

Teacher Candidates Achievements from The ADHD Vocational Elective Course

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ABSTRACT

ADHD- Attention Deficit Hyperactivity Disorder is one of the most common neurodevelopmental disorders in childhood. The number of children with ADHD increases every year. Most of the teachers working in schools and kindergartens are not educated enough to use appropriate methods while working with these students. That is the reason why some Universities included the ADHD as vocational elective course in their programs. The aim of this research is to ensure and increase the knowledge and information's of teacher's candidates about ADHD before their work with children. In this research we decided to analyze the effects of the ADHD as vocational elective course for the students from Çanakkale 18 Mart University in Turkey. Questionnaire before and after taking the course was applied on students who attended it, in a period of three months. The group consisted 20 females, from two different departments at the Faculty of Education: Pre-school Teachers and Primary School Teachers. The implemented pre and post questionnaire contained four questions. The data were analyzed using the content analysis method and the questions were analyzed with the MAXQDA Analytics Pro 2020 program. Codes and sub-codes were created with purpose to analyze and interpret the answers given to each question through content analysis. In the research, it was seen that the conceptual learning about ADHD was increased and the teacher candidates learned what should be done about children with ADHD. Within the framework of the research results, it is recommended to make observations during the diagnosis process of the ADHD student, and to conduct practical studies for functional measures for ADHD in the classroom.

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Keywords:¹

Teacher candidates, ADHD course, teacher education, vocational elective course

1. Introduction

Attention Deficit Hyperactivity Disorder (ADHD), which is characterized with problems in attention, concentration, movements, and impulsiveness control, is the most common childhood psychiatric disorder (Kayaalp, 2008).

According to World Health Organization (WHO), the International Classification of Diseases (ICD 10), hyperkinetic disorder occurs in early childhood, significantly disrupting academic, social and working performances in different environments (e.g. home and school) is a psychiatric syndrome with a persistent model of severe, developmental inappropriate inattention, hyperactivity, and impulsivity (WHO, 2001).

The American Psychiatric Association (APA) defines ADHD as one of the most common mental disorders affecting children. Symptoms of ADHD include inattention (not being able to keep focus), hyperactivity (excess movement that is not fitting to the setting) and impulsivity (hasty acts that occur in the moment without thought), (APA, DSM V, 2013).

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The American Psychological Association states that ADHD is a behavioral condition that makes focusing on everyday requests and routines challenging. Children with ADHD typically have trouble getting organized, staying focused, making realistic plans, and thinking before acting. They may be fidgety, noisy, and unable to adapt to changing situations. Children with ADHD can be defiant, socially inept, or aggressive (Kazdin, 2000).

Proper diagnosis is very important because it dictates the approach to therapy. The diagnostic process includes a detailed overview of children's behavior, school, and psychosocial, developmental, medical, and family history. This information is primarily obtained from conversations with parents, medical and school records, and from standardized scales designed to enable parents, teachers, and children to complete it (Trajkovski, 2008).

Difficulties in maintaining attention, hyperactivity, and impulsivity also include reactions that are often not recognized or considered as part of ADHD, which is why the environment places too many and inadequate demands on the person. These are: poor ability to solve problems, inconsistent behavior, mood swings, emotional hypersensitivity, low tolerance threshold and difficulty in achieving long-term goals (Jurin & Sekušak-Galešev, 2008).

It is suggested that the worldwide prevalence of ADHD is 5-12% in children and 4.4% in adults (APA, 2013). In this context, considering the class sizes in our country, the probability of 2-3 students with ADHD in each class is quite high. For this reason, teachers need to acquire various knowledge and skills in diagnosing ADHD and planning teaching services. The Higher Education Council (YÖK- Yüksek Öğretim Kurumu, 2018) has updated the 25 teacher undergraduate programs as "New Teacher Training Undergraduate Programs" giving importance to include the ADHD course within the scope of "Vocational Elective Course". The content of the course includes the subjects: ADHD definition and characteristics; The main symptoms of ADHD (attention deficit, hyperactivity and impulsivity); The effects of ADHD on the child in terms of social, emotional and school success; Causes of ADHD; Risk factors in ADHD; ADHD types; Approaches to children with ADHD; Guiding students with ADHD; Education of children with ADHD; Ensuring school-family cooperation for students with ADHD (YOK, 2018).

The subject of adaptation of ADHD in the school system is the primary concern of the pre-school teachers and primary school teachers, while the competencies for ADHD behaviour development knowledge base is not enough on a national level (Kılıç & Şener, 2003; Şenol, İşeri & Koçkar, 2005). With this research, it is thought that drawing attention to the deficiencies in this field and making teacher candidates training programs functional with elective courses will constitute an important basis in recognizing these individuals and eliminating their difficulties.

With the process of inclusion, the children with special educational needs can attend classes in regular schools. Most of the children with ADHD are also part of the inclusion process, which is the reason why Primary School teachers are responsible for their education. For this reason, it is very important for these teachers to gain appropriate knowledge about ADHD in order to be able to work with students with ADHD in future.

When the studies in the literature in our country are examined, it is seen that researches conducted on children with ADHD are generally medical based. For example, Aydın, Diler, Yurdagül, Uğuz & Seydaoğlu (2006) examined the ADHD rates in parents of children with ADHD and concluded that ADHD in childhood and adulthood has been more prevalent in parents of children with ADHD. Aysev and Öner (2002), examined the psychiatric morbidity of cases that were diagnosed with ADHD during their childhood. Their results indicated that ADHD group has received significantly more psychiatric diagnoses than control group in adolescence. In 2004, Ölmez and Öncü, examined the Neuropsychological Findings in Adults with ADHD. The aim of their study has been assessing neuropsychological functions of adults with ADHD compared to healthy controls. Delic, (2001), found that schools in Croatia need multidimensional model that brings together the positive effects of the medicines, working with the child, his family, his environment, and the wider community. Klock (2017) examined the children with ADHD in the primary schools concluding that it is important to sensitize the general public to these children and their problems. When it comes to researches created for teachers, Kehonjic (2006) made the research Teachers' opinions on students with ADHD. The results indicated under level knowledge about characteristics of those students and insufficient evaluation of teacher's personal competences for teaching those students. Another research, made in 2006, (Mugnaini et al., 2006) examined

the Teacher reports of ADHD symptoms in Italian children at the end of first grade. The results have shown that Comorbid symptoms have been 10 times more frequent than in subjects without ADHD symptoms.

When the ADHD studies are examined, it is noted that there are limited number of studies in the fields of Education and Psychology in Turkey. This situation can be described as a significant obstacle in determining and meeting the educational needs of children with ADHD. Studies related to teachers' candidates were not found. This research aims to ensure that it will contribute to other vocational elective courses that will be held in the field of ADHD by revealing the opinions of teacher candidates before taking the course.

