T.C.
ERCIYES UNIVERSITY
INSTITUTE OF EDUCATION SCIENCES
DEPARTMENT OF MATHEMATICS AND SCIENCE EDUCATION

EMOTIONS, ATTITUDES, AND CONCERNS OF CANDIDATES OF SCIENCE TEACHERS ABOUT INCLUSIVE EDUCATION

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Master's Thesis

January 2024
KAYSERİ

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January 2024
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COMPLIANCE WITH SCIENTIFIC ETHICS

In this thesis study, which I prepared in accordance with the thesis writing rules, Erciyes University Institute of Educational Sciences,

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- I have not tampered with any data used,
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Merve Nur KÖROĞLU

Signature

COMPLIANCE WITH THE DIRECTIVE

Emotions, Attitudes and Concerns of Candidates of Science Teachers About Inclusive Education was prepared following the Erciyes University Graduate Thesis Proposal and Thesis Writing Directive.

Prepared By	**Supervisor**
Merve Nur KÖROĞLU	Prof. Dr. Emine GÜNERİ ÖZDEMİR

ACCEPTANCE AND APPROVAL

To the Directorate of the Institute of Educational Sciences,

Merve Nur KÖROĞLU's study titled **Emotions, Attitudes, and Concerns of Candidates of Science Teachers About Inclusive Education** has been accepted by our jury as a **Master's Thesis in the Department of Mathematics and Science, Sub-Department of Science Education, Science Education Main Branch**.

Jury President	Prof. Dr. Mustafa METİN	……..
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This thesis was deemed appropriate by the above jury members on … / … / …… in accordance with the relevant articles of Erciyes University Postgraduate Education, Training and Examination Regulation and was accepted by the Institute Board of Directors with the decision dated … / … / …… and numbered ……..

Prof. Dr. Hüseyin ARAK
Director of the Institute of Educational Sciences

PREFACE

My dear supervisor, who provided her help and valuable time during my master's education and studies, guided me with her opinions and suggestions during the preparation of the thesis, and always supported and believed in my success. I would like to express my endless gratitude to Prof. Dr. Emine GÜNERİ ÖZDEMİR.

I would like to express my gratitude to all my professors at Erciyes University, Faculty of Education, Department of Science Teaching, whose courses I gained new information from during my master's degree and who gave me valuable opinions on my thesis. I would also like to express my gratitude to all the science teacher candidates who contributed to the collection of data in my study.

I would like to express my heartfelt gratitude to my family for their unwavering support throughout the entire journey of preparing this thesis. To my beloved mother Emine Köroğlu and my beloved father Adem Köroğlu, whose encouragement and love have been my constant motivation, I owe a debt of gratitude that words cannot fully capture. Their sacrifices and belief in my abilities have been the driving force behind every step of this academic endeavor. The presence of my beautiful sisters Nur, Aleyna and Elif Ebrar Köroğlu has been a source of peace, strength, and happiness to me. I express my love and gratitude to my sisters from the bottom of my heart for making me feel like a very lucky sister.

Thank you all for being a part of the journey by reading this thesis.

Sincerely.

Merve Nur KÖROĞLU

January 2024, KAYSERİ

ÖZ

FEN BİLGİSİ ÖĞRETMEN ADAYLARININ KAYNAŞTIRMA EĞİTİMİNE İLİŞKİN DUYGU, TUTUM VE ENDİŞELERİ

Merve Nur KÖROĞLU

Erciyes Üniversitesi, Eğitim Bilimleri Enstitüsü
Yüksek Lisans Tezi, Ocak, 2024
Danışman: Prof. Dr. Emine GÜNERİ ÖZDEMİR

Bu tez, fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik duygu, tutum ve kaygılarını anlamayı amaçlamaktadır. Bu amaç doğrultusunda karma bir araştırma yürütülmüştür. Bu çalışma İç Anadolu'da bir üniversitede fen bilgisi öğretmenliği bölümüne devam eden öğrenciler ile yürütülmüştür. Çalışmanın nicel kısmında 151 fen bilgisi öğretmen adayı yer alırken nitel kısmı için 8 fen bilgisi öğretmen adayı yer almıştır. Katılımcılara "Kaynaştırma Eğitimi ile İlgili Duygular, Tutumlar ve Kaygılar Ölçeği" ve "Türkçe ve Matematik Öğretmen Adaylarının Kaynaştırmaya İlişkin Görüleri İçin Hazırlanan Görüşme Formu" uygulanmıştır. Ölçek ve formdan elde edilen veriler kullanılarak analizler gerçekleştirilmiştir. Analizler sonucunda, fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik olumlu duygu ve düşüncelere sahip oldukları sonucuna ulaşılmıştır. Öğretmen adaylarının kaynaştırma eğitimine yönelik kaygılarının olduğu tespit edilmiştir. Bu nedenle öğretmen adaylarının özel eğitim ile ilgili bilgi ve becerileri olması için eğitim fakültelerinde özel eğitime yönelik derslerin artırılması araştırmacı tarafından önerilmektedir.

Anahtar sözcükler: Kaynaştırma eğitimi, fen öğretmen adayları

ABSTRACT

EMOTIONS, ATTITUDES, AND CONCERNS OF CANDIDATES OF SCIENCE TEACHERS ABOUT INCLUSIVE EDUCATION

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This thesis aims to understand the emotions, attitudes, and concerns of science teacher candidates towards inclusive education. For this purpose, mixed research was conducted. This study was conducted with students attending the science teaching department at a university in the Central Anatolia Region. While 151 science teacher candidates took part in the quantitative part of the study, 8 participated in the qualitative part. Scales and interview questions, whose validity and reliability had been previously established, were applied to the participants. Analyzes were conducted according to the scores received from the scale and their answers to the interview questions. The study concluded that science teacher candidates had positive emotions and attitudes toward inclusive education. In addition, it was determined that teacher candidates had concerns about inclusive education. For this reason, it is recommended by the researcher to increase these courses in education faculties for teacher candidates to have knowledge and skills regarding special education.

Keywords: Inclusive education, science teacher candidates

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LIST OF SYMBOLS AND ABBREVIATIONS

ANOVA: Analysis of Variance

CIES: Concerns About Inclusive Education Scale

DDO: Disability Discrimination Ordinance

EACAIE: Emotions, Attitudes, and Concerns About the Inclusive Education Scale

IEP: Individualized Education Program

MEB: Ministry of National Education

NRC: National Research Council

NSES: National Science Education Standards

OECD: Convention on the Organisation for Economic Co-operation and Development

SINU: Solomon Islands National University

UNESCO: United Nations Educational, Scientific and Cultural Organization

CHAPTER I

INTRODUCTION

Education is a lifelong process for every individual. This process is expected to be given to individuals on equal terms (Field, 2001). As Dewey (1916) stated, education is a social process: “Education is not preparation for life; education is life itself.” (Dewey, 1916, p.239). Science education starts from pre-school and continues at all levels of education. It enables students to develop their scientific thinking, questioning, analysis, and synthesis abilities. While ensuring students' scientific literacy, they easily adapt to developments in science and technology (Önal & Sarıbaş, 2019). National Science Education Standards (NSES), announced by the National Research Council (NRC) in 1966, state that science education is undoubtedly necessary for every individual (Knight et al., 2012; Martel, 2009). Every individual has the right to education (UNESCO, 1994).

Individual differences refer to subjectivities such as various characteristics, abilities, attitudes, and behaviors observed between individuals. These differences may occur due to genetic, environmental, and personal factors. Individual differences are an important factor in the planning, implementation, and evaluation of educational processes (Aykır & Tekinarslan, 2012; Norwich, 2013). Some individuals are considered individuals with special needs due to their properties. These people are called disabled individuals. Chapman et al. (2024) define individuals as having various disabilities, such as vision impairment, deafness or hard of hearing, mental health conditions, acquired brain injury, and intellectual disability. A person with an intellectual disability is significantly lower than normal levels. This condition indicates that the individual's cognitive abilities, problem-solving ability, learning ability, communication skills, and ability to perform daily living activities are limited or affected (Forber-Pratt et al., 2024; Salend, 1998). These difficulties do not mean that these students cannot learn new things. It is a fact that individuals with intellectual disabilities have learning potential and can participate in science learning with appropriate support and approaches (Mastropieri et al., 2001; Scruggs et al., 1992;

Scruggs et al., 2008). The important thing is to increase inclusive students' interest in science and enable them to understand the subjects better by focusing on the strengths of mentally disabled students (İlik 2009; Koehler et al., 1999). These individuals may require different support or attention than other individuals, often in a particular area (Koçyiğit & Şimşek, 2019). It is a term used in inclusive education to describe the practice of including students with different abilities and backgrounds in the same learning environment. Inclusive education emphasizes creating a supportive and accepting atmosphere in which students with special needs feel welcome (Ibourk & Raoui, 2024; Lewis & Norwich, 2003).

The inclusion model is used to include students with special education needs in general education classes (Khamzina et al., 2024; Yazıcıoğlu, 2018). In the inclusion model, individual education programs can be created and support services can be provided for students with special needs (Hicks-Monroe, 2011). By being included in general education classes, these students have the opportunity to interact with other students and develop social skills. This model focuses on individuals with special education needs better integrating into society and achieving success in general education (Elliott & McKenney, 1998).

The terms 'inclusive' and 'integration' education are frequently employed in the realm of education and special education; however, they may encapsulate disparate connotations. Integrative education refers to the convergence of diverse groups. Within this framework, educational integration typically entails incorporating students receiving special education into general classrooms, creating a learning environment where students possess varying levels of abilities (Sarı & Pürsün, 2016). Inclusive education refers to the integration of students into general education settings to meet their special educational and support needs. This implies that students are educated in mainstream classrooms whenever feasible and engage in the general education curriculum. Inclusion can be perceived as an endeavor to facilitate students with special educational needs in learning alongside their peers (Ashikali et al., 2021). While integration generally refers to a broader scope, inclusion generally emphasizes the process of including individuals with special educational needs in general education settings. While the general education program is implemented in inclusive education, it is customized to the individual student's needs during integration. In

addition, an Individualized Education Program (IEP) is required for each student, whether in inclusive education or integration education (Sarı & Pürsün, 2016).

The individualized education plan is defined in the special education regulation as follows: Individualized Education Program" (IEP) denotes a specialized educational plan tailored to individuals with unique educational needs, crafted upon consideration of their distinct developmental traits, educational requirements, and performance levels. This program is designed to establish specific objectives for the individual, facilitating the attainment of predetermined goals, and encompasses specialized educational services aimed at supporting their progress toward these objectives. This program addresses the specialized educational requirements of the student and is prepared to facilitate the student's advancement within the least restrictive environment (Kurth et al., 2022; LaSalle et al., 2013).

Teachers undoubtedly must implement the inclusion model in classrooms and schools. Teachers acquire information about inclusive education and models during in-service or pre-service training (Avramidis & Norwich, 2002). It is important to train teachers who have positive emotions and attitudes about inclusive education, have developed self-efficacy, have strong empathy and communication skills, are fair, and accept the existence of every child's right to education. Looking at the literature, teacher candidates receive courses and training on inclusive education and children with special needs at the undergraduate level. It is stated that these courses help teacher candidates to have a positive attitude toward students who need inclusion and special education in their professional lives (Şahbaz & Kalay, 2010). Hence, teacher candidates for inclusive education may have the qualifications to effectively guide students with these diverse and special needs (Hodge & Jansma, 2000; Moberg et al., 1997; OECD, 2014).

The inclusive training that teachers and teacher candidates receive and the information they acquire about individuals with special needs also affect teachers' self-efficacy. Self-efficacy can be defined as the belief an individual harbors regarding what they can achieve with their abilities (Wray et al., 2022). It has been suggested by Bandura (1992) that purposeful behavior and goal setting are controlled by thoughts influenced by individual self-efficacy perceptions. An individual possessing high self-efficacy can attain their goal. Individuals with low self-efficacy may tend to avoid new and challenging situations. However, when these individuals encounter negativities, they doubt themselves and their anxiety levels increase (Bandura, 1992). According to

the definitions of self-efficacy beliefs, teachers and teacher candidates need to have a strong self-sufficiency for inclusive education to ensure the success of inclusion students (Schunk, 2007).

1.1. Problem Statement

Teachers and teacher candidates may experience communication, social, and academic problems when they are mainstreaming students in their classrooms. Teachers may have more difficulty in this regard in the first years of their careers (Leblebici & Türkan, 2021). Teacher candidates may also feel insufficient at this point (Stites et al., 2018). According to Nishimura & Busse (2016), when teacher candidates thought about the possibility of having inclusive students in their classes, they stated that they did not have sufficient knowledge and experience on the subject. For this reason, they stated that they had a negative opinion about integration. It has been observed that many teacher candidates have deficiencies and difficulties in this regard because they do not have sufficient knowledge about inclusive education and have not received sufficient training on inclusive education (Stites et al., 2018). There are various studies indicating that the preparation and professional development of science teacher candidates in terms of special education are not adequately supported (Kang & Martin, 2017; McCray & McHatton, 2011).

Investigating the emotions, attitudes and concerns of science teacher candidates regarding inclusive education is an important requirement for effectively designing education and training processes in this field. In this study, the primary objective is to elicit the perspectives of science teacher candidates regarding inclusive education, in addition to exploring their emotions, attitudes, concerns and, needs.

1.2. Significance of the Research

Education is the right of every individual. In this context, it is important to attach importance to the education of individuals who need special education, and who are a part of the society. This process takes place thanks to the teachers who will train them. Contemporary education systems strive to deliver equitable and impartial education to students with diverse learning requirements (Ainscow et al., 2019; Buli-Holmberg et al., 2023). In this context, inclusive education has gained importance as an approach that encourages the inclusion of students with special needs in the general

education environment and their social participation. This study, which examines science teacher candidates' emotions, attitudes and, concerns about inclusive education, can provide valuable insights into how the education system and teacher training programs can contribute to a significant transformation.

Seeing and understanding science teacher candidates' emotions, attitudes and, concerns about inclusive education can make valuable contributions to their professional preparation process. These views can increase teacher candidates' awareness of inclusive practices and encourage them to understand differences in education. Understanding science teacher candidates' views on inclusive education can help us understand how these teachers can affect student achievement when working in inclusive classrooms. In this way, students' learning experiences can be made more effective. Inclusive education promotes social participation and inclusion of the inclusive student in society. Science teacher candidates' views on inclusive education may provide important clues on how social participation can be strengthened. Science teacher candidates' views on inclusive education can enrich existing science education approaches therefore contribute to the professional development of teachers.

Science teacher candidates' emotions, attitudes and, concerns about inclusive education can play an important role in shaping education policies and teacher training programs. The results obtained can help evaluate the effectiveness of educational content and methods of inclusive education. This study, which indicates the emotions, attitudes and, concerns of science teacher candidates about inclusive education, provides support for efforts to make the education system more inclusive and effective. It is thought that it will support teacher candidates to acquire more information about inclusive education throughout their undergraduate education thus contribute to the training of teachers who are more competent, prepared, sensitive, and aware of inclusive education.

1.3. Purpose of the Research

The main purpose of this thesis study is to thoroughly investigate and understand the emotions, attitudes and, concerns of science teacher candidates regarding inclusive education. Inclusive education is an important approach that encourages the inclusion of students with different learning needs in the general

education environment. Teacher candidates' opinions on this issue may help future teachers guide inclusion practices more effectively.

In line with this purpose, the objectives of the study were determined as follows:

- Is there a significant difference between science teacher candidates' emotions, attitudes, and concerns towards inclusive education in terms of gender?
- Is there a significant difference between the emotions, attitudes, and concerns of science teacher candidates towards inclusive education in the context of their interactions with individuals in need of special education?
- Is there a significant difference between the emotions, attitudes, and concerns of science teacher candidates toward inclusive education in terms of their receiving training in special education?
- Is there a significant difference between the emotions, attitudes, and concerns of science teacher candidates toward their knowledge of local legislation and policies regarding children in need of special education?
- Is there a significant difference between the emotions, attitudes, and concerns of science teacher candidates toward inclusive education, and their self-confidence in teaching students in need of special education?
- Is there a significant difference between the emotions, attitudes, and concerns of science teacher candidates toward inclusive education and their experiences in teaching students in need of special education?
- What are the opinions of science teacher candidates regarding their emotions, attitudes, and concerns towards inclusive education?

1.4. Assumptions

- It was assumed that the participants in our study voluntarily participated in the data collection process and gave honest answers.
- It was assumed that the participants clearly expressed their emotions, attitudes and, concerns.
- It was assumed that the data collection tools used measured emotions, attitudes and, concerns accurately and reliably.

- It is assumed that the data collection tools used reflect the true emotions, attitudes and, concerns of the participants.
- It is assumed that the sample was selected independently and randomly.
- It was assumed that the environments in which the study was conducted were environments where participants could freely make emotional and intellectual statements.

1.5. Limitations

This thesis is limited;

- to the 2022-2023 academic year.
- to students in the science teaching department at a university in the Central Anatolia Region.
- to measuring the emotions, attitudes, and, concerns of science teacher candidates.
- to the scale, and interview questions used within the framework of the research.

1.6. Definitions

Special Education: It is defined as the educational provision designed for children exhibiting distinctive requirements in language, cognitive functioning, social-emotional aptitude, and physical development. In special education, the programs, and teaching materials are used by the educations who are experts in this subject. The aim of special education is to enhance the students' potential taking into account individual differences (Cook & Schirmer, 2003; Detterman & Thompson, 1997).

Integrative Education: In an integrated classroom, every student is considered unique and materials are specialized for every student. Increasing the academic success is given importance alongside the social abilities. Integrative education not only includes the students who are in need of special education but also includes the students who have the language of education as their second language (Sarı & Pürsün, 2016). It is built on the philosophy of togetherness of all students (Salisbury, 1991).

Inclusive education: It refers to an educational approach that aims to fully, and effectively include individuals with different characteristics, needs, or abilities in the education system. It integrates individuals with special education needs into general education environments or provides appropriate educational services for these individuals. It aims to provide equal opportunities in education, and social experiences. Inclusive education aims to increase the integration of students with special needs into society, and their social interactions. Nonetheless, it not only helps students in general education learn to respect, and understand differences but also helps students with special education needs feel like a part of society (Akbıyık et al., 2024; Lewis & Doorlag, 2004; Macmillan, 1982; Zigmond et al., 2009).

Inclusive education defends the right to education of individuals with disabilities, as well as students with linguistic, cultural, ethnic, gender, and other differences (Çelik, 2017). It allows every student to develop their potential to the fullest, reduces discrimination, and prevents social exclusion. This approach provides students with learning opportunities in a heterogeneous classroom environment, and provides support tailored to their individual needs (Aktekin et al., 2017; UNESCO, 2009).

