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Material Development in the Context of the Preschool Teaching Profession

Okul Öncesi Öğretmenliği Bağlamında Materyal Geliştirme*

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ABSTRACT: In Turkey, preschool education teachers take courses on material development during their university education, and as such are expected to prepare materials to meet children's interest and needs and enrich their learning environment. This study aims to reveal preschool education teachers' views on material development courses and the effects of these courses on preschool education teachers' professional lives. The participants in this qualitative study were 19 serving preschool teachers, who had taught in an MEB-affiliated kindergarten. In this study, an interview form was created by the researchers as the data-gathering tool. The interviews were conducted with teachers. After data gathering process, the content analysis was applied to the collected data. According to the results of the study, which is aimed to reveal preschool education teachers' views on material development courses and the effects of these courses on their professional lives, the preschool teachers recognized the importance of material development in preschool education and considered material development courses as significant within the teacher education program. In this context, teacher education programs should include material development courses. The study also reveals how material development reflects on the preschool teaching profession.

Keywords: teacher education, material development, preschool teachers.

ÖZ: Türkiye'de okul öncesi öğretmenleri, üniversite eğitimlerinde materyal geliştirme ile ilgili dersler almaktaydılar ve bu öğretmenlerin çocuklarının ilgileri ve ihtiyaçlarına göre materyal hazırlamaları ve öğrenme ortamını zenginleştirmeleri beklenmekteydi. Bu çalışma, okul öncesi öğretmenlerinin materyal geliştirme derslerine ilişkin görüşlerini ve bu derslerin mesleki yaşantıları üzerindeki etkilerini ortaya koymayı amaçlamaktadır. Bu betimsel tarama çalışmasının katılımcıları, bağımsız anaokullarında çalışmakta olan 19 okul öncesi öğretmeninden oluşmaktadır. Bu çalışma kapsamında, veri toplama aracı olarak araştırmacılar tarafından bir görüşme formu hazırlanmıştır. Görüşme formunun hazırlanmasının ardından, öğretmenlerle iletişime geçilerek görüşmeler gerçekleştirilmiştir. Verilerin toplanmasının ardından, araştırmanın analizinde içerik analizi kullanılmıştır. Okul öncesi öğretmenlerinin materyal geliştirme dersine yönelik görüşlerini ve bu derslerin mesleki yaşamlarına etkisini ortaya çıkarmak üzere yürütülmüş olan bu araştırmanın sonuçlarına göre, öğretmenler okul öncesi eğitimde materyal geliştirmenin öneminin farkındadırlar ve materyal geliştirme derslerinin öğretmen eğitim programında önemli bir ders olduğunu düşünmektedirler. Bu bağlamda, öğretmen yetiştirme eğitim programlarında materyal geliştirme derslerine yer verilmelidir. Bu çalışma materyal geliştirmenin okul öncesi öğretmenliği mesleğine yansımalarını ortaya koymaktadır.

Anahtar kelimeler: öğretmen eğitimi, materyal geliştirme, okul öncesi öğretmenleri.

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Introduction

In recent years, significant regulatory changes have been introduced in teacher education in response to criticism about teacher education programs and the training of qualified teachers in Turkey (Yıldırım, 2011). In this way, qualified teachers contribute to increases in the quality of education (Erden, 1998). Society puts forward well-trained teachers to affect its students positively, to present them with essential information, and to contribute positively to the students' personality development. For this reason, well-structured teacher education programs are required so that preservice teachers can improve themselves in ways deemed appropriate to their intended profession (Şahin, Kartal, & İmamoğlu, 2013). In 1981, the provision of higher education in Turkey was reconstructed under the Law for Higher Education (Law Number 2547). After 15 years, the Council of Higher Education (YOK; Yükseköğretim Kurulu in Turkish) comprehensively reorganized teacher education programs. Certain changes and innovations were introduced to the teacher education model, the period of study, as well as the program names and connections, etc. This organization detailed the "teacher education" duties of education faculties and defined the teaching profession as an area of profession with distinctive principles, methods, and applications. In 1997, the Preschool Teacher Education Program was added to the structure of education faculties.

By the 2006-2007 academic year, new arrangements for education faculties had been introduced, along with updates to address problems associated with the teacher education model developed in 1997. The new regulation changed the distribution of courses in the program. Accordingly, courses on the teaching subject field constituted 50-60% of all courses given, with courses on professional teaching knowledge constituting a further 25-30%, and the remaining 15-20% of the courses were for general knowledge (YOK, 2007).

In 2018, the Council of Higher Education updated all teacher education programs (YOK, 2018). In today's current teacher education programs, courses on the teaching subject field constitute 45-50% of the courses given, with courses on professional teaching knowledge constituting a further 30-35%, and the remaining 15-20% is general knowledge courses. While the ratio of professional teaching knowledge courses has increased, the ratio of courses on the teaching subject field has decreased.

In the context of this study, the Preschool Teacher Education Programs of 1998-1999 are compared with those of 2006-2007 and changes made to the courses for material development are revealed. In the 1998-1999 program, there were three courses provided on the subject area of material development. These were Material Production I, Material Production II, and Instructional Technologies and Material Development. Comparatively, in the 2006-2007 version, there were fewer courses on material development with only two courses offered. These were Material Development, and Instructional Technologies and Material Development in the "updated" Preschool Teacher Education Program. This change was one of the starting points for the current study. Significantly, however, in 2018, all material courses were removed from the new Preschool Teacher Education Program (YOK, 2018). It is thought that addressing all these changes is important in terms of revealing how the material development course/s in each of these teacher training programs developed.