1.1. Purpose of the research

In the traditional education system, the teachers are expected to possess enough knowledge and information's in order to enable students with ADHD to actively participate in inclusion process. It is very important for teachers working with students with ADHD, to have enough knowledge in this field, be able to regulate the physical environments, know how to focus attention in the presentations during the classes, use interesting materials and adapt the teaching materials according to student's needs (Gümüş, 2015; Özmen, 2010). Therefore, teacher candidates need to be able to identify the learning problems experienced by these students and implement solutions related to these learning problems (reading, writing, mathematics, language, visual perception, auditory perception, memory etc.) (Aktaş, 2000; Kanay, 2006). Preschool and primary school teacher candidates who are able to recognize children with ADHD, and know the strengths and weaknesses of ADHD within the scope of vocational elective course, will increase the efficiency of children with ADHD in the teaching process (Göl & Bayık, 2013)

It is of utmost importance to realize the administrative arrangements in the classroom environment by resolving them in the treatment and by applying behavior development method (Göl & Bayık, 2013). In this context, it is necessary to implement vocational elective courses for students with special needs including ADHD in the education programs. It should not be forgotten that the consciousness of teachers is the biggest factor that will bring students to society. Because the support provided by teachers to students with special needs is extremely important in preparing students for life.

2. Methodology

2.1. Research Design

Qualitative research model was used in this research. Qualitative research approaches focus on evaluating individuals' experiences (Jasper, 1994; Miller, 2003). Phenomenology, as one of the qualitative research approaches, was used in the research. The purpose of the phenomenology, which is one of the qualitative research methods, is to reveal individuals' experiences about a case, their perceptions about these experiences and the meanings they have acknowledged (Ersoy, 2016). As a descriptive research method, phenomenology focuses on identifying facts, not generalization (Baş & Akturan, 2008). In the research, we tried to reveal the concepts that teacher candidates have about ADHD. Phenomenology pattern was preferred in this research since we tried to understand and interpret the opinions of teacher candidates before and after taking the ADHD course, as vocational elective course.

2.2. Participants

The participants of this research consist of 20 female teacher candidates studying at Çanakkale Onsekiz Mart University, Faculty of Education, from two Departments of Education- Preschool Teachers and Primary Education Teachers. The research was conducted in the 2019-2020 academic year. Purposeful sampling approach was used in the selection of the teacher candidates. It is a purposeful selection of individuals and situations related to this qualitative research selected by the researchers. With the purposeful sampling it is possible to provide rich information's in order to understand the research problem and the case examined (Büyüköztürk, Çakmak, Akgün, Karadeniz & Demirel 2014; Maxwell, 2012). In this research, teacher candidates who choose the ADHD course, as a vocational elective course were determined as research group. The selected department of teacher candidates participating in the questionnaires conducted in the research are given in Table 1.

Table 1. Department of Teacher Candidates Participating in The Research

Department of Teacher Candidates	Preschool teachers	Primary school teachers
	f	f
	10	10
Total	20	

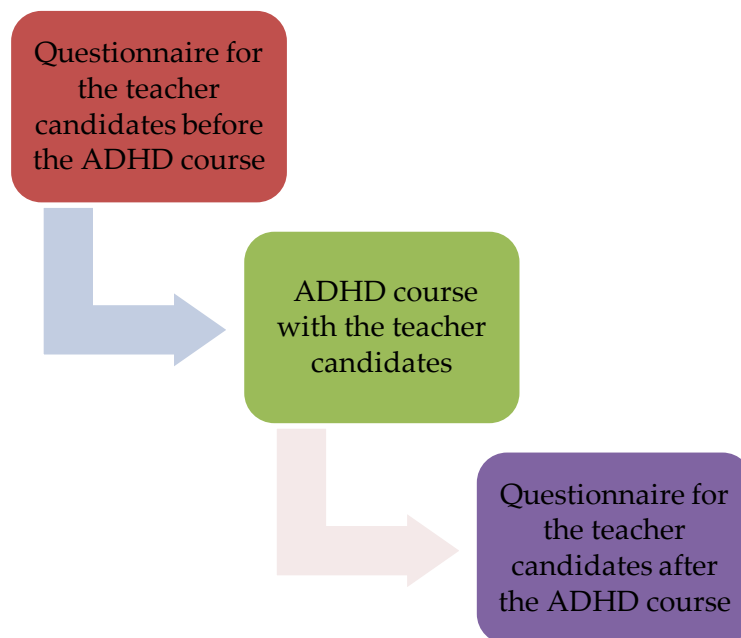
When Table 1 is analyzed, it is seen that 10 of the pre-school teacher candidates participated in the research, and 10 participants are primary school teacher candidates. Questionnaires with 20 teacher candidates were implemented before and after ADHD course.

2.3. Data Collection Tool

In the research, a questionnaire with semi-structured and non-directing questions was used as qualitative data collection tool. While preparing the questionnaire used in the research, the literature from the topic area was used. First, a draft questionnaire form was created, and the questions were presented to two faculty members in order to obtain expert opinion. After the expert opinions, the questionnaire form was reviewed and finalized. In the first part of the prepared questionnaire form, there are questions related to teacher candidate's general information (department), and in the second part, there are semi-structured and non-directing questions about ADHD. By obtaining the necessary ethical and administrative permissions, the research was carried out on a voluntary basis with teacher candidates. It was stated to the teacher candidates that the data obtained from the questionnaire would be stored within the framework of ethical rules. Answering the questionnaire with teacher candidates took about 20 minutes.

2.4. Procedure of the Research

The lessons for the vocational elective course ADHD, needed for this research, were held twice a week, lasting total 14 weeks. The course was held in the fall semester of the 2019-2020 academic year, and the questionnaires were implemented with the teacher candidates on the first and the last week. In Figure 1, data collection process is given schematically.

**Figure 1.** Data Collection Process

Teacher candidates' opinion before and after taking the ADHD course was examined. Within the scope of this vocational elective course, it is thought that this research will contribute to the field in defining what kind of teacher qualifications they need to support the students with ADHD and determining their conceptual

changes. For this purpose, the following questions were prepared for the teacher candidates before and after taking the ADHD course.

The questions for teacher candidates before the ADHD course are as follows.

As a teacher candidate;

1. What do you know about ADHD?
2. What are the first concepts that associate you with ADHD?
3. What are your expectations? What do you expect to learn within the scope of ADHD course?
4. Why did you select ADHD course?

The questions for teacher candidates after taking the ADHD course are as follows:

As a teacher candidate;

1. What did you learn about ADHD?
2. What are the last concepts that associate you with ADHD?
3. Were your expectations about the ADHD course met? What else would you expect to learn from this course?
4. What will you do for the student with ADHD is in your class?

ADHD course conducted with teacher candidates in the research continued for 13 weeks, 2 lessons per week. Implementation of the ADHD course for this research and the information about the content of the course are shown in Table 2.