CHAPTER II

THEORETICAL BASIS OF THE RESEARCH AND RELATED STUDIES

2.1. Definition of Inclusive Education

Inclusive education is a pedagogical approach that aims to ensure that individuals with special education needs continue their learning experiences in general education environments. This approach involves integrating students with special needs into general education classrooms by focusing on their individualized learning needs, and providing appropriate support, and learning strategies along the way (UNESCO, 1994). In this context, the aim is for the mainstreamed student to learn, and interact with their peers in general education. Inclusive education aims to increase the social participation of individuals with special needs, improve their self-confidence, and ensure equal access to the right to education. Inclusive education encourages individuals with special needs to develop their social skills, and independence. Inclusive education, instead of isolating individuals with special education needs, accepts them as a part of society, and contributes to creating a more inclusive educational environment by including them in the educational processes (De Boer et al., 2010; Scheepstra et al., 1999).

At the same time, the aim is for students in general education to cultivate tolerance towards differences, foster empathy, and acquire the skills of cooperation. These students have the opportunity to develop empathy when they meet with friends who have different learning needs. They learn to assist students facing various challenges, and develop an acceptance of differences through tolerance. It offers students in general education the chance to cultivate social interaction, and communication skills. Classmates also acquire communication, cooperation, and problem-solving skills as they engage with diverse groups of students (Tonegawa, 2019). Having students with diverse learning needs in the same classroom enables others to experience various learning styles. This enhances the learning experience, and aids students in exploring diverse learning methods. It allows them to discover

their abilities such as helping, and leadership. Interacting with students with diverse needs allows those in the general education classroom to develop a heightened sensitivity to issues of justice, and equity. Hence, inclusive education creates a more democratic classroom environment (Lipsky & Gartner, 1999). In an inclusive classroom, every student recognizes that each individual possesses unique strengths, and faces distinct challenges. It mirrors the diversity of society, and more effectively equips students for the complexities of the real world (Watson, 2010).

2.1.1. Inclusive education models

Inclusive education is typically categorized into three main groups. These include full, partial, and reverse-inclusive education models (Guralnick et al., 2008). Adaptability to the needs of schools, and students is a characteristic of these models. The choice of model may vary based on the students' needs, teachers' expertise, and the resources available to the school.

Full Inclusion: The aim of this model is to integrate students with special needs into general education classes, participating in all lessons, and activities (MEB, 2010). Therefore, special education students can continue their academic, and social development together with their peers in general education. Full inclusive education employs various methods of support, and adaptation to address the special educational needs of students. Students' needs are attempted to be addressed through additional support, and individualized learning plans (Fuchs & Fuchs, 1998).

Partial Inclusion: In this model, students attend general education classes for specific lessons or activities but are directed to special education classes for some lessons or times (Topçu & Katılmış, 2013). This provides flexibility based on the student's specific needs. Partial inclusive education offers a more specialized approach to addressing the needs of students in special education. With partial inclusion, students can receive more individualized support, and attention. Additionally, there are opportunities for social interaction, and integration within general education classrooms. This method aims to integrate general education courses with special education programs that cater to the specific needs of students (Bencherki & Snack, 2016).

Reverse Inclusion: That is an approach similar to traditional mainstreaming, and is an educational model designed to provide students with more individual and,

customized support. The goal is to provide more intensive support in specific subjects or skills for students with learning disabilities or special needs in the general education classroom (Wooten & Mesibov, 1986). According to Schoger (2006), the reverse inclusion model is an inclusive education model in which students with special education needs interact with their peers, a special education teacher is present, and other students are intended to inspire students with special education needs. It's a better way to prepare students for the real world.

2.1.2. Purposes of inclusive education

Inclusive education is an approach that enables students with diverse learning needs to receive education together. The primary objectives of this approach can be outlined as follows: The main purpose of inclusive education is to ensure equality, and justice among students with different learning needs. Everyone's right to education is respected by ensuring that students with disabilities or special needs have access to the same educational opportunities (OECD, 2014).

Inclusive education promotes social integration by ensuring that different groups of students receive education together. By allowing students to see different perspectives, and experiences, they are enabled to understand the true diversity of society. Students learn to accept, and tolerate differences (Mariga et al., 2014; Uchem & Ngwa, 2014). Having students with different learning needs in the same classroom supports their social, and emotional development (Tonegawa, 2022). These students learn skills such as cooperation, empathy, and developing emotional intelligence. Inclusive education provides students with the opportunity to collaborate with individuals who have different life experiences. This can contribute to the development of sensitivity, and empathy, reduce prejudices, and increase tolerance.

Inclusive education helps students better adapt to their individual learning needs. Educational strategies, and materials are personalized, taking into account students' specific needs, and strengths (Gause, 2011). Having students with different learning needs in the same classroom provides diversity in the learning experiences of other students in the general education classroom. This diversity supports students' academic development by allowing them to experience different learning styles (OECD, 2014). Educating students with different learning needs together can help them better understand other students from different segments of society. This has the

potential to enhance social awareness (McCabe & Ruppar, 2023). Inclusive education promotes the more effective utilization of support services. Special education professionals, and resources are available to provide individual support to students (Kurth et al., 2016).

2.1.3. Inclusive education in the world

Inclusive education is a dynamic field that requires teachers, and teacher candidates to constantly improve themselves. The transfer of inclusive education knowledge to teacher candidates in different countries may vary depending on the country's education system, cultural differences, and educational approaches. The condition of some countries regarding inclusive education has been investigated. This study provides information on inclusive education in Australia, Canada, Finland, England, Hong Kong, Israel, Singapore, Somalia, the USA, and Türkiye. Countries were selected concerning studies conducted on teacher candidates.

2.1.3.1. Australia

There are reports that there are insufficient teacher candidates in Australia to educate students who need inclusive education in regular classroom environments (Beazley 1984; Gow et al., 1988; Shean et al., 1993). Sharma et al. (2006) emphasized in their study identifying the problems of teacher candidates in order to ensure their competence. Australia recognizes that addressing teacher candidates' beliefs, attitudes, and concerns about inclusive education is a critical component of preparing them for effective inclusive teaching. Australia promotes inclusive education, focusing on both the practical, and attitudinal aspects of inclusion (Forlin, 2006). Campbell et al. (2003) stated in their study that teacher candidates were more open-minded about disability in inclusive education, and that they better understood the individual differences of each disabled individual. Carroll et al. (2003), on the other hand, concluded that pre-service teachers approached the inclusion student with less pity, that is, they were free of uncertainties about how to manage this situation, and their concerns decreased. In addition, there are also studies in which there are positive attitudes of teacher candidates towards inclusive education (Avramidis & Norwich, 2002; Palladino et al., 1999). However, there are also studies indicating that the positive attitudes of teacher

candidates towards inclusive education have decreased over time (De Boer et al., 2010).

2.1.3.2. Canada

Inclusive education practice in Canada is carried out under the influence of regional autonomy, local priorities, and state rules. While some regions may be proactive in promoting and implementing inclusive education, others may lag behind due to lesser support. In studies conducted on this subject, there has been a willingness of teachers towards inclusive education (Avramidis et al., 2000; Loreman et al., 2015). It has been emphasized that there are deficiencies in undergraduate education in preparing teacher candidates for education. Therefore, it is stated that most of the teachers are not yet adequately qualified to teach (Loreman, 2010; Loreman et al., 2013). In several studies conducted with teacher candidates in Canada, it has been stated that teacher candidates have positive opinions on inclusive education (Ismailos et al., 2022; Massé et al., 2022). Hutchinson et al. (2015) stated that teacher candidates are aware of the difficulties that students with disabilities may face in inclusive education. Nevertheless, the deficiencies of certain teacher candidates in addressing students' needs have been expressed. In Metsala and Harkins' study (2020), the attitudes of teacher candidates in Canada towards inclusive education were examined in terms of different variables. It was concluded that the attitudes of teacher candidates with self-efficacy towards inclusion education are more positive. In the study of Lin and Lin (2015), it was emphasized that teacher candidates should be provided with adequate opportunities for their professional development in the field of resource education.

2.1.3.3. England

Special education in England, when evaluated in terms of historical development, is attributed to the initiation of the first endeavors in this field with the establishment of the school for the hearing impaired in London in 1783 (Erdoğan & Genç, 2022). The Warnock Report, officially known as the "Report of the Committee of Enquiry into the Education of Handicapped Children and Young People," was a significant document in the United Kingdom that had a profound impact on the education of children with special educational needs (SEN). The report was published

in 1978 and was chaired by Mary Warnock, a philosopher and crossbench member of the House of Lords (Department for Education and Science, 1978). This report proposed to consider children as included rather than excluded, assuming their integration within mainstream education. The report emphasizes that students with special education needs are an integral part of general education. Nonetheless, in the study of Lindsay et al. (2020), it was stated that although it was conceptually appropriate, it caused concern in practice and students were mistakenly classified as having special education needs. The challenges and opportunities related to identifying special educational needs, assessment processes, and educating all students are discussed. Limited financial resources have brought about significant changes in teacher education and state supervision (Kelly et al., 2018).

The Education Act of 1981 marked a pivotal shift in the understanding and conceptualization of special education. After these advancements, irrespective of the abilities or specific disabilities of individuals with impairments, the implementation of an integrative approach has been a focal consideration. It established legal recognition of special education, building on existing precedents of special education legislation dating back to at least 1874. The Act placed primary responsibility on local education authorities to implement its requirements, including identifying children with special educational needs, assessing those children, appointing expert advisors, providing required information, deciding whether a statement should be maintained, establishing appeal committees, and arranging for the special educational provision to which a child is entitled. The Act also introduced provisions for parental appeals and review by the Secretary of State. Additionally, the Act emphasized the principle of integrated (mainstreamed) special education for all children entitled to an education (Buss, 1985). In 2014, there were changes in the special education system in England. Education, Health, and Care Plans (EHC) and individual applications for special education were consolidated into a category. Subsequently, in other years, information concerning special education services has been disseminated through this system (DFE, 2014). In the study conducted by Essex et al. (2021), it was stated that teacher candidates possessed knowledge regarding inclusive education policies, which were covered in their teacher training courses. Furthermore, the importance of prioritizing teaching practices was emphasized.

2.1.3.4. Finland

Inclusive education is provided partially, and the child receives special education support (Statistics Finland 2015; Takala et al., 2009). In Finland, the definition of special education aligns with the guidelines provided by professionals in the field of special education (Mikkonen, 1998). In compliance with the legal framework, the ultimate authority for decisions concerning students rests with the teacher. Finland's primary school legislation, however, does not explicitly incorporate a specific integration principle regarding the structuring of education for children with special educational needs. Instead, the placement of students in special education is decided based on the children's best interests, and available resources. This approach emphasizes evaluating the situations of students with special education needs individually, and creating an education plan that suits their needs. The foundation of this approach rests on the notion that each student possesses unique learning needs, necessitating an individualized approach to address these requirements. Due to this it is decided to give teachers the responsibility of determining the situation of a student with special educational needs, and providing appropriate educational services (Act on Basic Education, 1998).

The shift in terminology replaces the notion of a child who "needs" special education with the idea of a child who requires special "support" (Saloviita, 2020). Special education teachers are required to have completed a five-year undergraduate program or must undergo an additional one-year special education teacher training in conjunction with their regular teaching studies (UNESCO, 2023). In their study, Uusimäki et al. (2020) concluded that Finnish teacher candidates had a positive attitude towards inclusive education. However, Takala and Sirkko (2022), in their study with 488 Finnish teacher candidates, concluded that their attitudes towards inclusive education were negative.

2.1.3.5. Hong Kong

The move in Hong Kong to prepare teachers for diverse students is an important step toward creating more inclusive, and equitable classrooms. Efforts are made to ensure that teacher candidates have the necessary competencies not only for students with physical disabilities but also to include students from different cultures, genders, and socioeconomic classes in learning. However, it was seen that teachers

had concerns at this point. Thus, the importance of training teacher candidates has been emphasized (Sharma et al., 2006). After the concept of disability became more prominent with UNESCO in 1994, the Disability Discrimination Ordinance (DDO) in Hong Kong enabled the adoption of an important approach with a pilot project (Crawford & Shutler, 1999). In Li and Cheung's study (2021), the self-efficacy of Chinese and Hong Kong teacher candidates was examined, with a focus on its impact in inclusive classroom environments. The study highlighted the importance of teacher candidates' self-efficacy and concluded that those with higher levels of self-efficacy tended to have more positive perceptions.

2.1.3.6. Israel

The Academic Colleges Law of 1995 was implemented to promote access to higher education for all Israelis, aiming to reduce barriers and provide equal opportunities for individuals seeking advanced education. As a result of this law, many colleges were established in Israel, and these institutions played a crucial role in providing access to higher education for students from low socioeconomic status and minority groups, who were previously underserved by the traditional university system. The law aimed to bridge educational gaps, creating opportunities for a more diverse range of individuals to pursue advanced studies and contribute to the country's academic landscape (Yirmiyahu et al., 2017). The Israeli Special Education Law of 1988 places emphasis on placing children in the least restrictive environment, to ensure that students with special needs have the opportunity to participate in mainstream educational settings whenever possible. This approach aligns with the principles of inclusion, aiming to provide a supportive and accommodating educational environment for all students (Al-Yagon & Margalit, 2001).

Teacher education programs in Israel generally consist of a double major, encompassing two disciplinary areas: pedagogy and didactics – theory and practice. These programs also include compulsory courses aligned with specific requirements, ensuring that future educators receive comprehensive and well-rounded training to meet the demands of the teaching profession. Programs include the fundamentals of education, disciplinary areas, pedagogy, field experiences, and the opportunity to specialize in a specific disability area. This comprehensive curriculum ensures that future educators are well-equipped with both theoretical knowledge and practical

skills, preparing them to address the diverse needs of students in the educational landscape. The content of pedagogy courses includes components such as teaching in inclusive classrooms, instructing individual students or small groups, following classroom lesson plans and individual education programs, collaborating with general teachers, and participating in the planning teams of schools that cater to students with disabilities. This comprehensive approach to pedagogical training equips educators with the necessary skills to create inclusive and supportive learning environments for all students. These programs also include preparing teacher candidates for a variety of teaching roles, ensuring that they acquire the necessary skills and knowledge to excel in diverse educational settings. Contemporary trends taken into account in teacher education programs include the emphasis on establishing connections between theory and practice, adopting a collaborative approach, and ensuring that teachers are qualified to respond to changing educational needs. These programs strive to equip educators with the skills, knowledge, and adaptability required to navigate the dynamic landscape of education, fostering a learning environment that is responsive to the evolving needs of students and society (Avissar, 2012; Ford et al., 2001). In a study conducted by Shauli et al. (2023) with Israeli teachers and teacher candidates, it was concluded that the attitudes of teacher candidates towards inclusive education are more positive.

2.1.3.7. Somalia

It is stated that there is very little support at the national and municipal levels for individuals with disabilities in Somalia, highlighting a significant gap in resources and services to address the specific needs of this community. This lack of support poses challenges to the inclusion and well-being of people with disabilities, emphasizing the need for comprehensive policies and initiatives to enhance accessibility and opportunities for all (Slee & Tomlinson, 2018). There is a significant lack of resources, funding, and infrastructure needed to support inclusive education in Somalia, underscoring the challenges faced in creating accessible and equitable learning environments for all students. This deficiency hinders the implementation of inclusive practices and highlights the urgent need for investment and strategic planning to address the specific requirements of diverse learners within the educational system (Gelle & Dirie, 2023). There are two schools for the visually and hearing impaired,

but they also have deficiencies in accommodation and technical infrastructure. Despite these challenges, the first graduates of these schools played a major role in breaking the prejudice against disabled people in society due to their remarkable success (Abdullahi, 2023).

However, there are no supportive programs and inclusive education policies for these students in their transition to universities, highlighting a gap in the educational system. The absence of such initiatives poses challenges for students with disabilities, emphasizing the need for the development and implementation of comprehensive support mechanisms to ensure their successful integration into higher education (Branker, 2009). It has already been stated that university teachers may lack adequate teaching strategies for disabled students, and there may be prejudices against disabled people. This recognition highlights the importance of ongoing professional development for educators and the necessity of fostering an inclusive and supportive academic environment that embraces diversity and dismantles stereotypes. Teachers may experience a feeling of inadequacy when it comes to teaching disabled students. This sentiment underscores the importance of targeted professional development and support systems to empower educators in effectively addressing the diverse learning needs within the classroom (Gitlow, 2001).

2.1.3.8. South Korea

You et al., (2019) indicate that teacher candidates are inadequately prepared in inclusive education. Unlike this, the study by Song et al. (2019) found that it had a positive effect on the attitudes, intentions, concerns, and self-efficacy of pre-service teachers in South Korea toward inclusive education. These positive statements are because they have taken special education courses. It is known that teacher candidates in Korea have approximately 4-5 weeks of internship experience. However, during this period, they cannot obtain information about inclusive students because it appears that current teachers do not have this competence. Accordingly, teacher candidates are deprived of theoretical, and practical training (Kang & Martin, 2018). People in Korea may have negative judgments towards people with different learning capacities (Kwon, 2016; Lee & Sissons, 2016). It has also been stated that schools have a negative impact on the education of disabled individuals (Kwon, 2005). In Korean culture, a disability is attributed to moral, spiritual, or superstitious reasons and is believed to be

a punishment for sins committed by ancestors (Matsuda, 1989). A study compared the attitudes of South Korean and American teacher candidates towards inclusive education. According to the findings of this study, it was reported that South Korean teacher candidates exhibited more negative attitudes towards inclusion. When the reasons for this were investigated, it was concluded that there may be cultural factors and the scope of education policies (Han et al., 2012). Kang and Martin (2018) stated in their study that teacher education programs in Korea are not flexible enough. It is emphasized that teachers' competencies in this regard should be increased with the necessary certificates, and course programs. They stated that teacher candidates had negative perceptions towards inclusive education because it was determined that inclusive students were not at a sufficient level for university education.

2.1.3.9. The USA

The seminal transformation in the perception of disability in America commenced with Richard Scotch's Rehabilitation Act of 1973, marking the inaugural national legislation that proscribed discrimination against individuals with disabilities (Danforth, 2016). In the United States, the Individual with Disabilities Education Act (IDEA) underscores the entitlement of all children with disabilities to receive a free, appropriate, and public education. This legislation, enacted in 1975, has since undergone subsequent modifications and holds the status of a federal law. Furthermore, this legislation necessitates that individuals with special needs make use of the services provided under the auspices of an Individualized Education Program (IEP) (Drelick et al., 2023).

The "No Child Left Behind" (NCLB) legislation, enacted in the United States in 2001, mandated that all states devise standardized tests in the disciplines of reading and mathematics. Federal laws such as the “No Child Left Behind” act aimed to raise standards in general education, encouraging success for special education students in the general education setting. States have defined a specific academic achievement level for each grade level and require all students to reach that specified level. Furthermore, states have established timelines to ensure that all subgroups, categorized based on factors such as race, ethnicity, socioeconomic status, disability, and English language learners, achieve the predetermined performance levels by the year 2014 (Danforth, 2016).

