that all responsibility belongs to the author/s and that this study has not been sent to any other academic publication platform for evaluation. "

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