Table 2. Content of ADHD Course

Weeks	Subject content of the vocational elective ADHD course
1. Week	Definition and Characteristics of ADHD
2. Week	Attention Deficit
3. Week	Hyperactivity Disorder
4. Week	Impulsiveness
5. Week	Causes and Diagnose of ADHD
6. Week	Psychiatric Disorders and other conditions linked with ADHD
7. Week	ADHD Therapy
8. Week	Effects of ADHD on the family
9. Week	Educating the parents of children with ADHD
10. Week	Education of Children with ADHD
11. Week	ADHD during lifetime – Infancy and pre-school period
12. Week	ADHD during lifetime – Primary and Secondary School Period
13. Week	ADHD during lifetime – Adolescents and Adults with ADHD

When Table 2 is analyzed, ADHD course content included the subjects: Definition and Characteristics of ADH, Attention Deficit, Hyperactivity Disorder, Impulsiveness, Causes and Diagnose of ADHD, Psychiatric Disorders and other conditions linked with ADHD, ADHD Therapy, Effects of ADHD on the family, Educating the parents of children with ADHD, Education of Children with ADHD, ADHD during lifetime – Infancy and pre-school period, ADHD during lifetime – Primary and Secondary School Period, ADHD during lifetime – Adolescents and Adults with ADHD.

2.5. Data Analysis

Qualitative data obtained in the research were subject for content analysis. The main purpose in content analysis is to reach concepts that can explain the collected data (Yıldırım & Şimşek, 2013). For the data analysis, the records obtained from the anonymous questionnaire were written in the computer environment without any changes. The data were analyzed using the content analysis method and the questions were analyzed with the MAXQDA Analytics Pro 2020 program. Codes and sub-codes were created with purpose to analyze and interpret the answers given to each question through content analysis. Similar codes were collected under the

same theme and the research subject was categorized under the factors depending on its structure. In order to ensure the reliability of the research, the teacher candidates were filling the questionnaire anonymously and two researchers analyzed the data of the research separately. In the research, coding reliability was calculated according to the formula $[\text{Consensus} / (\text{Consensus} + \text{Disagreement})]$ (Miles & Huberman, 2015) and the consensus (reliability) was found as % 89.

In qualitative research, more credibility, reliability, verifiability, and transferability criteria are used instead of the expressions of validity and reliability used in quantitative research, (Merriam, 2013; Whittemore, Chase & Mandle, 2001). In qualitative research, it is also important to get the opinion of an independent researcher or expert colleague who has little or no contact with the participants, who can make sufficient judgments about the participants' comments, and who knows the method of the study (Holloway & Wheeler, 1996; Merriam, & Tisdell, 2015).

In this framework, confirmation from the participants was provided for this research and direct quotations are made from the participants' opinion. The names of the teacher candidates who participated in the study were not asked within the framework of ethical principles, and the answers of the participants were coded in alphabetical order. The answers and the direct quotations of the Preschool teacher candidates were included in the form of PST (PST₁, PST₂... PST₁₀), while the primary school teacher candidates were coded as PT (PT₁, PT₂... PT₁₀).

3.Findings

In this section, qualitative findings obtained from the teacher candidates' answers are given. The themes and codes obtained from the questionnaires with pre-school and primary school teacher candidates were made with the MAXQDA Analytics Pro 2020 program and the findings were presented. The codes stated most by the teacher candidates are indicated in dark colors in the model.

Findings from Pre-Questionnaires with Teacher Candidates

3.1. Teacher Candidates Opinions for What They Know About ADHD

In the preliminary questionnaire with teacher candidates, the themes, and codes that teacher candidates know about ADHD were modelled and presented. The model of teacher candidates' knowledge about ADHD is given in Figure 2.

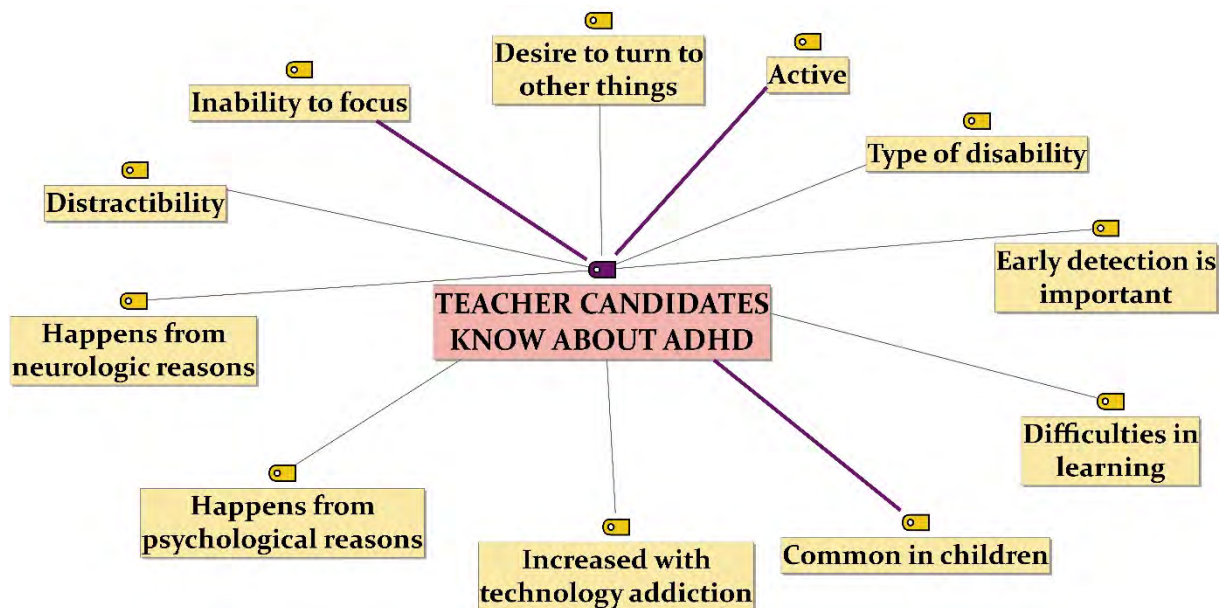


Figure 2. What the teacher candidates know about ADHD

When Figure 2 is analyzed, the codes of what preschool and primary school teacher candidates know about ADHD, can be seen. Teacher candidates stated "Active", "Inability to focus", "Common in children" codes more about ADHD. Examples of direct quotes taken from the teacher candidates' opinions are presented below:

PST1: "Actually, I don't know much about ADHD... What I know about ADHD is that it is a kind of disability and these people have difficulties focusing especially when doing something. As far as I know, it is common in children..."

PT2: "...The main point I know about ADHD is the state of activeness. In other words, I know that individuals with ADHD have a desire to move constantly with their inexhaustible energies. I think this is a type of neural condition that is mostly seen in children."

3.2. Teacher Candidates Opinion About First Conceptual Associations for ADHD

In the preliminary questionnaire with teacher candidates, the first conceptual associations of teacher candidates related to ADHD were presented by modelling themes and codes. The model of the teacher candidates' conceptual associations about ADHD is presented in Figure 3.