Material Development was one of the basic foundation courses in the Turkish Preschool Teacher Education Program as the use of teaching materials is fundamental to the embodiment of the concepts of preschool education. The early years significantly affect children's learning and development; it is when children start to understand and comprehend concrete concepts, and to think differently in comparison with adults. For this reason, to make something "concrete" for children through the use of materials is an important necessity within the preschool education period. In this context, preschool teachers are required to possess knowledge about and be skilled in the use of materials in the preschool education learning environment to properly support student learning and development. It is expected that teacher education programs produce teacher candidates with the requisite knowledge and skills for their future teaching profession. According to the YOK, the content of the Material Development course included designing, developing, and assessing various educational materials for preschool children (puppets, stuffed toys, puzzles, etc.) (YOK, 2007). The description of the YOK's Material Development course for the Preschool Teacher Education Program was considered as a broad framework for universities. Ege University, where this study was conducted, described the content of Material Development course as follows:

In this course, students were expected to learn:

The effects of concept toys and role-play materials, which are used in preschool education, on children's social, emotional, psychomotor, physical, cognitive, language, moral, and gender development;

How to choose supportive and creative toys that meet children's interest;

Types of toys and materials;

The characteristics of playgrounds, toys, and materials;

How to prepare materials for different developmental areas and different age-groups;

How to use materials for supporting education and enriching the educational environment (see Information Package/Course Catalogue, Ege University, n.d.).

When analyzed, it can be stated that the Material Development course represented an extensive scope for preschool teacher candidates. According to the Turkish Ministry of National Education (MEB; Millî Eğitim Bakanlığı in Turkish), teacher candidates are expected to possess certain competencies. The teaching profession demands certain competencies under three main headings encompassing their personal and professional values: recognizing students; teaching and learning process; and, professional knowledge, professional skill, attitude and values (MEB, 2017). Under the teaching and learning process, teachers are expected to develop materials for their students' needs. Furthermore, the MEB described seven headings for special field competencies for preschool teachers as areas of development; communication with family, family involvement, and family education; assessment; communication; creativity and esthetics; cooperation with school and community; and professional development (MEB, 2015). When the "areas of development" competence field is analyzed, it can be stated that preschool teachers should be able to choose, use, and prepare materials. In this context, the Preschool Teacher Education Program should help teacher candidates in gaining these competencies, especially material development, which is the subject of and another reference point for conducting this study.

The Material Development course not only taught the development of materials but also their application within preschool teaching. The Preschool Teacher Education Program offers certain courses with practical amenability for teacher candidates. In courses on school practices, in particular, teacher candidates develop appropriate materials for their daily plan and the children's needs in their practice classes and then develop these materials to increase the effects of their practice. In this way, teacher candidates develop the knowledge, skills, and material transfers between the courses they have to complete in gaining their undergraduate degree. In other words, they should use the knowledge and skills gained in the Material Development course in other courses. This transfer of "knowledge and skills" supports students' learning so that they can internalize what they learn more easily and use their knowledge and skills across different courses, over and over again. Furthermore, this transfer is expected to occur starting in their undergraduate years right through to their professional teaching life.

It is important to convey the knowledge and skills about material development from undergraduate years to the preschool classroom because everything around children should be considered as a learning tool in the early years. Children are curious individuals; they have a natural desire to touch, feel, and play with everything. In this context, preschool teachers are expected to increase the quality of materials around children and also to develop materials for children's learning and development. According to the literature, using materials in the learning environment makes a valuable contribution to children's education. Accordingly, materials facilitate students' learning, increase their interest and desire, and provide real-life experiences (Apperson, Laws, & Scepansky, 2006; Demirel, Seferoğlu, & Yagci, 2001; İşman, 2005; Kablan, Topan, & Erkan, 2013; Koşar et al., 2003). These various research studies all revealed the importance of using materials for a qualified education. Furthermore, the American National Association for the Education of Young Children (NAEYC) (2009) declared that teachers should create an interesting and sensitive environment to promote children's learning and development. To that end, the NAEYC recommended preschool teachers prepare a learning environment in which children can explore materials by choosing appropriate ones in terms of children's needs and interest. Additionally, teachers are expected to prepare learning environments in which materials guide children to specific activities and experiences (Norris, Eckert, & Gardiner, 2004), and provide children different materials and opportunities for learning by doing (Copple & Bredekamp, 2006; Epstein, 2007). Materials are not only important for children but also for their preschool teachers. With the help of materials, teachers make the content of the curriculum appeal pragmatically to their students (Achola, Gudo, & Odongo, 2016). In a learning environment with materials, teachers can provide experience for children through their participation, and this can embody abstract concepts. Adewale (2011) stated that teachers can use materials to attract children's attention to the class. Similarly, Okobia (2011) indicated the significance of using materials for effective curriculum implementation. With the help of materials, teachers can keep the children's interest alive. It is for this reason that teachers should choose and revise materials to keep up with children's changing interest to support the aims of education (Heromen & Copple, 2006). Furthermore, researchers stated the importance of using materials in early childhood education. In the literature, there are many studies, such as using music materials in early childhood education (Rodriguez & Alvarez, 2017), block play and

mathematics learning in preschool (Trawick-Smith et al., 2017), block play on academic learning in preschool (Rasmuson, 2019), the effects of toys on the play quality of preschool children (Trawick-Smith, Wolff, Koschel, & Vallarelli, 2015), and instructional materials on oral skills among early childhood learners (Okune, Gudo, & Odongo, 2016).