It has been asserted that the majority of general education teacher training programs emphasize the preparation of future teachers to effectively engage with diverse student populations. However, the specific consideration of disability is frequently neglected within this framework (Cochran-Smith & Dudley-Marling, 2012). Teacher education programs in the USA strive to facilitate meaningful access for students with disabilities to the general education curriculum and their integration into the broader learning community. This endeavor necessitates collaborative efforts between special education and general education teachers aimed at addressing the diverse needs of all students. Dual certification programs, designed to qualify teacher candidates for certification in both general education and special education, are regarded as a means to foster collaboration and inclusive practices among educators with diverse backgrounds (Drelick et al., 2023; Kearney & Durand, 1992).

It appears that the studies investigating the perceptions of American teacher candidates towards inclusion education are limited (Garriott et al., 2003). In the study conducted by Gao and Manager (2011) with teacher candidates in America, it was observed that teacher candidates exhibit positive attitudes towards inclusive education and hold favorable beliefs regarding diversity. The study emphasized that enhancing the diverse beliefs of teacher candidates could lead to an improvement in their attitudes toward inclusive education. In the study by Ajuwon et al. (2014), teacher candidates in America were enrolled in courses focusing on inclusive education. Their emotions, attitudes, and concerns were assessed both before and after the course. Results indicated a significant increase in their positive attitudes following the completion of the course. Consequently, it was underscored that the knowledge and skills about inclusion education should be imparted to teacher candidates. In a study investigating the attitudes of American and Turkish teacher candidates toward inclusive education, it was observed that teacher candidates from both countries had positive attitudes toward inclusive education (Rakap et al., 2016).

2.1.3.10. Türkiye

It is known that there have been more significant developments in inclusive education practices in Türkiye since the foundation of the Republic. During this period, the planning, and execution of special education services was transferred from the Ministry of Health, and Social Assistance to the Ministry of National Education

(Akçamete & Kaner, 1999). The Psychological Service Center, which is the basis of the Guidance, and Research Service, was established in 1955. This was an important development for that period (Kargın, 2004). In 1965, a “special education department” offering a four-year program, was established at Ankara University Faculty of Education to meet the needs of teachers. Between 1955 and 1979, special education teacher in-service training was given to branch teachers (Kılınç & Kurt, 2019). Between 1978 and 1979, an effort was made to provide special education teaching qualifications to 625 classroom teachers with the "special education teacher certificate program" (Kılınç & Kurt, 2019). Since 2006-2007 special education courses have been included in higher education as compulsory for all teaching departments except private teaching (Özdemir et al., 2022).

The study conducted by Mertoğlu et al. (2018) involved teacher candidates at a state university in Türkiye. Following the provision of training on inclusive education, it was concluded that the candidates developed positive opinions and awareness regarding their competence in inclusive education. Akbulut and Yavuz (2021) investigated the opinions of teacher candidates regarding inclusive education. It was concluded that while teacher candidates held positive opinions on inclusion, their competencies were found to be limited. Balbağ et al. (2021) conducted a study with science teacher candidates and special education teacher candidates in Türkiye. The study concluded that the proficiency of teacher candidates in both fields was at a good level and their perspectives on inclusive education were positive. In several studies conducted in Türkiye due to the limited knowledge, skills, and experience of teacher candidates about inclusive education; It has been stated that they are not effective in meeting the needs of children with special needs in their classrooms (Batu, 2010; Kumaş & Süer, 2020).

2.1.4. Benefits of inclusive education

Inclusive education encompasses a multitude of benefits that extend beyond the academic realm. Social, emotional, and developmental advantages are inherent in its approach. Concisely by fostering interaction among students with diverse abilities, inclusive education cultivates empathy, cooperation, and friendship (Norwich, 2013).

Social, and Emotional Development: Inclusive education can help students with special needs improve their social skills by allowing them to interact with their

peers. Thus, these students can establish friendships, cooperate, and develop empathy. Other students can also develop empathy, and gain a sense of social responsibility and solidarity (Norwich, 2013).

Self-Respect, and Self-Confidence: Inclusive students can realize their skills, and abilities by learning with others in general education. It provides the feeling of self-confidence, and success that comes from studying in the same classroom with their peers. It can help increase their self-respect (Jenkinson, 1997).

Academic Development: Inclusive students educated in a general education environment are exposed to diverse learning opportunities within the classroom. This may contribute to the student's academic development. Additionally, it can enhance students' exposure to course content (Feldman et al., 2016).

Embracing a Role Model: Inclusive students may view students with advanced academic skills in the general education classroom as role models. This may increase the inclusive student's motivation to learn. In addition, it can make other students more attentive to their own behavior (Farrell, 2000).

Diversity Awareness: Bringing together students with different abilities, and needs in a general education setting can assist all students in developing a more understanding perspective on diversity, and differences. The experience of interacting with different perspectives, learning styles, and experiences can increase awareness of diversity. A positive culture of diversity can be created by communicating that everyone has unique strengths, and characteristics (Loreman & Deppeler, 2002).

Communication Skills: Inclusive students have the opportunity to have more social interactions with their peers, and their teachers in general education classrooms. Therefore, mainstream students can improve their communication, and expression skills. Collaborative studies, and projects within an inclusive environment can enhance students' communication skills. Inclusive students can have the opportunity to apply their communication skills as they are required to interact with other students (Cologon, 2013).

Social Integration: Inclusive education ensures that students with special needs are included in general education classrooms. In this way, it encourages seeing individuals with special needs as a part of society. Thus, social integration, and acceptance can be achieved (Moran, 2007).

Individual Support: Inclusive education creates the opportunity to provide more individual, and customized support to students with special needs. It provides a framework for understanding the student's individual strengths, and weaknesses. Teachers can focus more closely on student learning needs (Killoran et al., 2014).

Inclusive Thinking: It refers to a mindset or approach that embraces, and values diversity, ensuring that all individuals are considered, respected, and included. Inclusion practices in the general education environment create awareness that all students' right to education must be respected. This approach can help create a fairer and equitable education system (Boer & Fischer, 2013; Ewing et al., 2018).

2.1.4.1. Benefits of inclusive education for teacher candidates

Inclusive education offers teacher candidates the opportunity to work with students with diverse learning styles, and different needs. It gives teachers the ability to diversify their teaching strategies, and offer approaches appropriate to student needs (Siuty, 2019). In inclusive classrooms, students may exhibit varying learning paces, proficiency levels, and requirements (Morris-Mathews et al., 2021). Students with special educational needs require teachers to create, and implement customized teaching materials, and methodologies (Morris-Mathews et al., 2021). It will contribute to teacher candidates' better understanding of students, and their ability to develop materials, and practice.

Inclusive education encourages teacher candidates to develop skills in collaborating with other teachers, students, and families. Thus, teacher candidates' effective communication, and empathy skills develop. It contributes to the development of teacher candidates' skills such as classroom management, coping with student behavior, and increasing student motivation. This also helps in the personal, and professional development of teachers in general (Loreman et al., 2013). Inclusive education contributes to providing teacher candidates with a real classroom experience. It contributes to the development of leadership skills of teacher candidates. Engaging with diverse students equips teacher candidates with enhanced preparation for their roles post-graduation (Gottfried et al., 2019).

Inclusive education raises the awareness of teacher candidates about applying the principle of equality, and justice among students with different needs. In this way, teachers strive to bring out the potential of each student in the best way possible.

Inclusive education encourages accepting differences within society, and seeing these differences as richness. Thus, it enables future teachers to have a wider impact on society (Leblebici & Türkan, 2021).

Inclusive education contributes to a fairer, and effective understanding of teacher candidates. It helps students in need of special education to respond more sensitively to their emotional needs. It is also effective in their personal and professional development (Kang & Martin, 2017).

2.1.5. Relevant field studies

When the literature is examined, there are many studies on inclusive education (Akay, 2015; Akbarovna, 2022; Babaoğlan & Yılmaz, 2010; Camadan, 2012; Corbett, 1999; Evans & Lunt, 2002; Güven, 2011; Karasu & Şimşek, 2018; Kirschner, 2015; Lindsay, 2003; Özaydın & Çolak, 2011; Sadioğlu et al., 2013; Pivik et al., 2002; Varlıer & Vuran, 2006; Yaylacı & Aksoy, 2016). These studies shed light on various aspects of inclusive practices, including their effectiveness, implementation challenges, and impact on student outcomes. Additionally, they contribute to the ongoing discourse surrounding inclusive education practices.

Corbett (1999) conducted a study that elucidated the concept of inclusive education, inclusiveness, and school culture in both America and Britain. The foundational importance of respecting diverse cultures for fostering inclusivity was emphasized. The study underscored the significance of teachers being open not only to their own experiences but also to differing opinions. Furthermore, it was expressed that equal value should be assigned not only to students with high social, and academic standings but also to all students with various types of intelligence. The study highlighted the necessity of addressing the equality of opportunity and social differences in education, and actively working to reduce these disparities. Additionally, it emphasized situations that contribute to students' learning of values.

Evans and Lunt (2002) evaluated the opinions of professionals on inclusive education. The opinions of the participants were taken with a survey. It has been concluded that there are serious problems for fully inclusive education. That the government has problems with inclusive education policies was also emphasized. All participants stated that “full inclusion” was unrealistic. It was emphasized that for this situation to be successful, there would need to be a major cultural, and organizational

change. It has been concluded that "full inclusion" is not possible for an educational environment where individual differences are not taken into account.

In the study, Pivik et al. (2002) aimed to examine developments and changes in inclusive education 25 years after educational reforms. They concluded that the environment of schools accommodating inclusive students' needs to ensure adequacy in terms of physical conditions. The study emphasized the necessity of raising awareness for individuals with disabilities, and the development, and enhancement of education policies. It was also noted that there is a need to increase teachers' knowledge, and skills in inclusive education.

Lindsay (2003) addressed the effectiveness of inclusive education. The study emphasized the need to review policies as a crucial step to enhance the effectiveness of inclusive education. Furthermore, Lindsay highlighted the importance of conducting serious studies in response to this need.

Varlıer and Vuran (2006) aimed to examine the views of preschool teachers regarding inclusive education. The study employed a qualitative approach, and data were obtained through a semi-structured interview form. The research involved 30 participants who were preschool teachers. Preschool teachers expressed inadequacies in inclusive education. Additionally, emphasis was placed on the necessity for students with special needs to receive preschool education.

Babaoğlan and Yılmaz (2010) aimed to determine the adequacy of primary school teachers' equipment, and knowledge regarding inclusive education. The participants were 40 classroom teachers working in Burdur, Türkiye. The research was conducted using a screening model. It is a qualitative study, and the data were obtained through semi-structured interview questions. The data analysis was performed using content analysis. As a result of the research, it was found that classroom teachers considered themselves inadequate in inclusive education.

Güven (2011) investigated previous research on music lessons for inclusive education students. Previously utilized or potentially applicable practices, and methods were compiled. The aim was to assist music teachers, and researchers in delivering more effective music education to inclusive education students. The importance of music education for inclusive education students was emphasized, highlighting benefits such as enhancing social skills, contributing to social acceptance, and supporting their intellectual, physical, and psychological development. It was noted that there is a lack of sufficient research on music education for inclusive education

students in Türkiye. Despite having special education courses during their undergraduate studies, it was concluded that teachers have deficiencies in this area.

Özaydın and Çolak (2011) sought the opinions of preschool teachers regarding inclusive education. The study employed a qualitative method, and data were collected through responses to an interview form. The results indicated that preschool teachers expressed a need for in-service training in the field of inclusive education. It was concluded that there is a need for additional training, especially since during their undergraduate studies, teachers typically take special education courses as electives, which is considered insufficient.

Camadan's (2012) study focused on both classroom teachers, and pre-service classroom teachers, examining their proficiency in preparing an Individualized Education Program (IEP). The research took place at a university in Rize, Türkiye, and data were collected using a scale. The study concluded that the self-efficacy of teacher candidates in IEP preparation was higher than that of experienced teachers. No significant difference was detected between teachers, and teacher candidates in terms of the gender variable. Additionally, it was observed that teachers who received in service training demonstrated higher self-efficacy compared to those who did not receive such training.

In their study, Sadioğlu et al. (2013) sought the opinions of classroom teachers regarding inclusive education, aiming to identify problems and barriers in inclusive education. The study was conducted by gathering the views of classroom teachers working in 16 different cities in Türkiye. It is a qualitative study, and data were obtained through semi-structured interview forms. The analysis of the data involved the use of inductive analysis. The results of the research indicated that classroom teachers felt inadequate in inclusive education, and expressed a need for expert support. Teachers expressed that both undergraduate, and in-service training for inclusive education were insufficient. Consequently, the study highlighted the importance of increasing education, and support to prepare teachers for inclusive education.

Akay (2015) conducted a study involving three hearing-impaired students who were participating in inclusive education, along with researchers, general classroom teachers, and members of the validity committee. The study was conducted as action research. Data was collected through course video recordings, audio recordings, lesson plans, archive documents, meeting minutes, diaries, and student products. The analysis

of the data was made by the researcher, and the committee involved in the study. According to the results of the research, it was concluded that the inclusion students with hearing impairment were successful in the activities. They stated that practical activities provide benefits in the learning of inclusion students.

Kirschner (2015) delved into concepts related to inclusive education, including its definition, history, laws, classroom management, and challenges in inclusive education, as well as creating a culture of inclusivity, and effective strategies for inclusive practices. The study highlighted both criticisms, and support for inclusive education, leading to the identification of positive, and negative outcomes. The notion that every student could succeed in education was acknowledged, but concerns were expressed about simultaneously maintaining a democratic balance. Worries about providing adequate opportunities for education were also articulated.

Yaylacı and Aksoy (2016) aimed to determine the competence of social studies teachers in inclusive education. The study was conducted with 102 social studies teachers in Ankara, Türkiye. Data were collected using the 'inclusive education competence' survey. Data analysis involved the use of t-tests, ANOVA, and descriptive statistical methods. The majority of teachers were found to support inclusive education. Teachers who held negative views on inclusive education expressed concerns such as not being able to provide sufficient attention due to crowded classrooms. According to the research findings, many social studies teachers perceived themselves as inadequate in inclusive education.

Karasu and Şimşek (2018) investigated the academic success of elementary school fourth-grade students with mild intellectual disabilities in religious education. The study was conducted using a quasi-experimental design. To measure students' achievement, a proficiency test was administered. Teacher observation forms, and pre-test, post-test, and retention tests were also applied in the self-assessment form. The pre-test results revealed that students had a good level of achievement, but their knowledge retention was found to be low.

Akbarovna (2022) explained the definition, history, and characteristics of inclusive education in his study. In this study, it included studies on inclusive education. The studies in Uzbekistan, Kyrgyzstan, and Senegal, and the results are examined.

Some researchers have focused only on inclusive education and teacher candidates (Ahsan et al., 2012; Forlin et al., 2007; Hacısalihoğlu-Karadeniz, 2016;

Ismailos et al., 2022; Loreman et al., 2013; Mergler et al., 2016; Nketsia & Saloviita, 2013; Orel et al., 2004; Sharma et al., 2003; Sharma et al., 2006; Sharma et al., 2007; Sharma et al., 2008; Sharma, 2012; Sharma et al., 2015; Sharma et al., 2015; Sharma & Sokal, 2015; Specht & Metsala, 2018; Şahbaz & Kalay, 2010; Tangen & Beutel, 2017; Taylor & Ringlaben, 2012; Weber & Greiner, 2019; Woodcock et al., 2012; Yada et al., 2021). Its implications for teacher candidates, aim to enhance understanding and implementation within educational systems. This specialized focus underscores the importance of preparing educators to support diverse learners in inclusive classrooms effectively.

Sharma et al. (2006) aimed to examine the emotions of teacher candidates toward inclusion in eastern countries (Hong Kong, and Singapore), and western countries (Australia and Canada). According to the results of the study, it was concluded that teacher candidates in western countries have more positive emotions than teacher candidates in eastern countries. For the reason of this situation, it has been suggested that cultural differences may be the cause. According to the research result, the necessity of pre-service teachers to receive good education on this subject during the undergraduate period has been emphasized.

Forlin et al. (2007) stated that the interest, and attitudes of teacher candidates, whose special education proficiency was increased during the teacher education process, were positive about inclusive education. In line with this, in Sharma et al. study (2003) an important point is increasing public awareness. Also developing attitudes that will encourage educators to integrate disabled individuals into society.

Orel et al. (2004) conducted a study examining the attitudes of pre-service classroom teachers towards inclusive education. The participants in the study were final-year classroom teacher candidates at a state university in Ankara, Türkiye. The data collection tool used was the "Attitudes Toward Inclusion Scale." The study concluded that the attitudes of pre-service classroom teachers who took courses on inclusive education were positive towards inclusion.

Sharma et al. (2007) emphasize that teachers should be trained in such a way that they will also be effective in inclusion education before starting to serve. They emphasize to them that in this process, beyond theoretical knowledge, it is necessary to focus on practical experiences, legal awareness, and ongoing professional development to ensure that teachers are equipped to meet the various needs of all their

students. Therefore, this information can contribute to the training of teachers who are better prepared, and emotionally supported to meet the various needs of students.

Sharma et al. (2008) aimed to identify the attitudes and concerns of teacher candidates towards inclusive education. For this purpose, 603 teacher candidates from Australia, Hong Kong, and Singapore participated in the study. It was found that the attitudes of teacher candidates who had interacted with individuals with special education needs, and had knowledge in this regard were more positive towards inclusive education. The study emphasized the importance of not only identifying the attitudes but also the emotions, and concerns of teacher candidates regarding inclusive education.

Şahbaz, and Kalay's study (2010) focuses on the opinions of preschool teacher candidates regarding inclusive education. The participants in the study were 265 teacher candidates from a state university in Burdur, Türkiye. Data were obtained through responses to the "Opinions on Inclusion Scale." The answers given by teacher candidates were examined in terms of certain variables (gender, grade level, graduated school, whether they took special education courses), and no significant differences were observed in scores based on these variables. The study emphasizes the need for teachers to receive training on inclusion during their in-service, and undergraduate periods.

Sharma (2012) emphasized that the restructuring of teacher education programs to adequately prepare pre-service teachers to effectively teach children with disabilities in regular classrooms is a crucial step in addressing the changing policies, and evolving needs of inclusive education. Additionally, that subjecting teacher candidates to inclusive education courses would contribute to positive changes in their emotions, and attitudes was highlighted (Carroll et al., 2003; Chong et al., 2007; Forlin & Chambers, 2011).