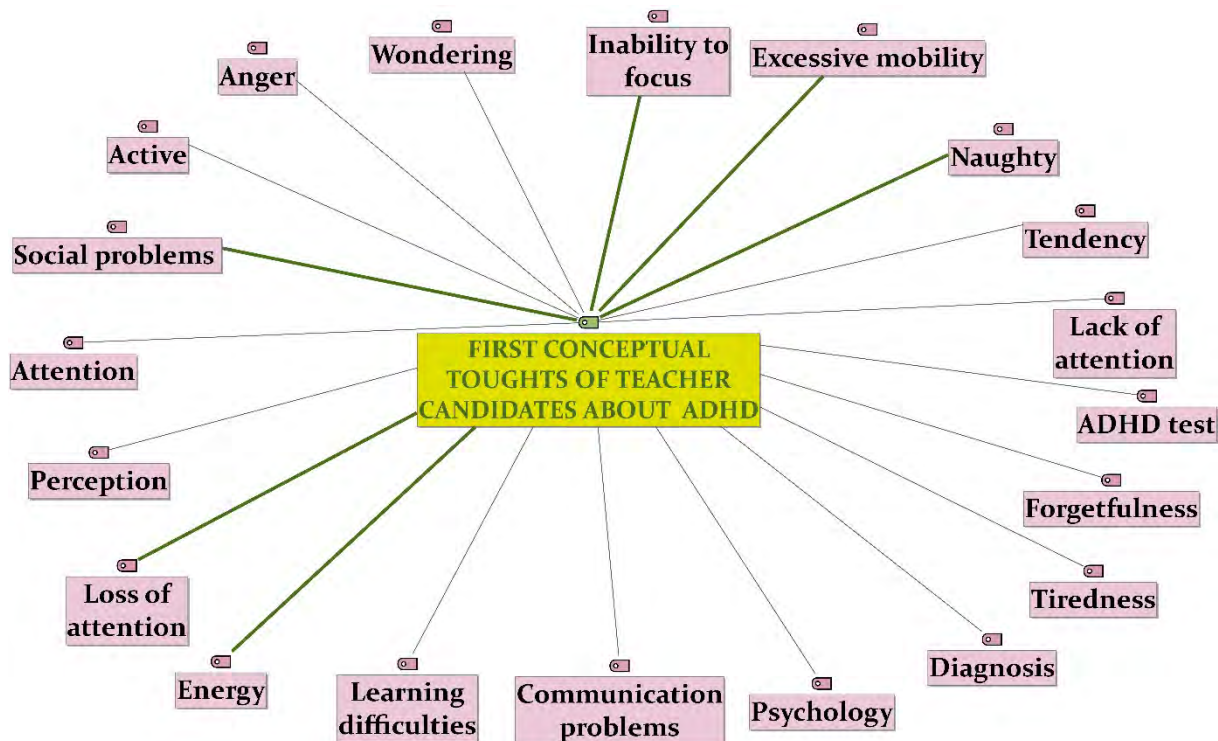


Figure 3. The first conceptual association of prospective teachers about ADHD

Looking at Figure 3, the first conceptual association of pre-school and primary school teacher candidates related to ADHD are shown in codes. It is seen that teacher candidates stated "Energy", "Lack of attention", "Inability to focus", "Social problems", "Excessive mobility", "Naughty" codes in their conceptual associations. Examples of direct quotes taken from the statements of teacher candidates are presented below:

PST3: "When ADHD is mentioned, the concept that comes to my mind first is inability to focus, tend to move constantly with high energy. In fact, the first thing that comes to my mind is that they are naughty students who are in movement all the time, and who cannot stand still in the classroom. I think the concept that occurs most in my mind when ADHD is mentioned is naughty..."

PT4: "The concept that first associates me with ADHD is social problems... I think there are very few concepts about ADHD because I do not have any idea and knowledge about it. But besides the social problem, I can say anger and psychology. I can also say the lack of attention, which is hidden in the name of the disorder".

In the research, the word cloud consisting of the first conceptual association of teacher candidates about ADHD was also created through MAXQDA Analytics Pro 2020 program and presented in Figure 4. In this context, "Naughty" concept, as one of the most frequently used associations of teacher candidates in relation to ADHD, can be seen remarkably.



Figure 4. The teacher candidates first conceptual association word cloud about ADHD

3.3. Opinions of Teacher Candidates About Their Expectations Within the Scope of ADHD Course

The expectations of the teacher candidates from the ADHD course, in the preliminary questionnaire, were presented with modelling themes and codes. The model of prospective teachers' expectations about ADHD course is presented in Figure 5.

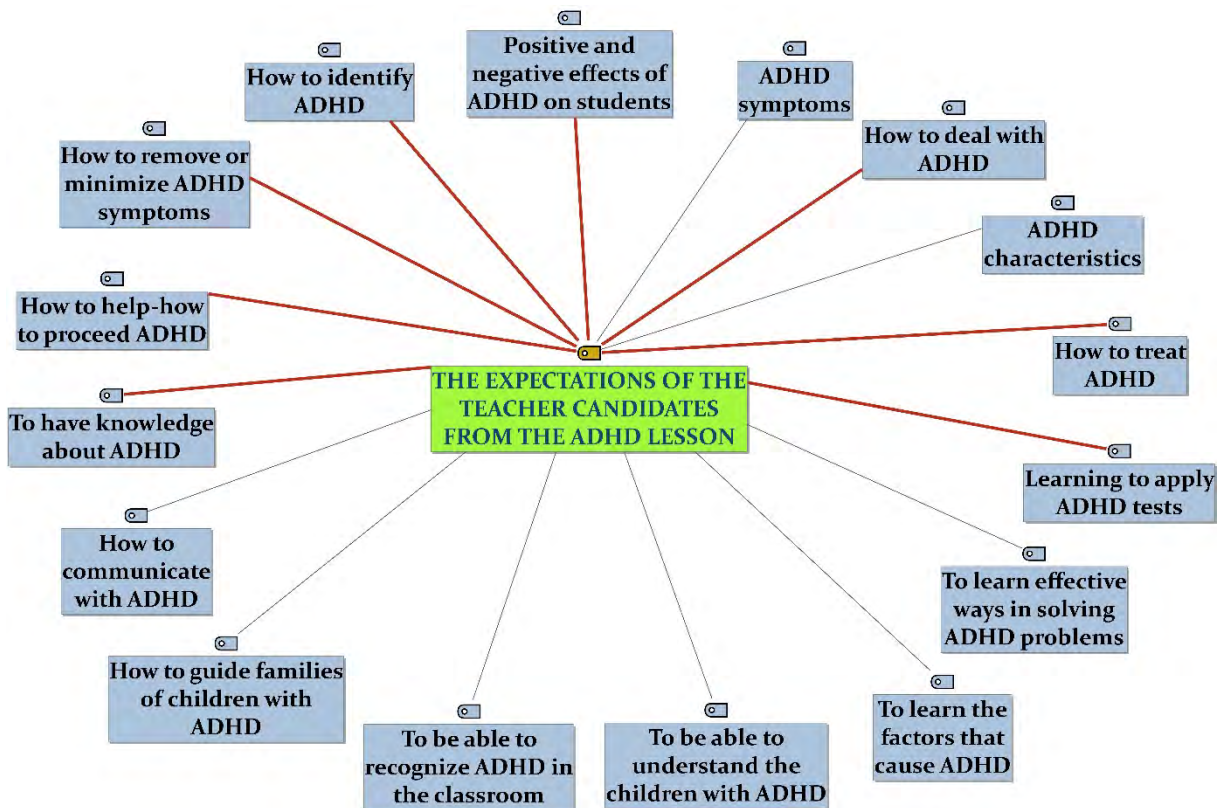


Figure 5. Teacher candidates' expectations from ADHD course

In Figure 5, the expectations of pre-school and primary school teacher candidates from the ADHD course are presented in codes. "How to treat ADHD", "Learning to apply ADHD tests", "How to deal with ADHD", "Positive and negative effects of ADHD on students", codes appear to be prominent. Examples of direct quotes taken from the teacher candidates' statements are presented below:

PST₆: “My expectation from ADHD course is to be able to help a student with ADHD in my classroom when I will be a teacher in future. I want to learn this. Or how can I recognize ADHD, how can I deal with it when I face such a situation... This is what I expect from this course.”