The Turkish Preschool Education Program emphasizes the importance of materials and it assigns preschool teachers with the responsibility of providing materials for children (MEB, 2013). In other countries, courses on materials aim to teach how to use suitable materials for providing children with creative learning experiences in various fields (Belmont University, n.d.; Carroll Community College, n.d.; University of Botswana, 2018). In addition to these universities, the University of Washington offers courses called "Engaging Interactions & Environments" and "Focus on Emotional Support & Classroom Organization." In these two courses, students are expected to learn how to identify and describe well-organized and materials-rich environments to support children's growth and development. In addition to this, a course called Multi-Ethnic Studies: Methods, Content, and Materials is offered at the same university with the aim of helping preservice and in-service teachers identify content and materials and devise methods for implementing ethnic studies programs (2019). Northern Illinois University (NIU) offers material-related courses in early childhood education programs by referring to multi-cultural diversity. The courses offered in NIU are Methods and Materials for Teaching English Language Learners in the Content Areas, and Teaching English Language Learners in Bilingual Programs: Methods and Materials. The aims of these courses are instructional approaches and curricular materials for English language learners in bilingual education programs (2019). Unlike in the Turkish educational system, in America, early childhood educators learn how to teach reading and writing in their undergraduate years, since they can teach from kindergarten to 3rd grade. For this reason, some universities offer materials-related courses on teaching reading. One of these universities is Stevenson University. The Materials for Teaching Reading course is offered for teacher candidates with the aim of teaching how to select and evaluate materials for teaching reading and related skills that are consistent with the findings of scientifically based reading research (2016). In some universities, undergraduate programs do not offer courses on the subject of materials, directly, but they do offer courses including material. One of them is Lasell University. Its Interdisciplinary Studies with Early Childhood Education Concentration program offers a course called Early Literacy Teaching & Learning and students are expected to learn instructional strategies and materials to support young learners at the end of this course (n.d.).

The Current Study

In light of this information, using and developing materials for preschool education are significant points and it is expected that preschool teachers transfer their skills in and knowledge of material development to their professional teaching life. In this context, the current study aims to reveal preschool education teachers' views on material development courses and the effects of these courses on their professional teaching lives. To achieve this aim, the researchers attempted to answer these three research questions:

- What do preschool teachers think about the material development courses that they took in their university education?
- How do preschool teachers use materials in their teaching profession?
- What place do material development courses have in preschool teachers' personal lives?

Method

Research Design

This qualitative study is an example of phenomenological research. The aim of phenomenological research is to discover the meaning of the experiences of different individuals (Husserl, 2012). In other words, phenomenological research describes the common meaning of several people's experiences with a phenomenon or concept (Creswell, 2013). In the current study, different teachers' thoughts about material development courses and their related experiences in their subsequent professional life are revealed. The researchers gathered data from teachers with experience in the material development phenomenon and attempted to elicit a holistic description defining the essence of their collective experience.

Participants

To achieve the aim of the study, 19 participants were used. These were six "most experienced" preschool teachers who graduated in 2007, eight "experienced" preschool teachers who graduated in 2010, and five "new" preschool teachers who graduated in 2014 from Ege University's Department of Preschool Teaching in Izmir, Turkey. The reason behind this selection was an attempt to reveal the differences between teachers' views relating to materials depending on the length of their experience. Besides this, the reason why two different groups of "most/experienced" teachers were included in the study is that the YOK regulated the teacher training program in 2006. Subsequent to this regulation, certain changes were applied to the teacher training programs in education faculties; one of which applied to courses on material development. Following this regulation, the Preschool Education Program started to offer a single Material Development course instead of the two former courses, Material Production I and Material Production II. The distribution of participant preschool teachers by graduation year and gender is presented in Table 1.

Table 1

Preschool Teachers' Gender and Graduation Year

	Teaching Experience		
Gender	9 years (2007 graduates)	6 years (2010 graduates)	2 years (2014 graduates)
Female	6	7	5
Male	-	1	-
Total	6	8	5

While forming the working group, several common features of the participants were taken into consideration. These common features are that the participants each graduated from Ege University, had taken the "Material Development" course from the same instructor, had taught in an MEB-affiliated kindergarten, and started work without a break following their graduation. Based on these criteria, the study was announced to the alumni group. Teachers were identified who met the criteria and volunteered to participate in the study. It was ensured that each of the three groups had a similar number of teachers. A total of 19 teachers were selected for inclusion in the study. All the teachers have worked in independent public schools with double-shift schooling. Furthermore, the number of children in all classes ranged from 20 to 25. The children in these schools came from families with a low socio-economic level. Going by all this, it can be stated that all teachers had not the same but similar working conditions. As previously mentioned, all of the participants received the material development course from the same instructor who is an expert in the field of early childhood education and also the first author of this study. This factor facilitated the acquisition of deeper information on the subject during the interviews and in the reporting of the study. On the other hand, there are seven years between the first group's material courses and the last group's material courses. During these seven years, the instructor gave the material courses and gained in-depth experience in material development. This could have caused the teachers in the last group to take the material course in a single period, but with a more intensive content.