Ahsan et al. (2012) conducted a study with the aim of measuring the attitudes, and perceptions of teacher candidates in Bangladesh regarding their preparedness for inclusive education. The research also explored the factors influencing the attitudes, and perceptions of teacher candidates toward preparation for special education. It was found that the attitudes of teacher candidates toward preparedness for inclusive education were more related to the quality of the teacher education program rather than its duration. The study also indicated that female teachers might have increased confidence in their preparedness for inclusive education if there were more

opportunities for them to work in schools. The curriculum of teacher education programs emerged as a significant factor influencing the attitudes of teacher candidates toward preparedness for inclusive education.

Woodcock et al. (2012) in study investigates the impact of teacher candidates' concerns, and self-efficacy regarding inclusion. Survey data were collected from teacher candidates studying at a university in Australia. The study aimed to determine how engaging with the concept of inclusive education, and implementing it in practice influences teacher candidates' views, and concerns about inclusivity. MANCOVA results, using concerns scores as the dependent variables, indicated no significant difference among the concern scores. The study suggests paying more attention to teacher candidates' concerns, and strengthening their self-efficacy beliefs regarding inclusive education.

Taylor and Ringlaben's (2012) study examined the attitudes of teacher candidates towards inclusive education. The sample of the study consists of teacher candidates at Jacksonville State University in Jacksonville, Alabama. The study suggests that the attitudes of teacher candidates toward inclusive education can be positively influenced through a course, and this course can increase the self-efficacy, and confidence levels of teacher candidates when working with students. Additionally, it was found that this course could enhance the self-efficacy, and confidence levels of teacher candidates when working with students. However, the study also identified specific challenges that teacher candidates faced in adapting their teaching to meet the special needs of students. The findings indicate that teacher candidates may lack the necessary skills, and knowledge to meet the special needs of students, and they may not have the time, and resources required for successful teaching.

Loreman et al. (2013) conducted a study exploring the factors influencing the self-efficacy perceptions of teacher candidates. The research revealed that the self-efficacy perceptions of teacher candidates were influenced by factors such as teaching experience, pre-service education, interaction with students with disabilities, knowledge about legal regulations, and teaching field. Furthermore, variations between countries were observed, indicating that the self-efficacy perceptions of teacher candidates differed based on their respective countries. The study found that teachers' self-efficacy perceptions influenced their teaching behaviors, passion, and commitment, affecting their effectiveness in collaborating with students. Country emerged as a significant variable influencing teachers' collaboration activities. For

instance, teacher candidates in Hong Kong provided lower responses compared to their counterparts in other countries. Pre-service education on working with students with disabilities was identified as a positive influence on collaboration effectiveness. The field of education in which teacher candidates were trained also impacted their collaboration effectiveness. For instance, those aspiring to be elementary school teachers demonstrated higher levels of effectiveness compared to candidates aspiring to be middle school teachers. The study emphasized the importance of considering factors such as candidates' experiences, confidence levels, education fields, and knowledge levels. Additionally, it highlighted the need to review the content of teacher education programs to enhance the self-efficacy of teacher candidates in working with students with disabilities.

Nketsia and Saloviita (2013) conducted a study examining the perspectives of teacher candidates in Ghana regarding inclusive education. The research involved 200 teacher candidates in their final year of education in Ghana. The study found that teacher candidates who had internship experiences in this field exhibited higher self-efficacy, and knowledge regarding inclusive education.

In the study by Sharma et al. (2015), the attitudes, and self-efficacy perceptions of teacher candidates towards special inclusive education were investigated. The sample of the study consisted of 300 teacher candidates enrolled in a state university in Pakistan. It is a qualitative research method known as a case study. It was stated that the attitudes, and self-efficacy perceptions of teacher candidates towards inclusive education are dependent on the content of the teacher training program, and the previous experiences of teacher candidates. Additionally, it was found that the attitudes of teacher candidates towards inclusion were negative, and their self-efficacy perceptions were low.

Sharma et al. (2015) conducted a study examining the attitudes, intentions, self-efficacy, and anxieties of teacher candidates regarding inclusive practices in the classroom. A scale consisting of four sections was used as the data collection tool. It was found that teacher candidates in the Solomon Islands had high levels of concerns, particularly regarding the lack of resources for inclusive education. The study emphasizes the need for pre-service teacher training programs to address concerns, and difficulties related to the implementation of inclusive education, and to provide adequate training, and resources to support inclusive practices in the classroom. The results indicate that the inclusive education course at the Solomon Islands National

University (SINU) had a positive impact on pre-service teacher outcomes in terms of overall preparedness for effective teaching in inclusive classrooms. Additionally, the study suggests that teacher training programs should focus on enhancing teachers' competencies for teaching in inclusive classrooms.

Sharma and Sokal (2015) conducted a study comparing the changes in the beliefs of teacher candidates in Australia, and Canada regarding inclusive education after taking a course on the subject. The "Concerns About Inclusive Education Scale (CIES)" was used as the data collection tool. The study revealed that after completing the course, Australian participants developed more positive attitudes, had reduced concern levels, and increased confidence in teaching in inclusive classrooms. Similarly, Canadian participants showed a decrease in concerns, and an increase in teaching competence. However, it was found that they became more concerned about teaching in inclusive classrooms. The findings indicate that teacher education programs play a crucial role in promoting attitudes that support participation. They also highlight the importance of addressing concerns related to inclusion, and enhancing teaching effectiveness. The study emphasizes the ongoing need for research, and collaboration between countries to identify effective practices for training inclusive educators.

In the study of Hacısalihoğlu-Karadeniz (2016), they aimed to see what mathematics teacher candidates expected from special education lessons. In addition, it is aimed to determine the achievements of mathematics applications in inclusive education. The participants of the study consist of 54 mathematics teacher candidates in their final year studying at a state university in Giresun, Türkiye. It is a qualitative study, and the data was obtained with the "Special Education Lesson Survey Form" consisting of open-ended questions. It was concluded that the teacher candidates in the study would have positive attitudes towards mainstreaming students in the future. It was observed that the answers given to the survey included expressions such as creating equal opportunities for inclusive students, and integrating them into society. It has been concluded that teacher candidates taking special education courses during their university years contributes positively to them.

Tangen and Beutel (2016) conducted a study in which teacher candidates were asked to identify a student who is a refugee, Aboriginal, mildly hearing-impaired, or believed to be gifted. The teacher candidates were then required to develop support plans for these students, and prepare presentations on how they would interact with

these students in the classroom. This aimed to prepare them for potential situations they might encounter in the future. The findings of the study indicated that the participants had positive views toward inclusive education. However, at the beginning of the research, when their opinions were initially asked, their perspectives on inclusive education were identified as undecided. The study highlighted the need for teacher candidates to receive information about inclusive education from expert inclusive educators.

In Specht and Metsala's study (2018), teachers' confidence in their ability to effectively teach students has been emphasized. It has been stated that this confidence is crucial for the success of inclusive education. The importance of creating an inclusive educational environment that promotes the equality, diversity, and holistic development of each student has been highlighted. The significance of better training teacher candidates for this purpose has also been emphasized.

Weber and Greiner's (2019) study highlighted the significance of teacher candidates' positive feelings and attitudes toward inclusive education. They emphasized that these factors, combined with the development of self-efficacy, are critical determinants of the success or failure of inclusive education initiatives. This underscores the importance of fostering a supportive environment and mindset among educators to effectively implement inclusive practices.

Yada et al. (2021) conducted a study examining the self-efficacy, and resilience of teacher candidates in Finland. The researchers collected survey data from 105 teacher candidates. The study covers three sub-areas: self-efficacy in implementing inclusive practices, behavior management, and collaboration. The self-efficacy of teacher candidates in implementing inclusive practices significantly, and positively predicts their perceived resilience. Variables such as gender, teaching experience and career choice explain self-efficacy, and resilience in different ways. It was found that teacher candidates' self-efficacy is associated with variables such as teaching experience, gender and career choice. The study suggests that the self-efficacy of teacher candidates may be lower in older individuals, and higher in younger teacher candidates. The research concludes that teacher candidates' self-efficacy positively influences their resilience. The importance of teacher education programs in increasing the self-efficacy, and resilience of teacher candidates was emphasized. The study also highlights the need to provide opportunities for teacher candidates to gain experiences

that enhance their self-efficacy, and to establish support systems such as guidance, and supervision programs to increase their resilience.

Ismailos et al. (2022) examined the attitudes, and self-efficacy beliefs of teachers, and teacher candidates regarding inclusive education. The study included a total of 1572 teacher candidates, and 739 teachers in Ontario, Canada. Participants were administered two surveys, one measuring their beliefs about inclusive education, and the other assessing their self-efficacy regarding inclusive education. The results of the study indicated that elementary school, and female teacher candidates tended to have a clearer understanding of inclusive practices. Additionally, they expressed higher levels of confidence in communicating with the families of students with disabilities, and providing support. Male teacher candidates, on the other hand, demonstrated higher self-efficacy in managing classroom behaviors. The study emphasized the significance of acknowledging the different attitudes of both pre-service, and in-service teachers regarding students' roles in their own learning, and the responsibility of teaching all students.

In addition to all these studies, there are also research studies on inclusive education, and science teacher candidates (Balbağ et al., 2021; Kang & Martin, 2017; Kang & Martin 2018; Mertoğlu et al., 2020; Tuncay & Kızılaslan, 2022). These studies delve into how educators can adapt their practices to accommodate diverse student populations. Moreover, emphasized equitable learning environments in classrooms.

Balbağ et al. (2021) aimed to investigate the proficiency levels of science teacher candidates and special education teacher candidates in inclusive education. The study was conducted with 78 science and special education teacher candidates from a state university in Türkiye. The data collection tool used was the "Teacher Competence in Inclusive Practices" scale. The research results indicated that the opinions of teacher candidates about inclusive education were generally positive. However, it was found that the teacher candidates had insufficient knowledge about policies related to inclusive education.

Kang and Martin (2017) stated in their study that science teacher candidates need more support, and resources to effectively implement inclusive education in classrooms, and that their professional development should be improved in this sense. By implementing these recommendations, teacher preparation programs, and schools can better equip science teachers to create inclusive classrooms where special needs

students have the opportunity to learn, and succeed in science. It has been stated in studies that this will contribute to a more inclusive, and egalitarian education system.

In Kang and Martin's study (2018), the impact of the teacher factor on student success was highlighted, specifically emphasizing the teacher's ability to teach different groups. It was emphasized that for teachers to effectively convey science to different student groups, teacher candidates need to have sufficient knowledge, and skills. Therefore, it was indicated that science teacher candidates need to possess both theoretical, and practical knowledge, and experiences. However, the transition from theory to practice in inclusive education is often a complex process that necessitates ongoing support and professional development, as articulated in the study by Mergler et al. (2016). Additionally, the same study mentioned values that teacher candidates should possess in inclusive education, such as respect, honesty, fairness, acceptance, compassion, and politeness.

Mertoğlu et al. (2020) conducted a study aiming to enhance the competencies of science teacher candidates in inclusive education. The study utilized a mixed-methods approach, and involved participants who were science teacher candidates in their fourth year of university. The research design included both experimental, and control groups. The results indicated positive changes in the perspectives of the group that received information about inclusive education. Additionally, it was concluded that, as a result, science teacher candidates not only experienced emotional development but also showed professional development regarding inclusive education.

In addition to the aforementioned studies, there is a body of research focusing on the attitudes and emotions of science teacher candidates toward inclusive education. These studies delve into the perceptions and experiences of future science educators in embracing inclusive practices within their teaching contexts. Understanding the feelings and perspectives of science teacher candidates can be crucial for informing effective strategies to promote inclusivity in science education (Başkonuş & Öztürk, 2023; Forlin et al., 2009; Forlin et al., 2011; Forlin et al., 2007; Golmic & Hansen, 2012; Oswald & Swart, 2011; Sharma et al., 2006; Sharma et al., 2008; Tuncay & Kızılaslan, 2022).

Sharma et al. (2006) aimed to examine the emotions of teacher candidates toward inclusion in Eastern countries (Hong Kong, and Singapore), and Western countries (Australia and Canada). According to the study's results, teacher candidates in Western countries demonstrated more positive emotions compared to those in

Eastern countries. The researchers suggested that cultural differences could be a contributing factor to this discrepancy. The study underscored the importance of teacher candidates receiving thorough education on inclusion during their undergraduate studies.

Sharma et al. (2008) aimed to identify the attitudes, and concerns of teacher candidates towards inclusive education. For this purpose, 603 teacher candidates from Australia, Hong Kong, and Singapore participated in the study. The results indicated that the attitudes of teacher candidates towards inclusive education were more positive when they had interaction, and knowledge about individuals with special education needs. The study emphasized the importance of not only assessing the attitudes but also the emotions, and concerns of teacher candidates regarding this issue.

Forlin et al. (2009) conducted a study with the participation of 603 teacher candidates. In this international study, the aim was to determine the attitudes, and concerns of teacher candidates towards inclusive students, and education. The study emphasized the need for the development of self-efficacy in this area during pre-service training for teacher candidates.

Forlin et al. (2011) aimed to explore the emotions, attitudes, and concerns of teacher candidates towards inclusive education. They aimed to revise the scale named 'Scale for Measuring Pre-Service Teachers' Perceptions about Inclusion' for this purpose. The participants in the study were a total of 542 teacher candidates from Hong Kong, Canada, India, and the United States.

Oswald and Swart (2011) aimed to identify the attitudes, and concerns of teacher candidates towards inclusive education in their study. The participants included 180 teacher candidates from South Africa. The study emphasized the need to enhance knowledge about inclusion among teacher candidates in higher education institutions.

Golmic and Hansen (2012) ensured that teacher candidates gained experience in inclusive education by participating in a certified event. The study involved 92 teacher candidates. Surveys were conducted both before, and after the event to assess the attitudes, emotions, and concerns of teacher candidates. The results indicated that the participation of teacher candidates in this event had a positive impact on their emotions and attitudes.

Li and Cheung (2021) focused on 94 Chinese teacher candidates with the aim of determining their views, and competencies regarding inclusive education. The study

found a direct relationship between the high self-efficacy of teacher candidates, and their positive attitudes toward inclusive education. The study emphasized the need to increase knowledge, and professional support for teacher candidates in inclusive education.

Tuncay and Kızılaslan (2022) aimed to determine the emotions, attitudes, and concerns of teacher candidates regarding inclusive education. The data collection tool used in this study was the 'Concerns About Inclusive Education Revised.' The results of the study indicated that teacher candidates expressed a need for more education on inclusive education, and for developing their confidence in this area."

Başkonuş and Öztürk (2023) aimed to determine the emotions, attitudes, and concerns of teacher candidates in their study. It was a quantitative study using a descriptive survey model. The study was conducted with 346 teacher candidates at a state university in Kırşehir, Türkiye. The data collection tool used in this study was EACAIE, which was also used in this study. The emotions, attitudes and, concerns levels of teacher candidates regarding inclusive education were examined in terms of different variables such as gender, and class level. The study did not find a significant difference in these variables.

CHAPTER III

METHOD

This chapter includes general information about the method used in the research. The research model, population, and sample, data collection process, data collection tools, and data analysis are explained. The validity, reliability, and normal distribution analysis of data collection tools are presented.

3.1. Research Model

Quantitative research is a type of research in which numerical data is collected, and analyzed. It generally aims to obtain numerical results using numerical data sets. In this type of research, quantitative data collection methods such as measurements, surveys, scales, tests, and observations are used. The collected data is subsequently evaluated through statistical analysis. Large sample groups can be used in quantitative research and the results may be more convenient to generalize (Bloomfield & Fisher, 2019; Watson, 2015).

Qualitative research generally aims to obtain a comprehensive understanding, and explanation. In qualitative research, researchers use qualitative data collection methods such as participant observations, interviews, focus groups, and content analysis. The focus is often on understanding participants' emotions, thoughts, experiences, and perceptions. Qualitative research generally aims to better understand, and deepen a subject rather than testing hypotheses or obtaining numerical results. Research conducted through qualitative studies generally uses small sample groups and the data obtained is usually comprehensive, and detailed (Pathak et al., 2013; Vishnevsky & Beanlands, 2004).

The mixed research method is an approach that integrates both quantitative, and qualitative research methods (Christensen et al., 2014). It offers an approach in which both numerical data are collected, and in-depth understanding is gained. In this model, methods such as statistical analysis, and content analysis are used (Leech & Onwuegbuzie, 2009; Tashakkori & Teddlie, 2010).

The mixed research model provides a deeper, and more comprehensive understanding of the identified topic due to the collection of both qualitative and

quantitative data. Combining quantitative, and qualitative data makes the research results more reliable. It offers a broader perspective by combining quantitative data that includes both in-depth insights into participants' experiences, and general patterns. Combining both qualitative and quantitative research methods offers researchers, and readers a well-rounded perspective. Consequently, it can make the thesis or study richer and effective (Christensen et al., 2014; Creswell et al., 2014). The mixed research method provides a combination of numerical and verbal expressions. Using different methods together helps render the answer to the researched problem more meaningful, providing the opportunity to approach the research from a broader perspective (Rossman & Wilson, 1994). It enables a comprehensive exploration of various dimensions of the phenomenon under scrutiny, facilitated by the acquisition of precise outcomes derived from quantitative data, and complemented by the profound insights yielded by qualitative data (Plano Clark, 2017). Considering the stated advantages of the mixed research model, it was preferred to use this model in the current study.

Besides the benefits of the mixed research model, it also has some limitations. However, the mixed research model is not economical because it requires the collection of both quantitative, and qualitative data. It may not be that easy to conduct quantitative, and qualitative studies together. Some methodologists find it more accurate to exclusively apply either quantitative or qualitative studies in a research endeavor (Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2010).

There are three designs within the framework of mixed methods research. (Creswell & Plano Clark, 2018). These are basic mixed methods sampling, multilevel mixed methods sampling and sequential sampling. These are convergent parallel design, advanced mixed method, and sequential design. It carries out quantitative and qualitative data collection and analysis processes simultaneously with convergent parallel design. The advanced mixed method is divided into three according to its sub-patterns. Sub-designs refer to an approach where quantitative and qualitative data are brought together and used in a single analysis process. Quantitative and qualitative data are integrated and evaluated in the same analysis process. The transformative mixed methods in which quantitative and qualitative data are combined and analyzed to promote or understand social change. Embedded mixed methods is an approach which quantitative and qualitative data are brought together and used in a single analysis process. That is, quantitative and qualitative data are integrated and evaluated

in the same analysis process (Liem, 2018; Morse, 2016). According to the sequential sampling method typically, quantitative data is gathered in the initial phase and succeeded by the collection of qualitative data in a subsequent phase (Kara, 2023). In the current study, quantitative data were collected initially, followed by the collection of qualitative data. Consequently, the sequential sampling method was employed. In the sequential sampling model, the explanatory sequential sampling method was employed, wherein quantitative data were initially collected, followed by the collection of qualitative data (Creswell & Plano Clark, 2007).