PT₅: “My expectation from ADHD course is to learn how to apply ADHD tests. If I have enough knowledge about ADHD from this course, I can correctly observe the students with special educational needs in my class and effectively guide their diagnostic process. My other important expectation is to learn the positive or negative factors for ADHD since there will be many stimuli in the class. I think if I know these, I can pay attention to it while planning my teaching process. This is perhaps my most important expectation from this course...”

3.4. Teacher Candidates Opinion on the Reasons for Choosing ADHD Course

In the preliminary questionnaire with teacher candidates, their reasons for choosing the ADHD course are presented by modelling themes and codes. The answers given by teacher candidates before ADHD course are interpreted including direct citations. The model of the teacher candidates’ reasons for choosing the ADHD course is presented in Figure 6.

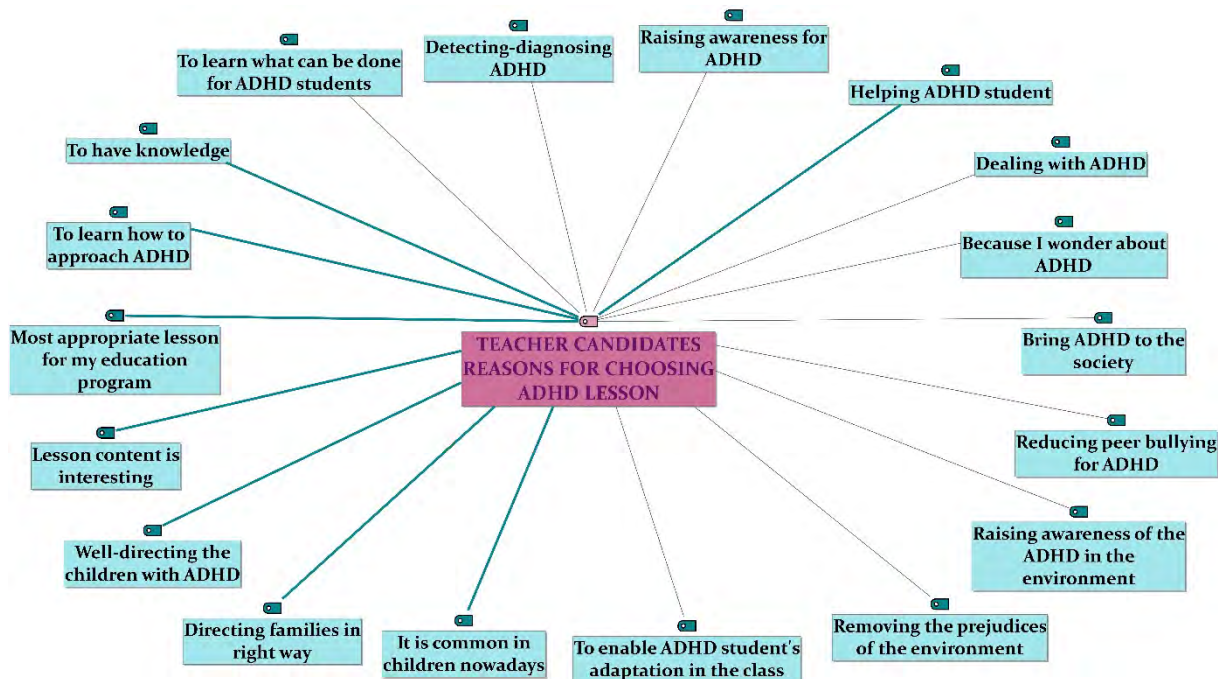


Figure 6. Teacher candidates’ reasons for choosing ADHD course

When Figure 6 is examined, it is notable that the pre-school and primary school teacher candidates’ selected this course for: “Helping ADHD students”, “To have knowledge”, “To learn how to approach ADHD”, “Most appropriate course form my education program”, “Course content is interesting”, “Well-directing the children with ADHD”, “ Directing families in right way”. Examples of direct quotes taken from the opinions of teacher candidates belonging to the prominent codes are presented below:

PST₉: “I want to learn how to treat my student with ADHD. When I will be a teacher, I may have students with special needs in my classroom. This is an issue that we face and hear frequently. I chose this course to learn what can I do for them when I have such students in my class.... I really want to have knowledge for this subject. Because when I become a teacher, I will deal with children whose developmental age is between 0-6. I think this course is suitable for my undergraduate degree. I chose this lesson for these reasons”.

PT₁₀: “When I saw this course in the vocational elective course list, I chose it because I thought it was the most necessary course for my future profession. This is a course I am really interested in. I want to know what should I do when I have a student with ADHD in my course; I chose this course because I wanted to learn how to help them, and how to guide their family effectively ”.

Results from Last Questionnaire with Teacher Candidates

3.5. Teacher Candidates Opinion for What They Have Learned About ADHD

From the last questionnaire with teacher candidates, the themes, and codes about what teacher candidates have learned from the ADHD course were modelled with the MAXQDA program. The model of teacher candidates learning from ADHD course is given in Figure 7.