Although all of the participants had graduated from Ege University's preschool education undergraduate program and received the material development course from the same instructor, there were certain differences in the undergraduate education process that were deemed beyond their control. First of all, a number of changes were introduced nationally in the teacher training undergraduate programs. Not all of the participants received the same number of material development courses. Those teachers who graduated in 2007 received two courses, while those who graduated in 2010 and 2014 received one course. In 2009, Ege University's Faculty of Education moved to a new building. Therefore, the teachers who graduated in 2007 had taken their material development courses within an inappropriate environment, whilst the other groups took the material development course in a workshop that was specifically designed to cater to such practical lesson types.

Data Collection Tool and Procedure

An interview form was created by the researchers as a data-gathering tool. First, the related literature was examined, then, based on the literature, the interview form was created. After opinion was sought from an expert working within the Department of Preschool Education, the final draft of the interview form was ready to be used in the study. The interview form included questions grouped into three different categories: questions relating to material development courses taken in university education, questions relating to the usage of materials in teaching professions, and questions relating to the place material development courses have in teachers' personal lives. These three different categories were determined based on the research questions of the study and were used for analyzing the data to address the research questions. The preschool teachers were contacted by the researchers and individual interviews

conducted. Each interview was recorded and later transcribed for the purpose of post-interview data analysis. All interview records were written under the related questions. Then, the questions and each of the teachers' answers were grouped according to the three research questions.

The researchers analyzed the teachers' answers according to this final form of the data. The researchers used content analysis for the purpose of data analysis. to this end, the researchers followed these steps during the analysis process: preliminary preparation, qualitative data coding, identifying themes, interpreting the findings, and reporting the findings. The transcripts of the data were read recurrently. The data were coded by the researchers separately. Then, the researchers compared their codes, discussed any differences of opinion until they reached a consensus. Finally, the findings were ready to be interpreted and then reported. A pseudonym coding system was employed for the teachers' direct quotations so as to provide a level of participant confidentiality. Accordingly, NW (new teachers) was used for the 2014 graduates, ET (experienced teachers) was used for the 2010 graduates, and MET (most experienced teachers) was used for the 2007 graduates.

Reliability

In qualitative research studies, it is not expected that the findings show a single, simple truth since the aim is not to produce a generalization based on the results. The measures used in qualitative studies, a type of scientific research, must be valid and reliable. In all processes of the study, the published literature was considered to be the primary source. Expert opinion was sought in planning the study, and in formulating the research questions and interview questions. In addition, the data were grouped under themes to eliminate conflicts. In the reporting of the study's results, the research process is explained in detail and the findings are supported by direct quotations from the participants. In addition, the researchers coded the data independently, and then compared their coding and formed common codes. The interrater reliability between the researchers was calculated as 92%. All data was securely stored to ensure the reliability of the study. For ethical reasons, an informed consent form was prepared for the participants, and their consent was obtained by asking them to participate in the study. All of these measures were taken to ensure that the study was valid and reliable.

Findings

In the study, the researchers aimed to reveal preschool teachers' views about material development courses and the effects of these courses on their professional lives based on the three research questions: preschool teachers' thoughts about the material development courses taken during university education, preschool teachers' usage of materials in their teaching professions, and the place occupied by material development courses in teachers' personal lives. In this section of the study, the results are presented for each research question. Furthermore, categories are sorted in descending order according to their frequency. In other words, the first category is the most frequently seen among the teachers' responses.

Preschool Teachers' Opinions on Material Development Courses

The teachers were asked to define the material development courses they took during their university education – Material Production I and Material Production II (for 2007 graduates), and Material Development (for 2010 and 2014 graduates). The teachers defined these courses with not only common categories but also certain differences. The teachers indicated that material development courses provide resources for preschool teachers working in difficult conditions so as to create an environment in which teacher candidates can prepare materials, develop a process for supporting the preschool education program, and support teachers' creativity. In addition to these common categories, the teachers defined material development courses by referring to preparing developmentally appropriate materials for children and supporting children's creativity. Some of the teachers' answers were grouped into different categories. While the "new" teachers mentioned using waste materials and multidirectional thinking to define material development courses, the "most/experienced" teachers defined them as understanding the importance of using materials in preschool education and exploring their own skills. The "most experienced" teachers also defined these courses as supporting children's development, gaining self-confidence, and making a happy, and a compelling process. In revealing the teachers' perspectives, the following direct quotations are provided:

> I describe this course as a course in which I developed materials aimed at children's development, utilizing waste materials in the materials design and developing process. I believe that this course is useful in providing materials for teachers working in different conditions. (NT1)
>
> I think that this course is one of the most important courses that educators should take. While materials are needed in all aspects of education, materials are essential to the quality of preschool education, in particular. (ET2)
>
> Material development courses supported our creativity and pushed us to our limits, as well as providing an environment in which we presented original materials in addition to existing materials. (MET2)