3.2. Research Population and Sample

This study's population comprises 151 science teacher candidates at a university in the Central Anatolia region between 2022-2023. In the final semester of their fourth year, students enrolled in the science teaching department are required to complete a course titled “Special Education and Inclusion.” In the sample of the study, the quantitative, and qualitative parts are stated separately.

3.2.1. Quantitative data sample

The sample of the study consists of 151 science teacher candidates. Teacher candidates are enrolled in the science teaching program at a university located in the Central Anatolia region in education for 1^{st}, 2^{nd}, 3^{rd}, and 4^{th} grade students. The candidates selected for sampling were selected according to the random sampling type. Random sampling is a selection method in which participants have an equal probability of being selected in the research process (Teddlie & Yu, 2007). The demographic characteristics of the participants, gender, age, and educational level, were taken into consideration. Also, their meaningful/significant interactions with an individual in need of special education, their training in special education, their knowledge of local legislation and policies, and their self-confidence and experience were examined.

3.2.2. Qualitative data sample

For qualitative data, 8 teacher candidates, two participants from each grade level, were selected as a sample. Participants were selected according to the criterion sampling method. Criterion sampling is a method used to examine a specific characteristic or attribute (Başaran, 2017). Factors specifically taken into account in

the sample reflect variables such as gender, age, educational background, and experience with special education. It was aimed to select an equal number of participants from each grade level. It was thought that this way, more fair answers would be received. The primary criterion was determined as voluntary participants. Teacher candidates were chosen with attention to ensuring the inclusion of participants from both genders. Therefore, five female and three male science teacher candidates volunteered. Participants were chosen utilizing the cluster sampling method, a commonly employed technique in qualitative research methodologies. In cluster sampling, participants share at least one common characteristic (Tashakkori & Teddlie, 2010). Specifically, science teacher candidates enrolled in the same academic department were selected through the random sampling method, a subset of cluster sampling (Vogt et al., 2012). Consequently, it can be asserted that the responses provided by the participants to the interview questions hold equal significance.

3.3. Data Collection Process and Tools

The data of the research was obtained using a scale, and semi-structured interview form. These are data collection tools whose validity, and reliability have been previously established. The scale, and interview form to be used in the data collection process were submitted to the ethics committee for approval. Following the approval, necessary permissions were obtained from the Dean of Erciyes University Faculty of Education to conduct scales, and interviews with science teacher candidates.

3.3.1. Emotions, attitudes, and concerns about the inclusive education scale

To understand the emotions, and thoughts of science teacher candidates regarding inclusive education, a scale developed by Bayar et al. (2015) was used. This scale consists of 15 questions. The name of the scale is “Turkish Adaptation, Validity, and Reliability Study of the Emotions, Attitudes, and Concerns about Inclusive Education Scale” (EACAIE). The original scale questions (EACAIE) developed by Forlin et al (2011) were adapted into Turkish. The scale used in the research consists of 15 questions, and is a four-point Likert type (“1” Strongly Disagree, “2” Disagree, “3” Agree, “4” Strongly Agree). The lowest score that can be obtained from the scale is 15, while the highest score is 60. The higher the participant score, the more positive

their emotions, attitudes and, concerns toward inclusive education. For the reliability study of the scale, the Cronbach Alpha test was used, and the internal consistency coefficient of the scores obtained from the scale was analyzed as 0.88. As a result of factor analysis, it was concluded that the scale is three-dimensional. It was observed that these three factors explained 61.45% of the total variance. Each factor in the scale explains the participants' emotions, attitudes, and concerns toward inclusive education.

While choosing this scale, studies aiming to learn the emotions of science teacher candidates towards inclusive education were searched in the literature. The scale questions were examined by a field expert and the application of the scale was deemed appropriate and approved. During the scale selection process, meticulous attention was given to ensuring that the questionnaire items remained concise. This approach aimed to facilitate participants in articulating their genuine sentiments without succumbing to boredom. A preliminary or pilot study was not conducted for the scale questions.

3.3.1.1. Validity and reliability

Validity indicates whether a measure measures what it purports to measure, and is also generalizable. It also indicates that the phenomenon or judgment intended to be measured has been measured accurately. Validity of the measurement means that the measurement tool actually measures the characteristics it plans to measure. For validity, a test, experiment or scale must give the same result in repeated measurements. Validity is the absence of errors that would harm the overall accuracy of the research. In order for a measurement to be valid, the feature to be measured must be measured without mixing it with another feature. However, the first condition for the scale to be valid is that it is reliable. A valid test is also reliable, but a highly reliable test may not be valid. In short, we can say that validity is the practice of distinguishing between those who know, and those who do not know (Carmines & Zeller, 1979).

It can be said that a reliable test or scale has high differentiation. Also, it is the degree to which a test or scale measures what it aims to measure in a consistent, and stable manner. A reliable test or scale gives similar results when applied again under similar conditions. The reliability of a scale is related to the random errors in the scale. Reliability is the ability of a scale or test to be free from random errors. There may be many factors affecting reliability. Some of those can be stated as the length of the scale

or test, the way the items are expressed, correct scoring, the suitability of the time, and place where the scale or test is performed, and the motivation of the participants. The scale used in the current study meets these criteria because it was obtained from a previously validated, and reliable scale. Since the scale was carried out in different sample groups, the data obtained as a result of the scale were transferred to the SPSS 27 program. The Cronbach Alpha value of the total score obtained from the scale is checked. This value is a value viewed on Likert-type scales (Cronbach, 1951; McMillan, 1992). In the current study, Cronbach's alpha value was calculated according to the total scores of the participants from the scale, and is shown in Table 1.

3.3.2. Interview form prepared for Turkish and mathematics teacher candidates' opinions on inclusion

Interview questions developed by Horzum and Izci (2018) were used to understand the emotions, attitudes and, concerns of science teacher candidates regarding inclusive education. "Interview Form Prepared for Turkish, and Mathematics Teacher Candidates' Opinions on Inclusion" contains 16 problems and 8 sub-problems. The interview questions were created by Horzum and Izci (2018) by examining the existing literature, and were subject to expert control. Interview questions enable the participants to determine their opinions about the necessity of inclusive education, and their competence in the implementation of inclusive education.

In selecting interview questions, an initial examination of literature focused on the emotional experiences of science teacher candidates was conducted. Emphasis was placed on selecting an interview format conducive to comprehensively exploring teacher candidates' emotions. A crucial consideration was the avoidance of specificity to any particular field within the interview questions, ensuring their adaptability to the science education domain. Subsequently, the current interview format was chosen for implementation following a subject matter expert's validation, affirming the interview questions' applicability.

3.3.2.1. Validity and reliability

Before applying the data collection tools, permission was first obtained from the participants stating that they were volunteers. Before the interview, the participants were informed about the purpose, and importance of the research, the necessity of their answers to the questions being sincere, personal information would be protected, and would not be shared anywhere, the confidentiality of the research, the right to withdraw from the research, the interviews will be recorded, and will be used only within the scope of the research, and the expected average duration of the scales and, interviews has been given. The application time of the scales was adjusted according to the professors' available class hours, and the training of the participants was not disrupted. The available times of the candidates who volunteered for the interview questions were taken into account, and appointments were made. There was no pressure on the questions that the participants did not want to answer.

For the study's internal validity, the questions included in the interview form were meticulously chosen from the existing literature, gaining approval through expert opinions. During the interview, the participants' thoughts were confirmed by the researcher. During the meetings, interaction was ensured for as long as possible. In the qualitative part of the study, the participants' thoughts were presented with direct quotes, and no changes were made to the answers given. Explaining the data analysis process in the study, explaining the study group, population, and sample, explaining the criteria for selecting participants, and how they were selected, and specifying the mixed method used in the research increase external validity. For the internal reliability of the study, the interviews were recorded on a tape recorder with the permission of the participants. In addition, in the findings section, the researcher's comments were presented without being included. For the external reliability of the study, the data were discussed appropriately in the conclusion section.

Table 1

Reliability of Scale Scores

Cronbach’s Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.71	0.71	15

Cronbach's Alpha value of the total scores after the applied scale is given in Table 1. This value was found to be 0.71. Consequently, it has been determined that the applied scale provides reliability.

3.4. Data Analysis

The data obtained from the scale questions were entered into the SPSS 27 program, and it was checked whether the obtained scores provided normal distribution. The data analysis section of this study includes the results of mixed research based on both quantitative, and qualitative data. The quantitative data of the study were collected based on the scale, and the qualitative data were collected based on a semi-structured interview form. Demographic characteristics of the participants, such as gender, age, and education level, were obtained. While the quantitative data were analyzed using the descriptive statistics method, the qualitative data were analyzed using the content analysis method.

3.4.1. Quantitative data analysis

Normal distribution is important to ensure the validity, and reliability of statistical analyses. In order to use parametric tests, it is necessary to meet the normal distribution assumption, which is one of the assumptions (Sim & Wright, 2000; Tabachnick & Fidell, 2013). So as to generalize to our accessible sample, the normal distribution must be met. Participants' scores from a scale are required to reach a normal distribution, thus ensuring that the scale items are usable. The normal distribution, kurtosis, skewness values, frequency values (such as mean, and standard deviation), and histogram values of the scores obtained from the scale were examined.

Independent samples t-test, and ANOVA analyses were conducted on the emotions, attitudes, and concern levels of science teacher candidates towards inclusive education in terms of certain variables. The independent sample t-test is used to compare independent sample data between two different groups. It is used to determine whether there is a statistically significant difference between the mean of a variable between two groups. It is frequently used to determine the average difference between two different groups and to compare the obtained data (Pallant, 2007). Therefore, independent samples t-tests were conducted for variables containing two groups. These are gender, interaction, education and experience variables. One-way ANOVA

is a statistical test employed to assess variations in means across multiple groups. This test determines whether there exists a statistically significant difference in at least one group mean compared to the others. The commonly used significance level is 0.05. It is suitable for situations where groups are classified according to a factor, and this factor usually refers to a categorical variable (Tabachnick & Fidell, 2013). In this study, the variables for which one-way ANOVA analysis was conducted are knowledge and self-confidence.

The first assumptions required to conduct these analyzes are the sampling assumption. According to Pallant (2007), there should be 15 participants in each group. The second assumption is the normal distribution assumption. For this purpose, skewness kurtosis values are accepted as -2, and +2. The third assumption is whether the variances are equal or not. These assumptions are conveyed in the analysis of the data as tables or figures. Kurtosis and skewness values are also frequently used to determine a normal distribution. While there are sources showing that these values being between -1, and +1 indicate normal distribution (Pallant, 2007), being between -2, and +2 also indicates normal distribution (George & Mallery, 2003).

Table 2

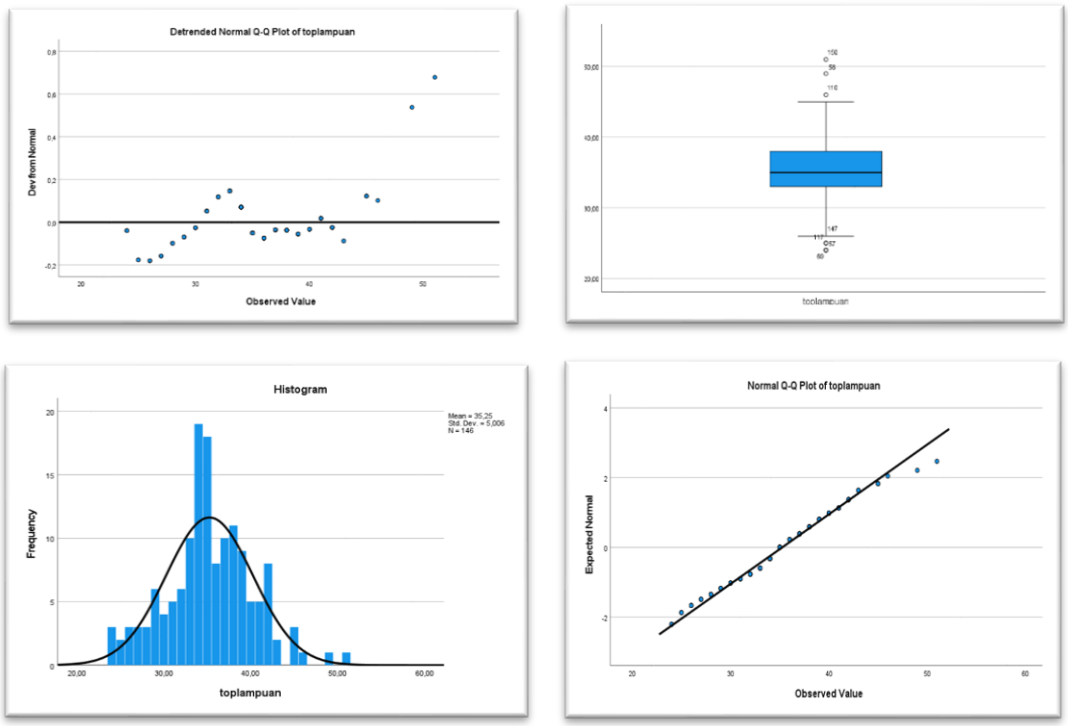
Descriptive Statistics Results of the Emotions, Attitudes and Concerns Scale About Inclusive Education

Descriptive Statistics	Values
The number of participants	151
Missing data	5
Mean	35.25
Median	35.00
Mode	34.00
Ranj	27.00
Skewness	0.96
Kurtosis	0.38
Standard Deviation	5.00

Descriptive statistical results of the scores obtained from the scale are given in Table 2. Given that the arithmetic mean, mode, and median values are close to each other means that one of the normal distribution assumptions is met (Köklü et al., 2006; Sim & Wright, 2000). As a result of the total score of the data obtained from the scale, the arithmetic mean of the scores was observed as 36, the 95-mode value was 36.00, and the median value was 37.00. As a consequence, it is observed that the applied scale scores provided a normal distribution. Another method to meet the normal distribution is to increase the sample size. The larger the sample, the closer the total score on the scale will be to normal distribution. The number of participants in the scale is 151. With missing data, this number was observed to be 146. It can be seen that normal distribution is also achieved by looking at the sample group. It can be said that the larger the variance value is, the closer it is to achieving normality. The variance value in the current study is seen as 22.36. This shows that it is within a sufficient range (Pallant, 2007).

Figure 1

Normal Distribution Plots



Considering the histogram graph, which is in Figure 1, it is expected that the obtained scores will be collected under the curve in the graph. If the histogram graph is skewed to the right, it indicates that it is a difficult test, while if it is skewed to the left, it indicates that the test is easy. Therefore, the more obvious the slope in the graph, and the data filling that curve, the closer it is to normal distribution (Cohen & Lea, 2004; Cohen et al., 2007). A histogram graph is given as a result of the scores obtained from the scale. Based on this graph, it is evident once more that the data satisfies the assumption of normality. The kurtosis value of the total scores obtained from the scale applied in the current study was found to be 1.27, and the skewness value was 0.00. While the kurtosis value of the total scores obtained from the scale applied in the current study is 1.27, the skewness value is found to be 0.00 (Pallant, 2007). As a result of the analyzes carried out in the current study, it was determined that the scores obtained from the relevant scale met the normal distribution requirement. A positive skewness value indicates that the exam is difficult, and a negative value indicates that the exam is easy (Groeneveld & Meeden, 1984).

As the range value of the standard normal distribution narrows in a dataset, it moves away from the normal distribution. The fact that the arithmetic mean, mode, and median values are close to each other means that one of the normal distribution assumptions is met (Sim & Wright, 2000; Köklü et al., 2006). As a result of the total score of the data obtained from the scale, the arithmetic mean of the scores is observed as 36.95, the mode value was 36.00, and the median value was 37.00. Hence it is observed that the scores of the applied scale provided a normal distribution.

In the normal Q-Q Plot chart, the scores obtained from the data are expected to be on a straight line or close to a straight line. As a result of the analysis, it was seen that the total scale scores were close to the straight line in the Normal Q-Q Plot graph. In the Detrended Normal Q-Q Plot chart, the scale scores are expected to be away from the line (Tabachnick & Fidell, 2013). However, in the Detrended Normal Q-Q graph in the current study, it can be seen that the data is quite close to the line. In the graph, it is possible to see extreme values, and the bottom line of the square shows the median value (Pallant, 2007).

3.4.2. Qualitative data analysis

The answers obtained from the data collection tools were analyzed using descriptive, and content analysis. In descriptive analysis, data are described, and interpreted according to the conceptual framework. However, there is no detail in the descriptive analysis. Content analysis is the systematic scanning of course materials, and thematic analysis in terms of certain classifications. The data obtained through content analysis are classified with interrelated themes, thus revealing the connection between the data obtained (Yıldırım & Şimşek, 2013).

In this study, participants' responses were examined using content analysis. Content analysis allows a researcher to extract unique information, and meaning by examining texts, documents, or visual content. This type of analysis generally takes a qualitative approach and enables the researcher to use data to understand, describe, and interpret it (Yıldırım & Şimşek, 2013). In the current study, the analysis of data included coding and categorization. At this stage, similarities, and connections between the codes were considered. The frequencies of the data were determined through codes, and their percentages were calculated. The frequency percentage value is the ratio of the samples in a specific category in the dataset to the total number of samples. It represents the ratio of the specified number of codes to the total number of codes, expressed as a percentage (Yazgan & Zerey, 2003).

CHAPTER IV

FINDINGS

This part of the study includes quantitative, and qualitative findings. The data obtained from the applied scale, and interview questions are presented. Quantitative, and qualitative findings were examined separately.

4.1. Quantitative Findings

In this section, the emotions, attitudes, and concern levels of science teacher candidates toward inclusive education were examined in terms of various variables. These variables are gender, interaction, knowledge level, self-confidence, and experience. For quantitative data, t-test, and ANOVA analyzes were conducted after the normality analysis of the scores obtained from the scale.

4.1.1. Examining the emotions, attitudes, and concerns of science teacher candidates toward inclusive education concerning the gender variable.

A t-test was conducted to examine the emotions, attitudes, and concern levels of science teacher candidates towards inclusive education in terms of gender variables. The data obtained as a result of the analysis, number of participants, mean, standard deviation, t, and p values are given. The t-test used to evaluate statistical significance between two groups is a hypothesis test. It is applied to determine whether there is a significant difference between the averages between the two groups (Pallant, 2007).

Table 3

Descriptive Analysis Results of Science Teacher Candidates' Emotions, Attitudes, and Concerns Toward Inclusive Education Regarding the Gender Variable

Gender	N	Mean	SD	t	P
Female	36	35.11	5.65	-0.30	0.78
Male	108	35.39	4.72	-0.30	0.78

When Table 3 is examined, it is observed that there are 36 male participants, and 108 female participants in terms of the number of participants. It is observed that while the average value of awareness of male participants is 35.11, the average value of awareness of female participants is 35.39. Thus, it can be seen that these two values are very close to each other. It is seen that the standard deviation values are 5.65 for men, and 4.72 for women. The assumptions required to conduct an independent sample t-test analysis for the gender variable of science teacher candidates' feelings, attitudes, and anxiety levels towards inclusive education are met. It can be said that the p value is greater than 0.05, and the variances are distributed homogeneously. It is determined that there is no statistically significant difference in the emotions, attitudes, and concern levels of science teacher candidates towards inclusive education between males, and females (t=-0.30; sig. (2-tailed)>0.05).