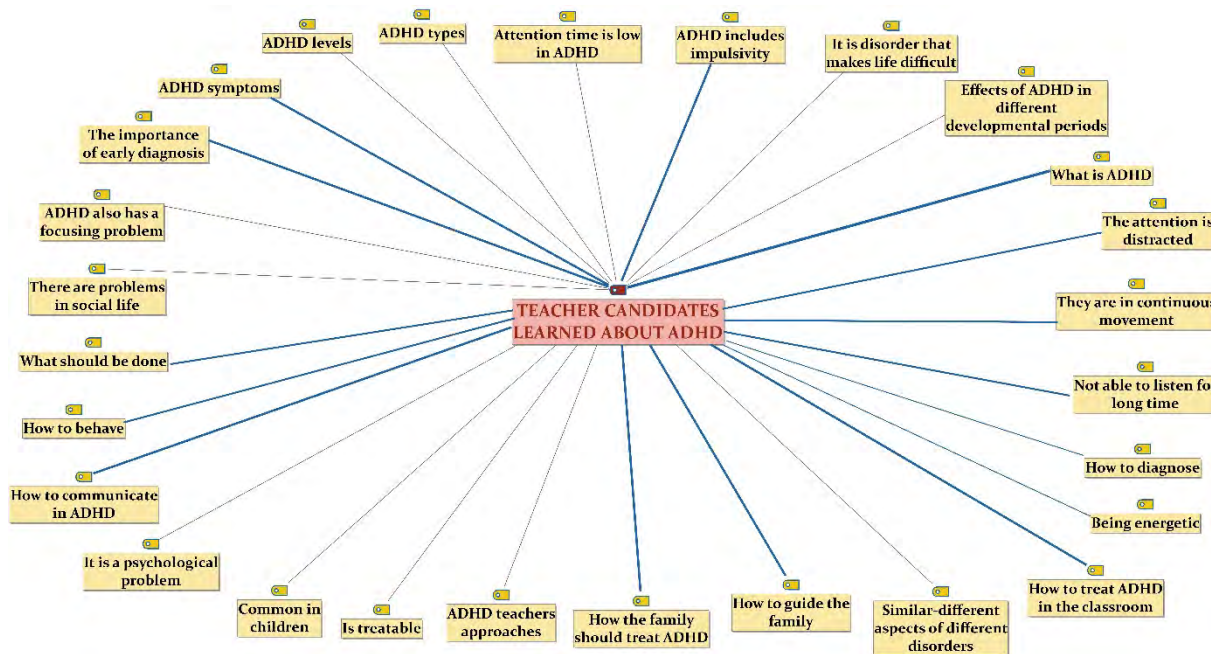


Figure 7. Teacher candidates learned from ADHD course

With Figure 7 analyze, it is presented in the codes what preschool and primary school teacher candidates learned in ADHD course. Teacher candidates specified the codes: "How the family should treat ADHD", "How to guide the family", "How to treat ADHD in the classroom", "What is ADHD", "ADHD includes impulsivity", "ADHD levels", "ADHD symptoms", "How to behave", "How to communicate in ADHD", "What should be done". After taking the ADHD course, it is notable that teacher candidates are including more codes in relation to the content of the subject. Examples of direct quotes taken from the opinions of teacher candidates are presented below:

PST₂: "I learned exactly what ADHD is. I also learned the main symptoms I need to know in determining ADHD during the diagnosis process. Again, it was very meaningful for me to learn how important early diagnosis is, and how the early intervention can change an individual's life. At the last lesson, learning how to make arrangements in the classroom for a student with ADHD will be very useful for me when I will start my profession"

PT₃: "ADHD was actually a concept we always heard, but instead of hearing something superficially, now I can say that I know the many underlying causes and the symptoms, and most importantly I can say that I know how to help a student with ADHD. Another important point is that I learned what I can do for the person with ADHD and his family".

3.6. Teacher Candidates Opinion About Last Conceptual Associations for ADHD

The themes and codes related to the last conceptual associations of teacher candidates, related to ADHD, from the last questionnaire were modelled with the MAXQDA program Citations from the answers given by the teacher candidates after the ADHD course, were interpreted including direct citations. The model of the teacher candidates' conceptual associations about ADHD is given in Figure 8.

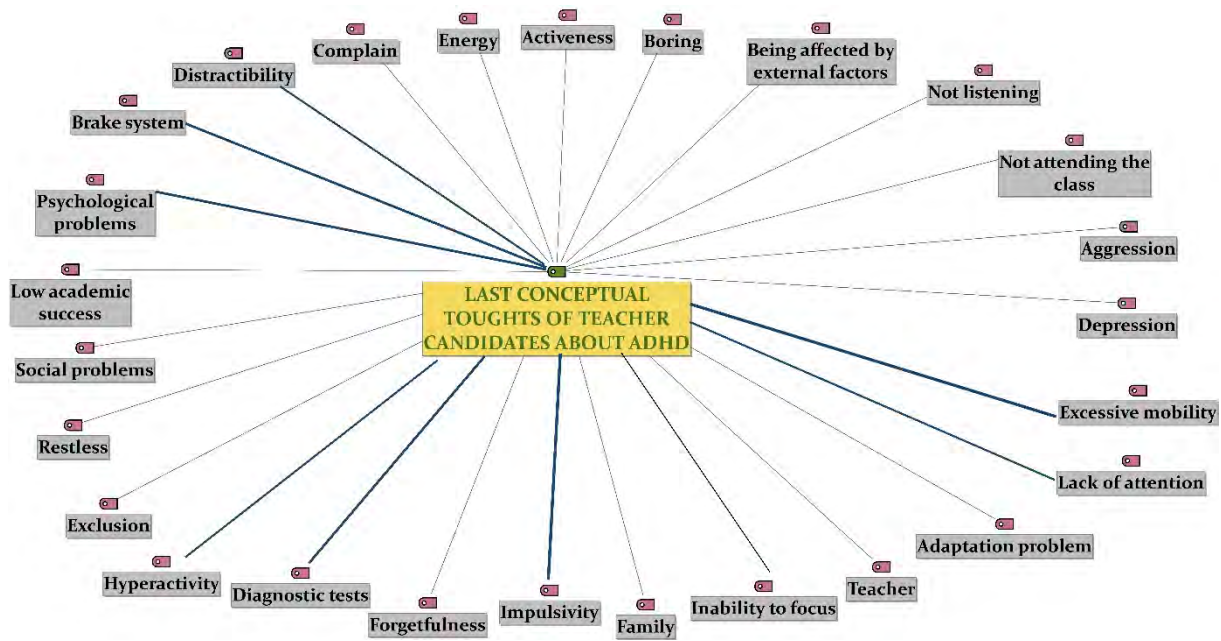


Figure 8. Teacher candidates last conceptual association about ADHD

Looking at Figure 8, the last conceptual association of pre-school and primary school teacher candidates about ADHD are presented in codes. It is seen that the teacher candidates wrote the: "Distractibility", "Brake system", "Psychological problems", "Hyperactivity", "Diagnostic tests", "Impulsivity", "Excessive mobility" codes. It was observed that teacher candidates were more able to make conceptual associations after ADHD course. Examples of direct quotes taken from the teacher candidates' opinions are presented below:

PST4: "If I think of the concepts that are associated with ADHD in my mind, I can say impulsivity, excessive movement and distraction. From everything I learned in this course, I can think of ADHD with more general structure, features, or terms related to ADHD... like the brake system, for example".

PT6: "...For me, words that are conceptually associated with ADHD are mostly about what ADHD is, and what can I do about it...For example, I can say ADHD diagnostic tests, focusing problems or social problems, as first words that come to my mind..."

The word cloud consisting the last conceptual associations of teacher candidates about ADHD is given in Figure 9. While the most frequently used association to ADHD is "Excessive mobility", it is notable that some concepts including the basic components of ADHD are also included.



Figure 9. Teacher candidates last conceptual association about ADHD word cloud

3.7. Teacher Candidates Opinion About Different Learning Expectations from ADHD Course

The themes and codes related to different learning expectations than the ADHD course were modelled with the MAXQDA program. Citations were interpreted including direct citations from the answers given by teacher candidates. The model of teacher candidates' learning expectations from ADHD course is given in Figure 10.