The preschool teachers used positive and negative expressions to reveal what they thought about material development courses. The preschool teachers defined material development courses within seven positive categories: supporting teachers' creativity; creating materials; utilizing waste materials; providing resources for preschool teachers; developing skills; supporting children's development; and supporting the preschool education program. Furthermore, the "most/experienced" teachers used different positive expressions including knowing oneself, sharing, looking at sample materials, using the skills gained in personal life, and having the chance to choose which materials they developed. Also, the "new" teachers defined the positive aspects of the course as developing different perspectives. It can be stated that the teachers' definitions of material development courses parallel their positive expressions of the courses. Based on this parallelism, it could be inferred that teachers have positive opinions about material development courses. Some sample positive expressions used by the teachers were as follows:

> Most of us were assigned to regions where children did not have economic opportunities and toys. With the help of the skills acquired on this course, we can prepare toys by spending little or no money. (NT5)
>
> On this course, I learned that I could prepare a hand puppet and a shy puppet – even me. (ET7)

> These courses proved that I could achieve certain gains and indicators in my teaching profession. (MET6)

When the teachers' negative expressions were analyzed relating to material development courses, it is seen that the teachers' negative thoughts are grouped under three categories: lack of time; financial difficulties; and, requiring too much effort. Lack of time was particularly expressed by the "new" teachers, who took the material development course as a one-semester course. On the other hand, the "most/experienced" teachers who took the courses over two semesters did not emphasize a lack of time. Furthermore, the "new" teachers mentioned not using materials in practice and requiring handicrafts experience as negative aspects of the course. When the "most/experienced" teachers' negative thoughts are examined in relation to the courses, it can be seen that these teachers lacked an effective learning environment. The "new" teachers and "experienced" teachers had a different learning environment due to the Faculty of Education having moved to a new building in 2009. For this reason, the "most experienced" teachers took their materials courses in a less appropriate learning environment when compared with the "other teachers who took their course in an environment specifically designed for material courses. In addition, the "experienced" teachers expressed that they wanted more information about material development, such as how to prepare technology-based materials, how to develop different kinds of materials for diverse activities, and that they wished for a prepared booklet and materials pool relating to the course. At this juncture, as long as teachers are gaining experience in the teaching profession, they will continually need new information relating to their profession to be able to renew themselves. Some of the negative expressions used by the teachers are as follows:

> The duration of the course was limited. (NT3)
>
> Each week we would come to the course with lots of bags -- to carry our materials -- which caused issues because the student transportation was always crowded. I wish we could have had lockers at school in which to keep our materials. (ET8)
>
> Preparing materials cost both time and money. (MET4)

The teachers were asked to describe what they would change about the courses, and also how they would teach these courses. These questions were asked to reveal the teachers' suggestions for material development courses. All of the teachers had five common suggestions for these courses. In addition, the teachers' suggestions differed depending on their working periods. First, the common suggestions were introducing sample materials, developing new materials, conducting a project, supporting the preschool education program, and utilizing waste materials. The "new" and "most experienced" teachers suggested organizing field trips, using materials with children, and providing a richer learning environment. The "new" and "experienced" teachers shared some common suggestions, too. These were students working in groups, and providing guidance for students in material development. While the "new" teachers suggested taking precautions for financial difficulty and not taking attendance, the "most/experienced" teachers gave different and more detailed suggestions such as preparing materials for children with special needs, sharing experiences relating to material development in preschool education, organizing material development contests, supporting student creativity, and providing more time and information for material development. Another suggestion was about the materials that could be prepared during the course. All of the teachers stated that if they taught this lesson, they would make

their students prepare materials for concepts and gains in the preschool education program that were interesting, multi-directional, and utilized different kinds of materials. In particular, the "most/experienced" teachers emphasized the use of different kinds of materials. Apart from these common suggestions, the "new" teachers mentioned creative and durable materials. The "experienced" teachers referred to materials for children's creativity and different versions of existing materials on the market. The "most experienced" teachers stated that they would make students develop value-based materials, technology-based materials, materials for orientation week, wooden materials, and other low-cost materials. Some suggestions the teachers proposed are presented as follows:

> I wish I could develop a project by communicating with other universities, and in this way, I could provide a variety of perspectives. (NT4)
>
> I wish I could provide an environment in which materials were presented in a national preschool education congress and I could exhibit the materials in national and international projects. Furthermore, I could start a project to send the materials that teacher candidates developed on this course to preschool classrooms that do not have the materials and operate in difficult conditions. (ET6)
>
> I could add some details. I could organize a practice in which children use materials developed by teacher candidates. In this way, I could observe children's interest toward the materials and the contribution the materials make to the children's development within the context of the material development course. (MET6)

The teachers indicated that they prepared educational toys based on the concepts and gains of the preschool education program as well as puppets, costumes, and masks in their material development courses. Among all the participant teachers, only two "new" teachers and two "most experienced" teachers indicated that they do not use the materials that they developed on their materials courses. The rest of the teachers stated that they used their own materials from their university days in their professional lives. The reason why these four teachers did not use their own materials were personal reasons, such as having lost the materials, not having taken them from their hometown to their place of work, or they were unwilling to use the same materials for a number of years. All of the teachers who used their own materials in class defined their materials as multi-directional, interesting, and supportive of the preschool education program. In this context, some examples of the teachers' answers are as follows:

> I have been working as a preschool teacher for two years. I have been using my own materials, which I developed on the material development course. The children play with these materials. I was careful to develop them using durable and functional materials, so they have become only a little deformed over all this time. (NT2)
>
> I used all the materials that I developed for the material development course. All of the materials noticeably support the conceptual development of the children and are influential in their permanent learning. (ET3)
>
> I have used my own materials during my nine years of teaching. I have not seen any issues with their malfunction whilst using them. On the contrary, I have been able to adapt my materials according to the characteristics of different age groups. (MET1)

Different to these positive teacher statements, one "experienced" teacher stated:

> I used my materials up until last year, but I have since lost them when moving to another city. (ET5)

Preschool Teachers' Use of Materials in Their Professions

The teachers were asked to describe how they have used materials and the information obtained from their material development courses in their teaching profession. Most of the teachers' answers are grouped under eight common categories, which are: providing resources for teachers, developing materials, supporting children's learning and development, supporting teachers' creativity, being informed of materials, utilizing waste materials, supporting preschool education program, and using materials for concepts and gains within an education program. Among the teachers, the "most/experienced" teachers, in particular, stated that they have used materials for different purposes and so more of their responses were seen in these eight categories. On the other hand, the "most/experienced" teachers specified different usages of materials in their classrooms. The two groups of "most experienced" and "experienced" teachers stated that they used materials for special purposes. The examples they gave of these special purposes included supporting children with special needs, celebrating special occasions, using them within projects, providing children's active learning and taking responsibility, and enhancing family involvement. In addition to these categories, the "most experienced" teachers mentioned that they have used materials to attract children's attention visually and to respond to the needs of the classroom. It can be inferred that teachers referred to the common points of materials' usage in their teaching professions to a large extent. Samples of the teachers' expressions about how they use materials and information about material development in their teaching profession are as follows:

> By means of this course, I can make useless objects valuable for children and I can teach children and they can learn with these materials entertainingly. (NT4)
>
> I could prepare difficult puppets and costumes, and this gave me more self-confidence. I used my materials with the other teachers at my previous school, which was lacking in materials. (ET6)
>
> These courses contributed to my profession. These contributions include learning the importance of using appropriate materials in education, recognizing that I can reach my aims with the materials I developed more qualitatively, and learning how to provide materials for the children's needs. (MET2)

In addition to the teachers' usage of materials and material development information in their teaching profession, the researchers asked the teachers how often they prepared materials for their class. The teachers used different time-period definitions to describe how often they used materials in the classroom. The time periods used by only the "new" teachers were more often at the beginning of the semester and within the school's means. However, teachers from all three groups ("new," "experienced" and "most experienced") pointed out that they prepared and used new materials once a week. Some examples of the teachers' answers about how often they prepared materials are as follows:

> I prepare materials once a week and I develop them for the main concept on which we will focus. (NT5)
>
> I design appropriate characters or materials based on the monthly plan. In this way, my materials archive increases day by day. (ET5)
>
> In contrast to these teacher responses, in developing materials for children, one of the "most experienced" teachers stated:
>
> To tell the truth, I use more ready-made materials instead of developing materials. (MET4)

Another point that deserves highlighting was how teachers obtained materials for their classrooms. A significant majority of teachers from all three groups stated that they prepared materials for their classrooms. Besides this, a few teachers were provided with materials through families, school management, and they also bought ready-made materials. With the exception of the "most experienced" teachers, the other teachers indicated that they utilized waste materials in their classes. In addition, the "experienced" teachers specified different ways of obtaining materials. These ways included using natural materials, obtaining materials from charities, from other schools, from other teachers, and by taking advantage of the available technologies. To clarify the ways in which the teachers obtained materials, the following are examples of the teachers' answers:

> If the materials that we need in the classroom can be easily developed, then I develop these materials. But if they are difficult to prepare, I will buy the materials. (NT3)
>
> If I have enough time, I like to develop permanent materials. I particularly like utilizing waste materials. During material development, I receive support from the children's parents, and from my husband and our friends. (ET3)
>
> When I was working at a village school, I made contact with different schools where my friends worked and they sent many materials to us that we used for quite a while. Besides this, I develop my own materials and use them. (MET6)

Material Development Courses in Preschool Teachers' Personal Lives

In this section, the findings relating to the effects of material development courses on teachers' personal lives are presented. The teachers were asked to define the contributions made by material development courses to their personal lives, and how they evaluate themselves with respect to material development. The teachers stated that they have used the skills acquired on the material development courses to prepare material, to teach material development to others, and to explore their own skills. It can be said that all of the teachers agreed on these three categories. These categories include different codes for describing the places of material development courses in teachers' personal lives. For example, exploring their own skills includes the codes of; thinking sophisticatedly, thinking productively, self-reliance, creativity, and being thrifty. Some of the teachers expressed that they have used materials for home design and repurposed waste materials in their personal lives. Moreover, as to the effects of material development courses in their personal lives, the "new" teachers stated such effects as following material development workshops, creating a materials pool, and turning material development into a lifestyle. Here are some example statements given by the teachers when expressing the effects of material development courses on their personal lives:

> After the course, I started to think that I could generate effective materials by using everything available. (NT5)
>
> With the help of this course, I could see waste materials and anything else from the perspective of an educator. I can help my friends choose appropriate toys for their children. What's more, I can prepare gifts for my friends. (ET3)
>
> These courses support creativity, thinking differently, and saving money since you can develop materials instead of buying expensive new ones. (MET5)

Lastly, the teachers were asked to evaluate themselves with respect to material development. Of all the teachers, only three used negative adjectives: weak in handicraft skills, lazy, and not proficient in terms of material development. While the first

adjective was mentioned by a "new" teacher, the other negative adjectives belonged to two "experienced" teachers. When analyzing the other teachers' self-evaluations, a variety of positive adjectives were seen. Among the "most experienced" teachers' self-evaluations with respect to material development, there were more positive and adequate descriptions, such as skillful, multi-directional, materials developer, and making an effort to develop materials. In revealing the self-evaluation of teachers with respect to material development, the following are presented as direct quotations:

> I am at the beginning of life. There are so many things that I should learn. (NT4)
>
> I think that we are more thrifty and materially aware, and also creative and problem-solving when compared to individuals of the consumer society. (ET5)
>
> These courses and my professional life have taught me many things, but I am not content with just these things, and so I conduct research to see what more I can do. (MET2)

Discussion

The basic elements of a quality education are the usage of resources and materials to support the teaching process and to make learning both more effective and permanent (Demiralp, 2007). A qualified teacher who is able to develop appropriate materials for the class is trained during a period of preservice education on the basis of gaining field information, professional teaching knowledge, and general cultural knowledge (Özkan, Albayrak, & Berber, 2005). Furthermore, by designing a resource center with learning materials such as teacher-made materials, equipment, and guides, preschool children's achievement can be improved as a result (Giordano, 2008). To raise the quality of teachers, the undergraduate training courses provided to teacher candidates are of significant importance. One such course is the Material Development course in Preschool Teacher Education Programs. The aim of the current study was to reveal the views of Turkish preschool education teachers' on the material development courses that they received during their undergraduate education, and the effects of these courses on their professional lives depending on the length of their experience.

It is known that teachers might lack proficiency in the use of materials in the first years of their teaching profession (Anılan & Anagün, 2007; Dursun & Kuzu, 2008). To be able to support teachers using effective materials for their education, teacher education programs should provide this knowledge and these skills to prospective teachers and enable them to put it into practice. With the assistance of taking courses relating to materials, the current study revealed that teachers have positive opinions regarding material development courses, and also that they described these courses with positive statements such as providing resources for preschool teachers, preparing materials, constituting a process for supporting the preschool education program, and supporting teachers' creativity. It can be said that teachers are aware of the importance of material development for preschool education. According to the participant teachers in the current study, introducing sample materials, developing more materials, conducting projects, supporting preschool education programs, and utilizing waste materials could improve material development courses. In addition to these suggestions, the "most/experienced" teachers suggested preparing materials for children with special needs, sharing experiences related to material development in preschool education, organizing contests for material development, supporting students' creativity, and providing more time and information for material development. The teachers

demonstrated that in having experience in teaching, they were able to identify different points on this matter based on their increased level of experience. In a similar finding, Acer (2011) revealed that material development courses support teacher candidates' creativity and skills through developing materials. Furthermore, Ersoy (2006) stated that teacher candidates' creativity is improved by using materials. This parallelism between teachers and teacher candidates can be interpreted as an expected outcome for material development courses in teacher education programs. In addition to these expected outcomes, Karamustafaoglu and Kandaz (2006) revealed that preschool teachers cannot always apply activities due to a lack of materials, and this is something that bears thinking about because preschool teacher candidates have taken courses on materials and material development to address this issue. In brief, material development courses aim to teach preschool teacher candidates how to develop materials by emphasizing their importance.

At Ege University in Turkey, the Faculty of Education moved to a new building in 2009, and as a result, the Material Development course was then given in a well-designed workshop environment. Dikici, Yavuzer, and Gündoğdu (2006) emphasized that the lack of sufficient physical equipment for a materials course in education faculties could lead to the students receiving no benefit from this course. Also, although the "new" teachers took their material development courses in a more appropriate learning environment, they mentioned taking their course within just one semester, which differed from that of the "most/experienced" teachers. The "new" teachers indicated that they had very little time for their material development process in the semester. Furthermore, Morken, Divitini, and Haugalokken (2007) emphasized the dissemination of practice-based education in teacher education by referring to its importance in increasing the quality of teaching. In teacher education, courses on how to design and develop materials, together with all the associated knowledge and skills relating to the subject, should be given to teacher candidates practically (Yanpar Yelken, 2009). In this context, it can be said that the quantity and quality of applied material development courses should be improved in teacher education programs.

The teachers underlined working in groups and providing guidance in material development to teacher candidates. Working in groups provides an environment in which undergraduate students learn from each other; they support, cooperate, and communicate with one another; they develop information and exchange thoughts in the classroom (Yanpar Yelken, 2009). Apart from working in groups, these material development courses were conducted by providing guidance in material development through instructor feedback. In the literature, feedback is specified as an important factor in education (Black & William, 1998; Erişen, 1997; Hattie & Timperley, 2007). Furthermore, if preservice teachers have experience in receiving feedback, they transfer that to their own professional teaching life and the development of quality education (Koray, Kaya, & Pekbay, 2016). In the current study, the teachers' responses regarding feedback revealed its importance in a way that parallels the literature.