4.1.2. Examining the emotions, attitudes, and concerns of science teacher candidates toward inclusive education in the context of interacting with individuals with special education needs

A t-test analysis was conducted according to the emotions, attitudes, and concern levels of science teacher candidates towards inclusive education, and whether they had meaningful/significant interactions with an individual in need of special education. The emotions, attitudes, and concern levels of science teacher candidates towards inclusive education, and whether they had meaningful/significant interactions with an individual in need of special education were examined. A t-test analysis was performed between these two groups. As a result of the analysis, the number of participants in each group, the average of the scores, and standard deviation t, and p values are given in Table 4.

Table 4

Descriptive Analysis Results of Emotions, Attitudes, And Concerns of Science Teacher Candidates Toward Inclusive Education in The Context of Interacting with Individuals with Special Education Needs

Interaction	N	Mean	SD	t	P
Yes	60	34.75	4.47	-1.01	0.78
No	86	35.60	5.34	-1.01	0.78

According to Table 4 while the number of individuals with interaction is 60, the number of individuals without interaction is 86. While the average score of individuals who said "I had interaction" was 34.75, the number of participants who said "I had no interaction" was 86. While the standard deviation value of the scores of individuals with interaction is 4.47, the standard deviation value of the scores of individuals without interaction is 5.34. When examined in terms of homogeneity of variances, it can be said that the p value is greater than 0.05, and the variances are distributed homogeneously. Assuming that the variances are distributed homogeneously, it was determined that there was no statistically significant difference between the science teacher candidates' emotions, attitudes, and concern levels towards inclusive education, when examined according to whether they interacted with a specially educated individual or not, between those who answered "yes", and "no" (t=-30; sig. (2-tailed)>0.05).

4.1.3. Examining the emotions, attitudes, and concerns of science teacher candidates toward inclusive education concerning their training in special education

The emotions, attitudes, and concern levels of science teacher candidates regarding inclusive education were examined according to their receiving training in special education. A t-test was conducted between those who had no training in special education, and those who had some training. In order to conduct this t-test, the necessary assumptions are first met. Tables, and figures for the analysis results are given.

Table 5

Descriptive Analysis Results for Examining Science Teacher Candidates' Emotions, Attitudes, and Concerns Toward Inclusive Education in Terms of Their Receiving Training on Special Education

Training	N	Mean	SD	t	P
No training	65	36.47	4.95	2.67	0.00
Some training	78	34.29	4.77	2.67	0.00

According to table 5 the number of participants who said "I did not receive any training" was 65, and the number of participants who said "I received some training" was 78. The average score of participants who said "I have not received any training" is 36.47, while the average score of participants who said "I have received some training" is 34.29. While the standard deviation value of the scores of the participants who said "I have not received any training" was 4.95, the standard deviation value of the scores of the participants who said "I received some training" was 4.77.

When examined in terms of homogeneity of variances, it can be said that the p value is greater than 0.05, and the variances are distributed homogeneously. Assuming that the variances are distributed homogeneously when the emotions, attitudes, and concern levels of science teacher candidates towards inclusive education are examined according to whether they have received any education in special education (X = 36.47) or some education (X = 34.29), the answer is not at all, and somewhat. It is determined that there was no statistically significant difference between the donors (t= .66; sig. (2-tailed)>0.05).

4.1.4. Examining the emotions, attitudes, and concerns of science teacher candidates toward inclusive education and their knowledge of local legislation and policies regarding children in need of special education.

The emotions, attitudes, and concern levels of science teacher candidates regarding inclusive education, and their knowledge of local legislation, and policies regarding children in need of special education were examined. One-way ANOVA is a statistical method used to evaluate whether there is a statistically significant difference between the means of three or more independent (unrelated) groups (Field, 2005). Accordingly, ANOVA analysis was conducted between the scores of those who answered “not at all”, “weakly”, and “moderately”. The results of the analysis, including the number of participants in each group, average scores, and standard deviation values, are presented in Table 6.

Table 6

Descriptive Analysis Results of Science Teacher Candidates' Emotions, Attitudes, and Concerns Toward Inclusive Education, and Their Knowledge Levels About Local Legislation and Policies Regarding Children in Need of Special Education

Table 6 continued

Knowledge Level	N	Mean	SD	t	P
Not at all	32	36.31	5.77	1.25	0.48
Weakly	60	35.48	4.87	1.25	0.48
Moderately	48	34.54	4.48	1.25	0.48

According to Table 6 the average score of those who said they have no knowledge about this subject is 36.31, while the standard deviation value is 5.77. The average score of those who said they have some knowledge of this subject is 35.48, while the standard deviation value is 4.87. The average score of those who said they have moderate knowledge of this subject is 34.54, while the standard deviation value is 4.48. According to the ANOVA analysis results, it is seen that there is no significant difference according to the knowledge of science teacher candidates' emotions, attitudes, and concerns regarding inclusive education ($F= 1.25$; $p>0.05$).

4.1.5. Examining the emotions, attitudes, and concerns of science teacher candidates toward inclusive education and their self-confidence in teaching students in need of special education

The emotions, attitudes, and concern levels of science teacher candidates regarding inclusive education and their self-confidence in teaching students in need of special education were examined. Accordingly, ANOVA analysis was conducted between the scores of those with low, medium, and high self-confidence. As a result of the analysis, the number of participants in each cell, the average of the scores, and the standard deviation values are given in given Table 7.

Table 7

ANOVA Analysis Results

Self-Confidence	Sum of Squares	Df	Mean Square	F	P
Between groups	585.04	4	146.26	6.76	<0.01

Table 7 continued

Within groups	3048.6	141	21.62
Total	3633.6	145	

According to the ANOVA analysis, which is in table 7, there is a significant difference between the emotions, attitudes, and concern levels of science teacher candidates regarding inclusive education, and their self-confidence in teaching students needing special education ($F= 8.94$; $p<0.05$). According to the results obtained from the ANOVA test, the LSD test was performed to determine between which groups there was a significant difference. LSD test results are given in Table 8.

Table 8

LSD Analysis Results

Self-Confidence	Self-Confidence Level	Mean Difference	Sig.
Low	Medium	3.51	<.00
	High	3.31	1.00
Medium	Low	-3.51	0.00
	High	-0.20	1.00
High	Low	-3.31	1.00
	Medium	0.20	1.00

LSD is a post hoc analysis. This test helps in determining differences between groups in ANOVA analysis. Specifically, when ANOVA analysis indicates a significant between-group difference, the LSD test is used to determine which groups are statistically different (Williams & Abdi, 2010). The emotions, attitudes, and concern levels of science teacher candidates with low self-confidence, and science teacher candidates with medium, and high levels of self-confidence towards inclusive education differ significantly.

4.1.6. Examining the emotions, attitudes, and concerns of science teacher candidates toward inclusive education and their experiences in teaching students in need of special education.

A t-test was conducted to compare the emotions, attitudes, and concerns regarding inclusive education among science teacher candidates with and without training, based on their experiences teaching students with special educational needs. The independent samples t-test is a parametric statistical test to evaluate whether the means between two independent groups are statistically significantly different (Pallant, 2007). In order to conduct this t-test, the necessary assumptions are first met. Tables, and figures for this are given. As a result of the analysis, the number of participants in each cell, the average of the scores, and the standard deviation values are given in Table 9.

Table 9

Examination of Science Teacher Candidates' Emotions, Attitudes and Concerns Toward Inclusive Education and Their Experiences in Teaching Students in Need of Special Education

Experience	N	Mean	SD	t	P
Nothing	112	35.66	4.93	2.20	0.87
Some	33	33.54	4.75	2.20	0.87

Following the Table 9 the number of participants with no experience is 112, and the number of participants with some experience is 33. The average score of the participants who say they have no experience is 35.66, while the average score of the participants who say they have some experience is 33.54. While the standard deviation value of the scores of the participants who say they have no experience is 4.93, the standard deviation value of the scores of the participants who say they have some experience is 4.75.

When examined in terms of homogeneity of variances, it can be said that the p value is greater than 0.05, and the variances are distributed homogeneously. Assuming that the variances are distributed homogeneously when the emotions, attitudes, and anxiety levels of science teacher candidates towards inclusive education are examined according to whether they have no experience with special education (M = 35.66) or

some experience (M = 33.54), the answer is not at all, and somewhat. It was determined that there was no statistically significant difference between the donors (t= .86; sig. (2-tailed)>0.05).

4.2. Qualitative Findings

The data obtained as a result of the interviews conducted to determine the emotions, attitudes and, concerns of science teacher candidates regarding inclusive education were classified, and codes were created. The answers were collected under a single theme. The theme created by the answers given to the interview questions is given under the single theme title "Inclusive Education".

In order to understand whether teacher candidates want inclusive education to be included in formal education, the question "should there be inclusive education?" was posed. All of the teacher candidates stated that there should be inclusive education.

Table 10

Codes for Participants in the "Necessity of Inclusive Education" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Integration into society	+		+				+	+	4
Peer learning	+				+			+	3
Taking differences into account		+		+			+		3
Communication skill						+		+	2
Social skills					+			+	2
Making it easier for them to adapt								+	1
Student specific							+		1
Educational equality								+	1

When asked why they wanted inclusive education, they shared their opinion that it was necessary to integrate special students into society. These opinions are given in Table 10. As an example, the statements of the teacher candidate S7 were as follows: “Because for us, a student is a student. So, I think we need to include all our students.” The teacher candidate S5 expressed her/his statements regarding peer learning as

follows: "Because the individual who receives inclusive education should be together with his/her peers, and be more developed in terms of social education." One of the teacher candidates S2, who emphasized that differences should be taken into account, expressed this situation as follows: “I think inclusive education should be equal. Because the characteristics of different students should be taken into account.” A less-mentioned but important point is educational equality. Teacher candidate S8 stated the following on this subject: "Inclusive education should be education in the same class with other individuals who are not mainstream students. It also becomes easier for them to adapt to the environment. They can express themselves better and get away from the feeling of exclusion."

Table 11

Codes for Improving the Education of Students Receiving Inclusive Education

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Raising awareness among peers	+	+		+					3
Different activities appropriate to the level		+					+		2
Peer support						+		+	2
Collaborative learning	+		+						2
Additional homework and tasks				+	+				2
Individual attention			+					+	2
Teacher support	+								1
Different methods and techniques			+						1
Physical consideration		+							1
Student-parent-teacher collaboration	+								1
Communication						+			1
Providing opportunities		+							1
Appropriate method or technique			+						1

When asked how to improve the education of inclusive students, teacher candidates used expressions such as raising awareness of peers, different activities

appropriate to the level, and peer support. These are given in Table 11. The teacher candidate S4 stated as follows: "By making other students aware of them." Teacher candidate S7 said, "It can be improved with different activities, and the activities can be changed in a way that they can understand." "You know, different practices can be applied to all students, not the same way." With his statements, the S7 emphasized that different activities should be done according to the level. Regarding peer support, the teacher candidate S8 said, "Students should help them, when necessary, but they should not discriminate them." S1 said, "This can be done by paying more attention to that student, showing more interest, and helping that student by telling classmates and even parents about this situation." S1 emphasized teacher support and parent collaboration. Even though only one person stated it, it seems that it is an important situation.

Table 12

Codes for Participants in the Category "Reasons for Desiring Inclusive Students in Your Classroom Upon Your Appointment as a Teacher"

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Development of peer awareness	+				+			+	3
Gaining the students	+					+	+		3
Teaching experience		+		+					2
Education right			+			+			2
Raising awareness of parents			+						1
Integration into society			+						1
To build self-confidence								+	1
Communication skills						+			1
Social development	+								1

In order to learn the perspectives of teacher candidates towards having inclusion students in their classes when they start working, the question "Would you like to have an inclusion student in your class when you are appointed as a teacher?" was asked. The question was asked. All science teacher candidates stated that they were willing to have inclusive students in their classrooms when they started working.

When we asked the teacher candidates why they wanted to have an inclusion student in their classes, they stated that the most important thing was to improve the peer awareness of other students, and to gain the inclusion of students. These are given in Table 12. Regarding the development of peer awareness, a teacher candidate coded S5 said, “This will raise awareness for other students as well. I think I can help them learn better how we should treat them there. I also believe that the student who receives inclusive education will feel safer by having warmer contact with other peers.” They also stated that they would help the teacher to gain experience. The teacher candidate S4 stated, “After all, it will be a different experience for me.” S3 said, They also need to find a place in society. Now parents need to look at inclusive students with a normal perspective. After all, every student has the right to education, so I think there should be inclusive students. These expressions have been included in the codes for increasing parents' awareness and inclusion in society.

Table 13

Codes for Participants in the "Advantages of Having Integrated Students in Your Class When You Are Appointed as a Teacher" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Providing professional development	+	+		+			+		4
Breaking prejudices					+				1

While the advantages of having inclusive students in the classroom were mentioned, the expressions of providing professional development and prejudices were included. Other codes related to this are given in Table 13. Teacher candidate coded S7 explained this by saying, "The advantages for me could be as follows. "If I have an integrated student in one place throughout my teaching career, it can be good for me as an experience in another place." The teacher candidate S4 stated, “The advantage is that if I do not have a student now, I will have to have one in the future. In this case, I will gain knowledge, and experience.” The teacher candidate S5 said, "So maybe their advantages can change my emotions, and thoughts towards them." With this statement, teacher candidate S5 emphasized that prejudices can be broken. S5 said, “In other words, their advantages may change my emotions and thoughts towards them. It can also improve how other students should behave towards them.” Thus, breaking down prejudices was touched upon.

Table 14

Codes for Participants in the "Disadvantages of Having Integrated Students in Your Class When You Are Appointed as a Teacher" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Spending extra time					+	+			2
Difficulty in Classroom Management	+							+	2
Teacher exhaustion				+					1
Perception of inequality	+						+		2

When asked about the disadvantages of this situation, they stated that the teacher had to spend extra time, difficulties in classroom management, and the idea that there could be inequality in the classroom. These codes are given in Table 14. The teacher candidate S6 said the following: “I just think we need to spend a little more time on them for their disadvantages.” The teacher candidate S8 talked about the issue of students drifting away from the lesson as follows: “Classroom control may be challenged by the teacher in class domination.” As for inequality, teacher candidate S1 stated the following: "We may get a reaction like you are interested in him/her more, you love him/her more."

Table 15

Codes for Participants in the "Adequacy of Current Inclusive Education Practices" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Insufficient	+		+	+	+	+		+	6
No idea							+		1
Varies depending on the school situation		+							1
Increasing Special Education Courses in Education Faculties								+	1
Term plan failure to follow			+						1

Science teacher candidates mostly answered "not enough" when asked about the adequacy of the current inclusive education as given in Table 15. A teacher candidate stated that he had no knowledge about this subject. The teacher candidate S2 stated that inclusive education varies depending on the school. “Actually, I think it is better in central schools, but it can be improved in village schools, etc.” An idea has been expressed to increase special education courses in education faculties. S8 said, “I think every teacher should have some experience with their students related to inclusive students. Especially during our internship period or more comprehensive courses can be given on this subject. Given that, only classroom teachers have more information about inclusive students. We are a little behind at this point. For this reason, we may have difficulty distinguishing whether children are mainstream students or even students with special education needs so I think it will be difficult.” It is stated with the code increasing special education courses in education faculties.

Table 16

Codes for Participants in the "Students Participating in Inclusion Practice Receiving Additional Support Service Training" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Increasing guidance services			+				+	+	3
Classroom activity								+	1
Extra homework			+					+	2
Existence of a special education teacher						+			1
Increasing individualized assistance					+				1
Creating different interests			+						1
Increasing special education courses in education faculties		+							1
Increasing support	+		+						2
Information about courses	+			+					2

The question was asked to science teacher candidates about what kind of additional support service training students receiving inclusive education should

receive. The answers' codes related to this are indicated in Table 16. Teacher candidates mostly stated that guidance services should be increased. Regarding increasing support for mainstreaming students, S1 stated: "I think mainstreaming students should know how to talk to students, how they should behave, and receive additional support regarding lessons." S2 stated that it is about the education of teacher candidates: "I think we should constantly get information about them while studying, that is, while studying at the university." The teacher candidate coded S8 expressed the following statements within the scope of the in-class activity code: "Additional homework assignments can be made. Apart from that, guidance counselors can be given separate attention. Offering more free space to the students, that is, having activity hours for the students rather than overwhelming them with lessons. During those activity hours, they can work together." "They can work collaboratively. Then, gamifications can be made with lessons based on their own fields, such as science social studies, or other fields. This also helps the student to focus. It also attracts the attention of other students. Therefore, such activities can be done." S2 said, I think we should constantly get information about them while studying at the university. This is expressed for the code increasing special education courses in education faculties.

Table 17

Codes for Participants in the "Physical Environment of the Classroom in Classes with Inclusive Students" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Seating arrangement according to disability	+				+	+			3
Convenient communication environment	+								1
Comfortable movement area		+							1
Changeable classroom layout			+						1
Selection of suitable materials								+	1
Adequacy of the classical classroom environment							+		1

A question was asked to teacher candidates about what kind of seating arrangement they would follow if there were inclusive students in their classes. The

codes of the answers related to this are given in Table 17. They stated that they would mostly take into consideration the seating arrangement according to the disability. In addition, they stated that a comfortable environment should be created for students, and that the classroom environment should be suitable for change. A teacher candidate also said that soft materials should be preferred because of the thought that the desks in the current classroom environment could be harmful to inclusive students. Another teacher candidate stated that the current classroom environment is sufficient. The teacher candidate S1 stated that the physical environment of the classroom should be suitable for communication with the following words: “The physical environment of the classroom should be an environment where that student is not excluded from the classroom, and can communicate with the teacher, and his/her friends. Of course, if there is a physical disability, the class should be organized taking that into consideration.”

Table 18

Codes for Participants in the "Implementing Seating Arrangements Considering the Integrated Student" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Placement in the front row		+		+		+	+		4
Easy movement area						+	+		2
U-shaped seating arrangement	+		+						2
By his/her friend's side								+	1
Seating arrangement according to disability		+			+				2

Teacher candidates were asked what method they would follow if there were inclusive students in their classes when they started working. The codes related to this are given in Table 18. In response to this, teacher candidates stated that they would mostly seat the inclusion students in the front row. The teacher candidate S4 expressed this situation as follows: “I would rather sit him in the front, where I can see his every move, and be more useful to him.” The teacher candidate S6 explained this situation as follows: “First of all, I would much prefer to have him sitting in the front row. I would prefer that student to sit somewhere close to the door to make entry, and exit

easier.” In addition, they emphasized that they wanted to keep the inclusive student together with his/her friends, so they would create this environment for him. Teacher candidates S1 and S3 were of the opinion that the U seating arrangement, instead of the classical row arrangement, would be more beneficial for both the mainstreaming student, and the other students. S8 said, “Even if I have an inclusion student, I will definitely not distinguish them from other students. I make sure to seat the student next to someone who is not an inclusive student. I would like the desks to be arranged so that everyone faces each other, looking at the board or the teacher.” It is expressed for the by his/her friend's side code.