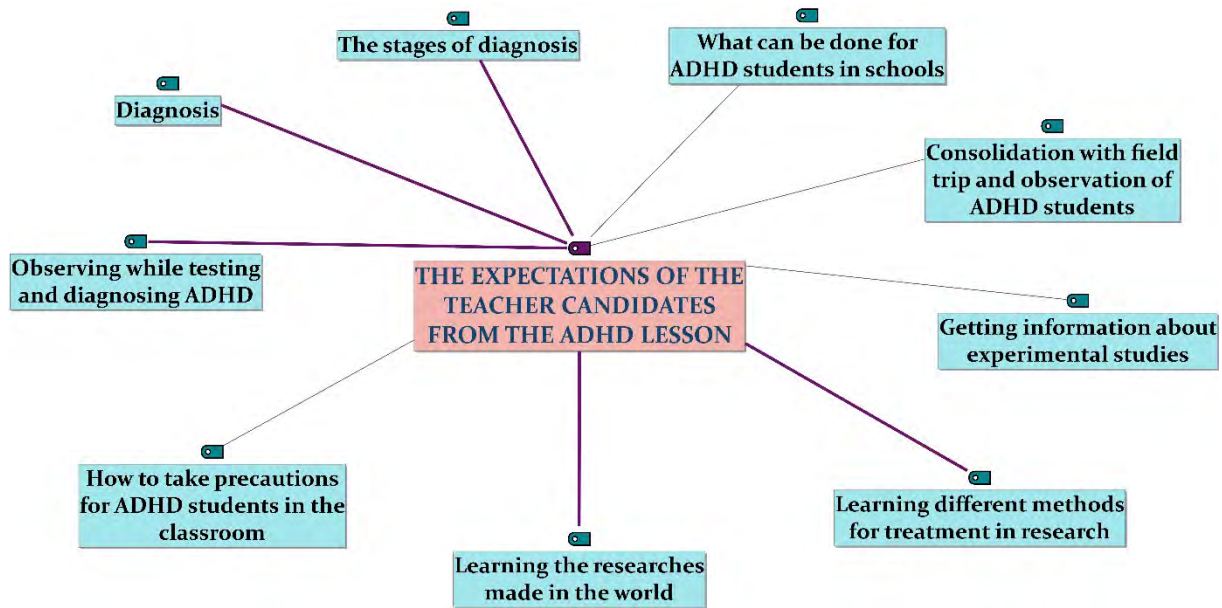


Figure 10. Teacher candidates' different learning expectations from the ADHD course

When Figure 10 is examined, what the pre-school and primary school teacher candidates want to learn differently from the ADHD course is presented in codes. It is seen that the teacher candidates stated, "The stages of diagnosis", "Diagnosis", "Observing while testing and diagnosing ADHD", "Learning the researches made in the world", "Learning different methods for treatment in research". It was notable that the teacher candidates want to observe during examining and diagnosing ADHD in children, and during the stages of giving diagnosis within the scope of ADHD course. Examples of direct quotes taken from the opinions of teacher candidates are presented below:

PST₁₀: "...I think I have learned many things that I expected to learn within the scope of ADHD course. However, we could observe students with ADHD, on organized trip, for example...even for a short time. When you learn something, you know it.... but it is hard to make that knowledge permanent if you did not have a chance to directly observe and live in that environment, before. Therefore, I would like to be an observer especially in the diagnosis stage, and in the test application stage of ADHD students, during this course".

PT₈: "As part of the ADHD course, we learned about the characteristics of ADHD, symptoms and basic concepts. I would especially like to know the diagnosis process, the content of ADHD tests and how these tests are applied. I would like to learn about the studies conducted in Guidance and Research Centers in our country or the practices in our education system, as well as the studies on ADHD in the world and what different methods can be used for ADHD in schools".

3.8. Teacher Candidates Opinion on What can be done for a Student with ADHD

In the last questionnaire for teacher candidates, the themes, and codes about what teacher candidates can do for their students with ADHD are modelled with the MAXQDA program. These citations were interpreted by including direct citations in the answers given by teacher candidates. The model of what teacher candidates can do for their ADHD students is given in Figure 11.

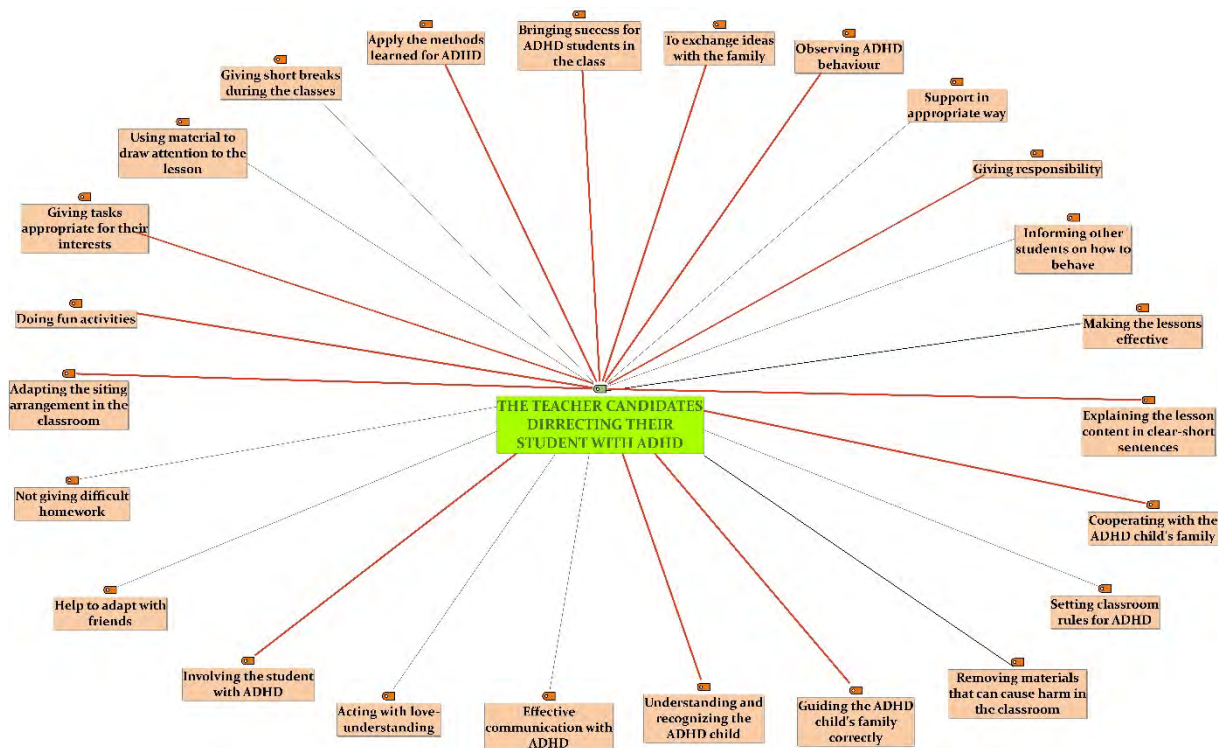


Figure 11. What prospective teachers can do for their ADHD students.