Teachers' pedagogical content knowledge and competencies affect the materials that they are able to develop and use in their classrooms. To develop effective material for children's interest and needs, the teacher should know children and know how to plan, develop, and use materials (Bakaç & Özen, 2017). Another important point is that teachers need to know what kind of materials can be used for the proper teaching

objectives (Yanpar & Yıldırım, 1999). In addition to the Material Development course, teachers in the current study indicated how they use information about material development and integrate materials into education. The teachers mentioned several ways of using information about materials and integrating materials into education, namely providing resources for teachers, developing materials, supporting children's learning and development, supporting teachers' creativity, being informed about materials, utilizing waste materials, supporting preschool education programs, and using materials for concepts and gains within education programs. In addition to these categories, the "most experienced" teachers used materials to attract children's attention visually and to respond to the needs of the classroom. Similarly, Yalın (2002) stated that materials have great significance in attracting attention and supporting and strengthening students' learning. In the current study, the "most/experienced" teachers used materials intended for special purposes such as supporting children with special needs, celebrating special occasions, enhancing family involvement, and providing for children's active learning. In early-years education, active learning ensures children learn in their own way. For an active learning approach, materials and learning domains have great significance (Pekdoğan & Kanak, 2016). Furthermore, in active learning, the learning environment is prearranged and materials are offered by teachers (Pekin, 2000), thus the learning environment promotes children to use materials in an active way (Huber, 2000). For all these purposes, a significant majority of the teachers in the current study stated that they prepared materials for their classrooms. In addition, the "most/experienced" teachers specified different ways to prepare such as using natural materials, obtaining materials from charities, from other schools, or from other teachers and taking advantage of the available technologies. Likewise, Kara and Çağıltay (2017) emphasized the importance of technology for teachers using different materials, and in facilitating teachers' jobs.

In a study by Şahin et al. (2013), the Material Development was defined as a course where students learn the information required for their professional teaching life, and where students are active because of its practical structure. In the current study, not only were the professional contributions of material development courses taken into consideration, but also their personal contributions. The teachers stated that they learned how to prepare materials, to show others how to develop materials, and to explore their own skills. Among the "most experienced" teachers' self-evaluations with respect to material development, there were more positive descriptions such as being skillful, multi-directional, material developers and making an effort to develop materials. By contrast, just three teachers evaluated themselves in the material development process negatively as being weak in handicraft skills, lazy, and not proficient in terms of material development. Similarly, the literature indicated that some teachers could be unwilling to use materials in education, and would not make the effort to find out how they can support learning with materials (Grant, Peterseon, & Shojgreen-Downer, 1996; Kazu & Yeşilyurt, 2008). In general, teachers develop, choose, and adapt materials for children's education. In this context, Suydam and Higgins (1977) stated that materials should be embraced as a tool for increasing teachers' effectiveness. Developing materials has a significant impact on children's development and learning because students' learning motivation is increased with the help of materials (Bilgen, 1994); children's senses are included in the learning process, learning is more permanent and it

is important to use materials in a well-designed and planned way (Ornstein & Lasley, 2000).

Conclusion and Recommendations

The current study was conducted with the aim of revealing preschool education teachers' views on material development courses and the effects of these courses on their professional teaching lives. All the findings were presented under three headings; teachers' thoughts on the course, teachers' usage of materials in their teaching professions, and the places the courses have in teachers' personal lives. According to the results of the study, the teachers recognized the importance of material development in preschool education but they did not show the same level of competence in practice. Most of the teachers used materials that they had developed in their university education and they also developed materials to meet their children's needs and interest. The preschool teachers considered material development courses as being significant for the teacher education program by referring to their positive experiences about the course and the use of materials in education. Furthermore, the materials have significant effects on preschool education, and so skills and knowledge about material development are transferred to teachers' professional teaching life and personal lives.

However, while the current study aims to reveal how material development courses reflect on the preschool teaching profession, the Turkish Council of Higher Education had just updated the teacher education programs and all materials courses had been removed from the preschool teacher education program at the time this study was reported. Therefore, all the disadvantages of material development courses mentioned by the teachers in this study are mitigated. When considering the international teacher education program, it is seen that the courses in the undergraduate program include material-related ones. By improving the quantity and quality of material development courses, the suggestions of teachers about these courses could have been realized.

This study was limited to only 19 teachers' experiences about material development. Furthermore, the lack of use of visuals relating to the materials of the participating teachers could be considered as a limitation of this study. Thus, future research could consider data diversification and obtaining a deeper level of data from interviews.

A number of recommendations are made based on the obtained results of this study:

- Material development courses should be included in preschool teacher education programs;
- The duration of material development courses should be longer than one course delivered in a single semester;
- Material development and the use of materials in education could be addressed within other courses in the preschool teacher training program to address time-related problems, and the importance of using materials could be reinforced;
- Individual and group work could be used within material development courses so that students' individual differences can be addressed by the instructor;
- Different materials could be used with children to assess the materials' pros and cons;

- Materials could be shared in exhibitions and academic meetings to provide samples to the wider preschool education field; and,
- Longitudinal research could be conducted to study the changing thoughts and attitudes of teacher candidates with respect to material development courses once they become active experienced teachers.

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