Table 19

Codes for Participants in the "Time Allocated to Inclusion Students Affects Other Students" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
The idea of positive discrimination	+							+	2
Expectation of more attention	+								1
Distractibility		+							1
Affects positively						+			1
Affects negatively				+			+		2
Increases peer help					+				1
Should not influence			+						1

They stated that the time spent on inclusion students would create positive discrimination in other students. This code, and other codes are given in Table 19. The teacher candidate coded S8 expressed this situation as follows: "While dealing with him/her, students may feel that the teacher always loves the inclusive student, and that they are left in the background." In addition to the thought that this situation would negatively affect other students, there were also teacher candidates who thought that it would have a positive impact. S5 said, “When explaining the same subject, for example, it should be explained in the same way as explaining it to a normal class. Then where the inclusive student doesn't understand. More attention should be paid to

it with the help of students who understand the subject.” Increases peer help code is expressed.

Table 20

Codes for Participants in the "Time Allocated to Inclusive Students Affects the Atmosphere of the Classroom" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Difficulties in classroom management		+	+	+				+	4
The idea of positive discrimination							+	+	2
Students' attention difficulties		+						+	2
Students' attentional distraction			+						1
Increased solidarity					+	+			2
Increased happiness	+								1

It has been stated that the time allocated to the mainstreaming student may cause difficulties in classroom management which is shown in Table 20. The teacher candidate S3 explained this situation: “As far as I have observed, some teachers when they pay attention to that student, the rest of the class may become distracted, and the class disperses very quickly. In other words, movement begins in the classroom, and the teacher's classroom management decreases. But I don't think it will have an impact if he/she does this in a planned way, but planning is important.” The teacher candidate S3 expressed this, and added that he may have difficulties in classroom control. Still, this situation can be overcome if he proceeds with a certain plan, and program. In addition to those who said that it would have positive effects, there were teacher candidates who stated that it would have a negative effect. Some teacher candidates said that solidarity in the classroom environment would increase and, as a result, happiness in the classroom would increase. S3 said, “As far as I have observed, some teachers tend to distract the rest of the class when they are paying attention to that student and the class disperses very quickly. In other words, movement begins in the classroom, and the teacher's classroom management decreases.” Thus, the code students' attentional distraction was generated.

Table 21

Codes for Participants in the "Effect of the Presence of Inclusion Students in the Classroom on the Application of Classroom Rules" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Affects negatively	+	+	+	+	+		+	+	7
Affects positively						+			1

Teacher candidates coded S1, S2, S3, S4, S5, S7 and S8 stated that the presence of an inclusion student in the classroom would negatively affect the implementation of classroom rules. The teacher candidate S6 said that it would have a positive impact. This situation is given in Table 21.

Table 22

Codes for Participants in the "Methods for the Presence of Integrated Students in the Classroom and Implementation of Classroom Rules" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Verbal Cautions	+		+	+				+	4
Pre-lesson rule reminders	+								1
Assignment							+	+	2
Treating students equally	+					+			2
Guidance Service Support				+			+		2
Communication with Parents							+		1
Peer awareness					+				1
Rule reminders	+		+						2
Communication with the classroom teacher							+		1
Observation				+					1

They said that the presence of an inclusion student may cause the inclusion students to be constantly reminded verbally. The other codes are also given in Table 22. Teacher candidate S1 said, "The inclusion student may not be able to take on these responsibilities, that is, even if he says 'OK, I will do it,' he/she may forget or ignore

them because he/she is excited at the moment or because he/she cannot think, or in order to act on an equal footing with his/her friends or to attract attention." But, as with other students, we can eliminate these problems by telling the mainstreaming student a few times that this is wrong, and that he/she should not do this, and by offering him/her things like "you should not do this" a little more before the lesson. But as I said, it can cause trouble." The teacher candidate S8 stated the following regarding the assignment of inclusion students: "He/she can be assigned to stand guard with another student who is not an inclusion student." There were teacher candidates who stated that they would also receive support from the guidance service. Regarding this, the teacher candidate S4 stated the following: "First of all, I would warn my inclusion student and see if his/her behavior would repeat. "I saw that I could not comment, I would ask for help from guidance."

Table 23

Codes for Participants in the "Assigning Other Students in the Class to Support the Integrated Student" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Peer instruction					+		+		2
Establishment of friendship bonds				+		+			2
Creating peer awareness	+							+	2
Team-based activities			+						1
Facilitating networking opportunities		+							1

In terms of supporting inclusive students, teacher candidates stated that they could benefit most from peer support as shown in Table 23. They stated situations such as peer teaching, creating peer awareness, and establishing friendship bonds. The teacher candidate S5 said the following: "For example, a subject that he/she does not understand can be explained with the help of a friend with whom he/she is sincere in class, thinking that he/she can listen to him/her better because he/she is more sincere with him/her." The teacher candidate S8 stated the following sentences about creating peer awareness: "I think it is necessary to announce to the class that the student is an inclusion student before he/she arrives, because when the student arrives, he/she may

exhibit behaviors that may be different from others. For example, he/she may be a very hyperactive child or he/she may have difficulty understanding some topics. May ask too many questions several times. This attracts the attention of other students, and makes them think that he is different, but if I tell the students before the lesson, if I give advice such as, "You have such a special friend coming, but he/she is having a hard time making friends with you", if I can make the students or them aware of this issue, that is if I ask them to help him/her, this time he will be more likely to help him. They will be very interested. "This is how I can warn my class." S3 said, “In fact, we can make them a team together in activities that do not seem like a duty, but in a subtle way. In this way, peer learning is ensured and they support each other.” Thus, the team-based activities code was generated.

Table 24

Codes for Participants in the “Benefits for Assigning Other Students in the Class to Support the Inclusive Student” Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Positive classroom environment	+	+	+		+			+	5
Peer instruction					+		+		2
No harm				+	+	+			3
Increased awareness								+	1
Development of communication skills						+			1
Opportunities for Mutual Acquaintance							+		1

When asked about the benefits of these situations within the framework of the approaches they expressed, they stated that a positive classroom environment would be created as shown in Table 24. Teacher candidate S8 stated the following on this subject: “The benefit is that it allows students to think. It makes them aware. When an inclusion student comes, it allows them to show their interest in the inclusion student and can make the inclusion student feel like they belong to the class. Teacher candidate S6 explained this situation as follows: “In other words, they communicate with each other better in terms of their benefits. Both types of students have the opportunity to

get to know each other better.” S6 said, “They communicate with each other better in terms of their benefits. All students, also have the opportunity to get to know each other better.” Development of communication skills code was created.

Table 25

Codes for Participants in the "Disadvantages of Assigning Other Students in the Class to Support the Inclusive Student" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Peer bullying		+	+				+	+	4
Positive discrimination	+								1

The “disadvantages of assigning other students in the class to support the inclusive student” category are given in Table 25. Regarding the drawbacks of assigning support, the teacher candidate S8 stated the following: “As a disadvantage, it is a bit difficult to explain some children. Therefore, after mentioning this before, situations of making fun of the student may arise, and of course, we do not want this. “I would say this was a negative.” The teacher candidate S2 made the following statements regarding the peer bullying code: "As for the harms, maybe if the normal students are mainstream students, and they are younger, they may act in an action that will offend him/her, maybe about one of his/her characteristics. Maybe there was a misunderstanding. Therefore, this may be its disadvantage.”

For the positive discrimination code, teacher candidate S1 expressed this situation as follows: "But the harm of this is that, students who know that their friends are in such a situation may behave more negatively instead of behaving well, or they may think that our teacher loves them more, and get more reactions towards that student." On the other hand, it may cause other students to feel a little upset. Our teacher doesn't treat us like this, he/she treats him/her preferentially, he puts us in more rules, but he doesn't pay attention to him/her. If we don't react when he doesn't follow the rules, they may say something like that. "He/she gets angry at us for the prohibitions, but when he does it, they may think that we don't say anything to him/her, and react to the teacher."

Table 26

Codes for Participants in the "Inclusive Students' Motivations towards the Course" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Entertaining activities			+		+	+	+	+	5
Supportive expression	+	+	+					+	4
Peer interaction					+	+			2
Reward-punishment method				+					1
Directing to areas of interest		+							1

When teacher candidates were asked how they could motivate students in inclusive education, they stated that they would organize entertaining activities the most as shown in Table 26. At the same time, they stated that they would motivate inclusion students with supportive expressions. The teacher candidate S3 expressed these two situations as follows: “It could be like this: For example, I see it all the time in class that, they do not participate very much in class. Entertaining activities can be done to encourage them to participate in the class, and apart from these entertaining activities, it is necessary to encourage them to participate in the class, and then give positive feedback. The more positive feedback he/she receives, the better he/she feels, and sees that he/she can succeed.” The teacher candidate S6, included in the entertaining activities code, stated the following: “Actually, I think we can establish more communication between students by organizing activities both in and outside the classroom. In other words, if there are question activities during the course, that is, question competitions, each group can be divided into separate groups of four or five people, and better communication can be achieved by including the inclusion of students in these groups. Even if there are activities outside the classroom, I think that a student will have a better communication problem if he/she participates in any of the game activities.” S4 said, “We can use rewards and punishments. We can reward her/him.” Thus, reward-punishment method code was generated.

Table 27

Codes for Participants in the Category of Pre-lesson Preparations

Table 27 continued

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Course materials	+						+		2
Layout of the classroom environment			+		+				2
Preparing a lesson plan								+	1
Experiment							+		1
No idea						+			1
Raising awareness of classmates					+				1
Communication with parents				+					1
Group activities			+						1
Learning about interests		+							1
Arouse curiosity	+								1
Learning their readiness	+								1
Learning their goals					+				1

When asked about the preparations that could be made before starting the training, teacher candidates stated that they would mostly use course materials and the layout of the classroom environment as shown in Table 27. The teacher candidate S1 expressed this situation as follows: "If such an experiment is required in the course or if materials need to be designed, students can be helped in obtaining the necessary materials if the student needs to design them." Regarding the layout of the classroom environment, teacher candidate S3 stated the following: "Before starting the education, the classroom environment must first be in an orderly shape. "The classroom environment should be arranged according to the activity to be done." S8 said, “Before starting the training, a lesson plan, course schedule, and course schedule are created. A plan is made to ensure that the activities to be carried out go together with the curriculum.” In this way the preparing a lesson plan code was generated.

Table 28

Codes for Participants in the "Studies Conducted to Interact with Students in the Classroom" Category

Table 28 continued

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Group studies			+		+	+	+	+	5
Group assignments			+						1
Extracurricular social activities	+			+		+			3
Collaborative learning								+	1
Common interests		+							1
Research assignments								+	1
Experiment			+						1

It has been said that group studies are the most common activities that can be implemented in the classroom for inclusive students as shown in Table 28. Teacher candidate S5 expressed this situation as follows: "While explaining a topic, working methods can be done in groups. When studies are done in groups, that person will spend more time with other peers. Moreover, that student will receive information about the course. "I also think that student will have spent more time with his/her friends." S3 said for the group assignments and experiment codes, “Group assignments can be given together. In addition to group assignments, environments can be prepared where they can do activities together. For example, they can experiment together, a simple experiment, an experiment they can do. They both enjoy and spend time together.”

Table 29

Codes for participants in the category "Work done to prepare other students in the class for inclusion"

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Raising awareness of other students	+	+	+		+	+			5
Include in group work								+	1
Experiment							+		1
Extracurricular activities	+			+					2

They emphasized that other students should be made aware of the issue of adapting, and preparing other students in the class for inclusion practice as shown in Table 29. Teacher candidate S3 explained this situation as follows: "I think the other students in the class should be informed about inclusion first. Because most students look at it from a slightly different perspective when we say inclusion. In fact, they cannot understand that he/she is also a child. That's why I think awareness should be raised first." The teacher candidate conveyed as follows. Teacher candidate S8 said about including them in group work: "They can help each other again." One student is given a task to teach another student. For example, you will explain any topic to your other friend. That student prepares for the other teacher, and tries to explain it to him/her. He/she helps his/her friend when he/her has difficulty. "He/she can do these things." transferred as. The teacher candidate S4 stated that he/she could include extracurricular activities as follows: "I can ensure that they spend weekends together. I can help them engage in such social activities. For example, I could organize a football match together or take them to a movie." S8 said for the include in group work code, "Collaborative learning can be done to enable interaction with other students. Activities related to socio-scientific issues can be held together. Research assignments may be given." S7 said, "For example, experiments can be prepared. He/she can be assigned there together with her/his other friends in the same group. This would be good for both her/him and her/his group mates." The experiment code was created.

Table 30

Codes for Participants in the "Problems Encountered in Adapting to the Inclusive Student by Other Students in the Class" Category

Codes	S1	S2	S3	S4	S5	S6	S7	S8	f
Peer bullying	+	+	+			+		+	5
Communication problems							+	+	2
Positive discrimination					+		+		2
Lack of empathy								+	1
No idea				+					1

Peer bullying was mentioned the most among the problems that may be encountered in the adaptation of other students in the class to mainstreaming students

as shown in Table 30. The teacher candidate S1 expressed this problem with the following words: “At first, an integrated student may not be accepted because he or she is different. For example, they may not be included in the games. They can tell him/her: “You can't play. You do not know. You don't follow the rules as it can be excluded. Then, he/she may be underestimated. He/she can be mocked: You don't know, you can't do it. Something different could also be said. They may attribute it to his/her family as something that originates from their family. Things like, your mother and father don't know, they can't do it" can be said. Bad things can be said, such as "Your grades are bad, you don't know anything anyway." The teacher candidate coded S8 explained the same problem as follows: "Students may exclude students because they are different from other students, that is, they are different in terms of attitude, and movement.”

CHAPTER V

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

This study has been aimed to examine the emotions, attitudes and, concerns of science teacher candidates regarding inclusive education by researchers. The conclusions are divided according to the topics obtained from the research questions. The research findings are outlined below.

5.1. Conclusions of Gender Variable

According to the results of the normality analysis in line with the quantitative findings, no significant difference was found when examining the emotions, attitudes, and concerns of science teacher candidates towards inclusive education based on the gender of the participants. Both male and female science teacher candidates may share similar educational backgrounds and levels of consciousness. Consequently, there may be no discernible differences between genders concerning emotions, attitudes, and concerns. Additionally, the absence of significant disparity could be attributed to the absence of distinct emotional and attitudinal variations based on gender expectations. There are also studies asserting that gender does not significantly impact attitudes toward inclusive education (Kuyini & Mangope, 2011; Okyay et al., 2016). Therefore, it can be concluded that there were no significant differences between male and female science teacher candidates in terms of their emotions, attitudes, and concerns toward inclusive education. Diverse researchers obtained similar results (Balbağ et al., 2021; Başkonuş & Öztürk, 2023; Forlin et al., 2007; İnceler & Özder, 2020; Özbaba, 2000; Şenol & Yaşar, 2020).

5.2. Conclusion of Interacting with Individuals with Special Education Needs

The emotions, attitudes, and concerns of teacher candidates towards inclusive education did not exhibit a significant difference between the total scores obtained from the scale for those who interacted with individuals with special education needs and those who did not. There may be science teacher candidates who lack sufficient knowledge and skills related to special education. The inadequacy of training programs

in adequately covering special education subjects may limit candidates' ability to receive proper training in this field. As a result, they may not fully comprehend the reasons behind their positive or negative attitudes toward working with individuals with special education needs. Therefore, it has been observed that the perspectives towards inclusive students are similar among participants who interact with individuals with special education needs and those who do not. However, the study conducted by Ahsan et al. (2013) concluded that teacher candidates who engage with individuals with special education needs exhibit positive perspectives toward inclusive education. In the study by Carroll et al. (2001), it was observed that teacher candidates who had interactions with individuals with disabilities expressed sympathy towards them, yet concurrently harbored fears of potentially acquiring disabilities themselves. Contrary to this result, the study by Tuncay and Kızılaslan (2022) concluded that teacher candidates who interacted with students in need of special education had more positive perceptions than those who did not interact with them.

5.3. Conclusion of Receiving Training on Special Education

The emotions, attitudes, and concerns of the science teacher candidates towards inclusive education was examined in terms of their receiving training on special education, among those who said they had no education and those who said they had some education. It was concluded that there was no significant difference between the scores of the participants who received no training on inclusive education and the participants who received some training. Differences in education between participants who stated they had no education and those who mentioned having some education may be related to factors such as the content, quality, or duration of the training programs. Unless there is similar content and effectiveness among training programs, significant differences may not emerge among participants. A similar result was obtained in the study conducted by Diken and Sucuoğlu (1999). Contrary to this result, studies show that the attitudes of teacher candidates who took courses on special education and inclusive education were more positive than those who did not (Aker, 2014; Bek et al., 2009; Gözün & Yıkmış, 2004; Mertoğlu et al., 2020).

5.4. Conclusion of Knowledge of Local Legislation and Policies Regarding Children in Need of Special Education

The emotions, attitudes, and concerns of the science teacher candidates towards inclusive education were examined in terms of their knowledge of local legislation and policies regarding children in need of special education, those who had no knowledge, and those who had some moderate knowledge. It was observed that there was no significant difference between the scores of the participants who marked not at all, somewhat and moderate levels. There may be heterogeneity among individuals within groups. An overall meaningful difference may not be detected because different individuals within the group have different levels of knowledge, experience or attitudes. In this regard, it was concluded that there were no differences in the emotions, attitudes, and concerns of science teacher candidates regarding inclusive education in terms of their knowledge of local legislation and policies. Similar results were also obtained by researchers working on the relevant subject (Sokal et al., 2013).

5.5. Conclusion of Self-Confidence in Teaching Students in Need of Special Education

The emotions, attitudes, and concerns of the science teacher candidates towards inclusive education were examined among those with low, medium, and high self-confidence in teaching students in need of special education. It was observed that there was a significant difference between the scores of science teacher candidates with low, medium, and high levels of self-confidence. Differences in self-confidence among teacher candidates may be affected by the content, structure, and quality of the training programs they attend. Different training programs can give candidates different levels of self-confidence. Sharma et al. (2003) stated that increasing teacher candidates' confidence in teaching disabled students reduced their concerns on this issue.