In Figure 11, teacher candidates often indicate the codes: “Bringing success for ADHD students in the class”, “Apply the methods learned for ADHD”, “Observing ADHD behavior”, “To exchange ideas with the family”, “Giving responsibility”, “Cooperating with the ADHD child’s family” “Explaining the class content in clear-short sentences”, “Understanding and recognizing the ADHD child”, “Guiding the ADHD child’s family correctly”, “Adapting the sitting arrangement in the classroom”, “Involving the student with ADHD”, “Apply the methods learned for ADHD”, “Giving short breaks during the classes”, “Doing fun activities”. Examples of direct quotes taken from the opinions of teacher candidates belonging to the prominent codes are presented below:

PST7: “...First, I know that I should be a very good observer for my ADHD student. I should carefully monitor the behavior of my student with ADHD and try to assign tasks appropriate to his interests. In short, I will always make additional plan for including the student with ADHD during the classes”.

PT1: “For the student with ADHD, I will direct his family and exchange ideas with his family. I can make the student with ADHD feel successful in the course, especially in order to be understandable when I am teaching the lesson, and because it is immediately distracted, I can make clear sentences. I can use the methods of teaching the ADHD student I learned within the scope of this vocational elective course”.

4. Discussion and Conclusion

The questionnaire prepared for the purpose of the research, showed noticeable results. If we compare the teacher candidates’ answers before and after taking the ADHD course, we can notice the improvement they showed. For example, if we analyze teacher candidates answers on the first question ‘what you do know/ have learn about ADHD’ before and after taking the ADHD course, we can see that their answers have changed with time. Before the course, most of the teacher candidates explained the ADHD as a ‘type of disability’, ‘common for children’, ‘active’ and ‘inability to focus’. They started giving more precise and accurate answers after visiting the ADHD course, explaining the ADHD as a problem that needs to be ‘diagnosed’, has ‘symptoms’, ‘levels’, ‘types’, needs ‘early intervention’ and other important information’s they had learn in the course.

The same results showed during the examination of the second question, asking the teacher candidates to write a concept they associate with ADHD. Surprisingly, in the first stage of the research, they had mostly negative associations for students with ADHD. using words as: ‘naughty’, ‘loss of attention’, ‘anger’, ‘energy’, ‘forgetfulness’ etc. Their association concept drastically changed after the course, they started using appropriate terms as ‘excessive mobility’, ‘hyperactivity’, ‘inability to focus’ etc. Additionally, the teacher

candidates started associating ADHD as a 'problem'- 'adaptation problem', 'social problem', 'psychological problem', 'low academic success'... referring to the solution as 'diagnostic tools', 'family support' or even using professional terms as the 'brake system'. The knowledge they gain during the ADHD course clearly changed their concept of associating ADHD in children. They went from 'being naughty' to a 'child with problem that needs diagnose and support'.

The results from the third question about teacher candidates' expectations from this course mostly showed that their expectations were met. They all wanted to learn how to identify ADHD in children; they wanted to learn the symptoms, characteristics, and mostly how to work with a child with ADHD in their classroom. Most of the subjects they expected were already included in the curricula. After the course most of the teacher candidates noted that observation of diagnosing a child with ADHD should be planned, too which shows that they had more interest for ADHD, especially because as teachers they are not able to diagnose ADHD and use diagnostic tools. Some students noted that visiting institution for children with special educational needs would help them memorize what they have learned during the courses by seeing in practice everything they know.

With the last question in the questionnaire, we examined why teacher candidates selected this course, and since most of the answers referred to 'learning what can be done for ADHD students' or 'learning how to deal with ADHD' we asked them what they can do about a student with ADHD in their classroom after they finished the course. They explained in details how they would monitor the child behavior, how they are able to recognize and understand ADHD, how they will adapt and arrange the classroom, how they will provide support for the family, how they will apply the methods of work they learned for ADHD etc.

When the research results are analyzed, it was seen that the definition of ADHD differs in terms of the features included in the last questionnaire with teacher candidates. While teacher candidates before taking the course define ADHD as a kind of disability; after the course, they stated that ADHD has different disorders than a single type with symptoms such as attention problems, hyperactivity, and impulsivity. This conclusion has similarities with the definitions that emphasize this aspect of ADHD in the literature (Gümüş, 2015; Rider, 2015). The teacher candidates also emphasized the cooperation with the family of the child with ADHD and the exchange of ideas, after the ADHD course. Family is an important data source in every process, starting with the diagnosis phase of a child with ADHD, since the family has the chance to observe the child's behavior more than the teachers (Sürücü, 2015). Within the scope of accurate and effective communication with families with children with ADHD, teacher candidates expressed the importance for giving various trainings to the family and sharing information with them. Under the headings of introducing families to ADHD and behavioral problems and informing them about the reasons for their occurrence, applying special time, showing interest in the positive behavior of the child and increasing compliance, providing effective instructions, ensuring the child's self-distraction without disturbing the environment, points system, and other useful methods should be provided with various training, as it is also stated in the literature (Gümüş, 2015; Stein, 2002). Teacher candidates stated that individuals with ADHD are having social problems, difficulties in communication, and low academic success, especially in the focus of psychological problems. When the literature is examined, the most important issue in the child's life is whether ADHD is treated or not. When ADHD is not treated, child shows lack of self-esteem, inability to reveal their capacity, academic failure, deterioration of school and teacher relations, deterioration in parents and family relations, deterioration of friend relations, restriction of social activities, and behavior problems (Abalı, 2012).

5.Recommendations

The analysis of the research results leads to two groups of recommendations; the first group is linked with the ADHD course improvements and the second group is linked with the improvement of the education of future teachers for working with children with ADHD.

The first group of recommendations linked with the subjects that can be added in the ADHD course curricula:

- include more experiential studies,
- plan observation of students with ADHD,
- observation while testing and diagnosing ADHD,

- observation of diagnosing stages,
- practical example of precautions needed for child with ADHD in the course
- include different research is with learning methods.

The second group of recommendations includes:

-Since the results in this study showed that teacher candidates' concept of association changed after the course, it is clear that the ADHD course should be obligatory in the program for preschool and primary school teachers for two reasons. First, none of the future teachers should stay with a negative opinion about ADHD even before they have an opportunity to work with it. Second, ADHD in children is common condition and since most of the teachers will have at least one student with ADHD in their classroom, they should be well prepared with knowledge.

-The processes of teacher candidates gaining experience in practice schools are important part of the profession. The effectiveness of teacher candidates increases with experiences they have demonstrated during the teaching process. In this context, within the scope of teacher education, observations in schools should be provided for teacher candidates, making the observation of students with special educational needs, including ADHD, available.

-Most of the ADHD researches are medical based. We need more studies about ADHD in schools, and the teachers experience with ADHD. We also hope that this research will be the basis for much other research examining the teacher candidates as a group, which will work with these children in future.

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