5.6. Conclusion of Experiences in Teaching Students in Need of Special Education

The emotions, attitudes, and concerns of the science teacher candidates towards inclusive education were examined those with experiences in teaching students in need of special education were examined among those who said they had no experience and those who said they had some experience. It was observed that there was no significant difference between the scores of science teacher candidates who said "I have no

experience" and "I have some experience". Thus, it was concluded that teacher candidates' emotions, attitudes, and concerns towards inclusive education did not differ. If the education programs for science teacher candidates do not adequately cover inclusive education or if there are differences in this regard, there may not be a significant difference between the candidates. Contrary to the findings of this study, some previous studies have indicated a significant difference in the attitudes of teacher candidates based on their experience. These studies concluded that teacher candidates with prior experience exhibited more positive attitudes (McLeskey et al., 2001; Mertoğlu, 2018).

5.7. Opinions of Science Teacher Candidates Towards Inclusive Education

The opinions of science teacher candidates were taken before taking the 'Special Education and Inclusion' course. When they began to work as teachers, the situation of having inclusion students in the classroom was positively received from the point of view of each teacher candidate. This means that the teacher candidates have a positive view of integration education and the integration of student (Carnell & Tillery, 2005; Richards & Clough, 2004). When asked why they wanted it they stated that it would raise the awareness of other students in the class and integrate students into society. This depiction refers to the inclusion of student's adaptation to the classroom environment and effective participation in the educational process. From the perspective of teacher candidates, they asserted that the inclusion of students with diverse needs in their classrooms would contribute to their teaching experience. Mason (2000) concluded that, as a result, individuals who do not engage with someone with special educational needs and lack experience in this regard maintain their stereotypical thoughts and judgments in the same manner. When they start working as teachers, they stated that this would provide them with professional development in terms of the advantages of having inclusive students in their classes. They also stated that their prejudices would be overcome. In terms of the disadvantages of having inclusive students in their classrooms when they start working as teachers, they express concerns that other students may feel alienated from the lesson, perceive inequality, and face communication challenges with their peers in the classroom environment. From the point of view of the teachers, emphasized potential challenges such as spending extra time, difficulties in classroom management, increased fatigue, and

concerns about the perception of inequality. Goodnough (2000) stated that the reason why teacher candidates have difficulties in classroom management is that they are unprepared in this regard. It can be thought that some of the difficulties experienced by teacher candidates in inclusive classrooms may arise from the lack of inclusive education and preparation. For this reason, the need to prepare teacher candidates for inclusive education and strengthen their knowledge and skills on this subject can be emphasized. In addition, it is important to develop strategies that focus on training teacher candidates so that the advantages of inclusive classrooms can be better evaluated and their disadvantages can be reduced.

When questioned about the adequacy of the current education plan, the majority of science teacher candidates expressed that they did not find it sufficient. In addition to teacher candidates who did not have knowledge of this subject, there were also those who emphasized that this education varies depending on the education level of the schools and that term plans are not followed sufficiently. Additionally, there was an emphasis on the need to increase special education courses in education faculties. In their study, Kardeş and Taşkın (2020) stated that teacher candidates who had special education courses at the faculty of education were effective in having a positive attitude towards individuals with special education needs. Tait and Purdie's (2000) study did not find a significant relationship between the duration of special education courses and teacher candidates' attitudes. Forlin and Chambers (2011) reported in their study that teacher candidates who completed a special education course were more willing to include students with disabilities in their classrooms, however, their concern levels increased after completing the course. The fact that most teacher candidates stated that they did not find the current education plan sufficient reveals the need to review the education plans. In particular, the emphasis on the need to increase special education courses indicates the importance and need for education faculties regarding special education.

It was emphasized that the guidance services should be increased to provide additional support service training for students participating in the inclusion practice. In addition, assigning additional assignments to students, increasing support, and providing information about the lessons have also been emphasized. They have also emphasized the necessity of having special education teachers in schools, giving importance to in-class activities, and increasing special education courses in education faculties. According to this idea, all the teacher in the school may be cooperated

together for the students with special needs. The similar result was stated by Henning and Mitchell (2002). They reported that attitudes toward students with exceptional learning needs to be improved by collaborating with both general education and special education teachers on curriculum matters.

Science teacher candidates' thoughts about how the physical environment of the classroom should be in classes with inclusive students were mostly that they should take into account the seating arrangement according to disabilities. In this situation, the teacher candidate coded as S1 stated the following: “There needs to be an environment where the teacher and their friends can communicate. Of course, if there is a physical disability, the class should be organized taking that into consideration.” With this statement, S1 not only emphasizes the importance of the seating plan with regard to disabilities but also highlights the need for an appropriate communication environment. Science teacher candidates also stated that inclusive education should have a comfortable space of movement in the classroom environment, that there should be a classroom layout that can be easily changed according to the student's disability, and that appropriate course materials should be preferred. In addition, there was also a teacher candidate who stated that the classical classroom environment was sufficient. Golmic and Hansen’s (2012) study stated that all teachers are expected to provide the necessary services for every student to succeed. Therefore, they should cultivate collaborative, supportive, and nurturing classroom environments.

When questioned about mainstreaming students in their classrooms, science teacher candidates emphasized that a crucial aspect of the physical classroom environment is to arrange for these students to sit in the front rows. They believe that this seating arrangement not only facilitates better engagement and communication but also allows for closer monitoring and support for students with diverse learning needs. In addition, the prevailing response from science teacher candidates was a preference for creating a seating arrangement that fosters inclusivity and enables students to sit together with their friends. This approach, they believe, not only enhances social interaction but also contributes to a positive and supportive classroom atmosphere. They also stated that a U-shaped seating arrangement could be created. Furthermore, they also stated that they would create a seating arrangement that would provide easy movement space for the inclusion students. Based on the responses to the seating arrangement according to the friend relations and disability, we can conclude that the science teacher candidates care about the disabilities of their inclusive students and are

interested in ensuring that they are together in a friendly environment. In their 2004 study, Gözün and Yıkmış (2004) emphasized that the success of inclusive education is contingent upon the correct provision of the physical classroom environment, communication, and interaction. They underscored the importance of collaboration among teachers, administrators, and families in contributing to this success. The emphasis on the development of inclusive education environments appears crucial. Moreover, the inclusion of the perspectives of teacher candidates can significantly enhance the content and preparation of teacher education programs focusing on inclusive education.

In considering the impact of the time allocated to inclusion students on other students, the predominant sentiment expressed by teachers was the concern about the potential perception of positive discrimination among other students. In this regard, there was a recognition that other students might develop expectations for increased attention. Consequently, the prevailing perception among science teacher candidates is that this situation could have a negative impact on the overall experience of other students in the class. Alghazo et al. (2003) concluded that teacher candidates harbor negative attitudes toward students with disabilities. Avramidis and Norwich (2002) supported this interpretation, and suggested that attitudes of less experienced teachers tend to be quite negative. Enhancing the competency and self-sufficiency of teacher candidates in inclusive education can increase their capacity to navigate challenges.

The responses regarding the impact of the time allocated to the inclusion of students in the classroom atmosphere predominantly focused on challenges in classroom management, along with acknowledging its potential positive impact. Based on their responses, it can be concluded that science teacher candidates have a positive perception of inclusive education, as well as concerns about the problems they may experience in classroom management. A similar outcome was observed in a study conducted with preschool teacher candidates by Kızılaslan and Durukan (2022). Additionally, Gee's (2001) study underscored that facing challenges in establishing classroom dominance is a significant issue for both teacher candidates and experienced teachers. In this context, the fact that teacher candidates have a positive attitude towards inclusive education, but at the same time state that they may experience difficulties with classroom management, indicates that teacher training programs can be prepared more effectively in these areas and strategies can be developed to help teachers cope with these difficulties.

Moreover, they stated in the answers that there is a general perception that it will have a negative impact, that positive discrimination thoughts may develop in other students, and that it may cause concentration problems and distractions in students. In the findings of Kızılaslan and Durukan's (2022) study, in which the opinions of preschool teachers were taken, the code of attention deficit was seen in the child. It can be concluded that science teacher candidates, who expressed their thoughts that solidarity and happiness in the classroom would increase, thought that a more positive learning environment would be created in the classroom. Likewise, the study conducted by Horzum and Izci (2018) with Turkish teacher candidates also incorporated statements from participants expressing their commitment to fostering solidarity within the classroom. Teacher candidates' perceptions and expectations of the classroom atmosphere play an important role in creating classroom relationships and the learning environment. Solidarity, happiness, and a positive learning atmosphere can positively impact students' success and learning experiences. Therefore, these evaluations of teacher candidates should take into account the importance of developing classroom management strategies.

They responded that the presence of an inclusion student in the classroom has mostly negative effects on classroom rules. On this subject, teacher candidate coded S1 stated the following: “Inclusion students may not be able to take on these responsibilities. Even if the mainstreaming student says "Okay, I will do it", he/she may forget or ignore these things out of excitement at the moment, or because he/she cannot think, to act on equal footing with his/her friends, or to attract attention. But, as with other students, we can eliminate these problems by saying that student several times that this is wrong and that he should not do this, and by offering him things like "you should not do this" a little more before the lesson. But as I said, it can cause trouble.” The teacher candidate coded S3 gave the following answer in this regard: “Classroom rules can be loosened a little. For example, there may be some children with attention deficit. They also take them into classes as inclusive students. Because they have a lot of impulsivities, they can stand up suddenly. “Other students want to see and do this, too.” A similar result is also seen in Horzum and Izci’s (2018) study. Therefore, it can be inferred that science teacher candidates perceive the presence of an inclusion student as potentially leading to a general loosening of classroom rules. They believe that this situation may impact other students, while simultaneously

posing challenges for teacher candidates in classroom management. An inclusive approach may be adopted in the process of determining and implementing classroom rules and being sensitive to the various needs of students. This implantation is supported by the other researchers (Loreman et al., 2005). The development of teacher training programs and classroom management strategies may be developed to decrease the teacher candidates' this concern. Similar result was proposed by Çakmak (2008).

When science teacher candidates were asked how they would deal with the problems that may arise in case of this negative impact, they stated that they would mostly give verbal warning and there would be an increase in this. Teacher candidate coded S8 said, "For example, if I react to any student who is late, I should react the same way to an inclusion student or I should warn the students at the beginning about what they should and should not do, and then expect it from them or I can serve as a positive example to them as a teacher. I should never come to class or I should be on time. Then, the order of my books, not leaving my guard post. I can show these behaviors to students or I can talk about every time a student comes to me. In the same way, I can serve as a positive example for the mainstreaming student" They also expressed situations such as treating students equally, guidance service support, assignments, rule reminders, rule reminders before class, communicating with parents, peer awareness, observation, and communication with the classroom teacher. These various strategies show how pre-service teachers can approach and solve the problems they may encounter in inclusive education. Therefore, it can be concluded that teacher candidates can improve their practical skills, increase their ability to manage effective classrooms, and cope sensitively with students' needs.

The most common statements about assigning other students in the class to support the inclusion student were peer instruction, creating peer awareness, and establishing friendship bonds. In addition, they stated these codes, "team-based activities", and "facilitate networking opportunities" through teamwork. Based on these statements, it was seen that science teacher candidates emphasized the importance of receiving the support of other students in inclusive education. Peer instructions play a crucial role in fostering better integration among students with diverse needs in inclusive education classes, contributing to a more positive learning experience. It can be inferred that science teacher candidates also place significant importance on the role of peer support in the inclusive classroom environment. For the

benefits of assigning other students in the classroom to support the inclusion students, teacher candidates most responded to a positive classroom environment. In this regard, teacher candidate coded S8 said: “The benefit is that it allows students to think. It makes them aware. "When the inclusive student comes, it allows them to show their interest in the mainstream student and make the inclusive student feel like he/she belongs to the class." There is no harm, peer instructions, increased awareness, development of communication skills, and opportunities for mutual acquaintance are other codes. It can be concluded that science teacher candidates are aware of inclusive education and that they are aware of the need to successfully educate students with different needs in the classroom environment. In their study with teachers and teacher candidates, Akman et al. (2018) found that they reached similar results with this study, such as the socialization of the inclusive student, being together with their peers, and the development of their peers' empathy skills.

The most common answer to the harms of assigning other students in the class to support the mainstreamed student was peer bullying, followed by positive discrimination. The teacher candidate coded S2 expressed this situation as follows: “The harms are that if the inclusive student is younger than other students, they may act in a way that will offend them about a characteristic of the mainstream student.” Therefore, science teacher candidates focused on the bullying of students who were not aware of inclusive education in the classroom towards inclusion students. It can be said that science teacher candidates, who can foresee this in advance, will have the possibility of preventing this negative situation since they have this awareness when they start working. In Köse's (2017) study with science teachers, it was also stated that other students in the class could bully the inclusion student.

The answer to motivating inclusive students towards the course is entertaining activities. Science teacher candidates have a high level of perception that by making the science lesson more fun, inclusive students can be motivated towards the lesson. Hence, the students with specials needs can be encouraged to join the lesson via the activities. Gün and Zorluoğlu’s study (2023) a similar result was also observed. Besides, it was observed that many teacher candidates responded that they would use supportive expressions. The teacher candidate coded S3 expressed these two situations as follows: “Entertaining activities can be done to encourage them to participate in the class, and apart from these activities, it is necessary to encourage them to participate in the class and then give positive feedback. The more positive feedback the inclusive

student receives, the better he/she feels and sees that he/she can succeed." In addition, the following codes were created according to the answers of science teacher candidates for this situation; peer interaction, reward-punishment method, and directing to areas of interest. Therefore, it was observed that they were aware of the importance of peer support while motivating the inclusive student for the lesson, and also touched upon the importance of identifying their interests. It has been observed that science teacher candidates believe in the efficacy of the reward-punishment method to encourage and motivate inclusion students, particularly at points where they demonstrate success.

It was observed that the answers regarding what kind of preparations would be made before starting education for the inclusive student and other students in the class were given at almost the same rate. The codes created are as follows: course materials, layout of the classroom environment, preparing a lesson plan, experimenting, no idea, raising awareness of classmates, communication with parents, group activities, learning about interests, arousing curiosity, learning their readiness, learning their goals. The findings show that science teacher candidates pay special attention to the preparation of course materials and the organization of the classroom environment. A similar emphasis was observed on creating lesson plans and providing students with interactive learning experiences. This reflects the willingness of teacher candidates to try to tailor the course to student needs. The findings show that some science teacher candidates have a lack of knowledge. This highlights opportunities for teacher training and a better understanding of student needs. Raising awareness among classmates and communicating with parents also play an important role. In this respect, it seems that science teacher candidates, other students in the inclusion class, and their families are aware of the importance of supporting students with special needs. It has been observed that teacher candidates perceive that organizing group activities for students can help them discover their interests and arouse their curiosity. At the same time, it was observed that teacher candidates believed that it was important to understand students' individual goals and readiness. In line with the findings, it can be concluded that science teacher candidates aim to provide a better education to inclusive students and other students and are willing to develop student-centered teaching strategies. In their study also it can be concluded that science teacher candidates are conscious and willing about the learning styles of individuals in need of special education. Mastropieri et al. (1992) stated that mentally disabled individuals were placed at the

center and that they learned more easily when there were many visual and concrete activities.

The codes created for activities that can be done to enable inclusion student(s) to interact with other students in the classroom are as follows; group studies, group assignments, extracurricular social activities, collaborative learning, common interests, research assignments, and experiments. The majority of teacher candidates positively evaluate group work and group assignments for encouraging interaction between inclusive students and other students. This approach can contribute to students' development of collaboration skills. Science teacher candidates think that extracurricular social activities are an effective method to increase social interaction between inclusive students and other students. The teacher candidate coded S4 explained this code as follows: "I can arrange for them to spend weekends together and help facilitate social activities. For instance, I could organize a football match or take them to a movie." Science teacher candidates think that collaborative learning strategies will increase the interaction between inclusive students and other students. This approach has the potential to foster mutual learning among students. Identifying common interests can make it easier for students to interact on similar topics. Science teacher candidates support students in discovering their common interests and interacting in these areas. It has been observed that teacher candidates positively evaluate research projects and experiments that can help inclusive students and other students develop their scientific thinking and research skills. It can be concluded that science teacher candidates adopted different approaches to increase the interaction between inclusive students and other students.

The codes created for the problems that may occur in the adaptation of other students in the class to the mainstreaming student are as follows; peer bullying, communication problems, positive discrimination, lack of empathy, and no idea. Science teacher candidates state that peer bullying can be a potential problem among other students in the inclusive classroom. This means that inclusive students may be exposed to undesirable experiences and classroom relationships may be negatively affected. Communication problems indicate that other students may have difficulty communicating with inclusive students. According to teacher candidates, communication barriers may negatively affect classroom communication. Science teacher candidates see the idea of positive discrimination against other students as a situation that may distract them from the lesson. Lack of empathy indicates that other

students may have difficulty understanding the emotional needs of inclusive students. Teacher candidates highlight the importance of fostering empathy among other students as a crucial factor in strengthening classroom relationships. The code 'No idea' may signify the uncertainty of teacher candidates on this matter. This shows that although teacher candidates are aware of these problems, they may be unclear about what approach they should take to address these problems. In Majoko's (2016) study conducted with teacher candidates, it was concluded that the participants had positive attitudes about inclusive education and understood the philosophy of inclusion. On the other, the teacher candidates don't have enough inclusive skills how the students with special needs are accepted by the rest of the student. Therefore, their inclusive skills need to be developed (Mason & Connor, 2022).

The results of the current study show that science teacher candidates have a positive attitude towards inclusive education (Mergler et al., 2016). Participants believe that inclusive education encourages an approach that accepts student diversity and is sensitive to diverse student needs. This supports the idea that more emphasis should be placed on inclusive education in the training programs of teacher candidates. To enhance inclusive education, teacher candidates underscored the importance of raising awareness among other students in the classroom, fostering collaborative learning, and promoting peer support and peer instruction. Therefore, it can be said that science teacher candidates have an awareness of the importance of tolerating differences in society, which is one of the aims of inclusive education.

Some suggestions are included for further steps to be taken in this field.

- The current study was conducted with teacher candidates who were continuing their education in the science teaching department at Erciyes University, Faculty of Education. Future studies to be carried out at different universities and with different teacher candidates can be examined in terms of the effect of the change of department.
- Levels of the emotions, attitudes, and concerns of teacher candidates in different countries about inclusive education can be investigated.
- It is recommended that the programs be rearranged in order to provide science teacher candidates with more knowledge, skills, and experience regarding inclusive education.

- According to opinions of science teacher candidates joining the study is important to provide science teacher candidates with more practical experience in inclusive education. It is recommended to increase practical experiences regarding inclusive education by providing student observation opportunities to university programs, internship periods, and teacher candidates.

GENİŞLETİLMİŞ ÖZET

Bu tez, fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik duygu ve düşüncelerini anlamayı amaçlayan bir araştırmayı temsil etmektedir. Bu amaç doğrultusunda karma bir araştırma yürütülmüştür. Bu çalışma Kayseri ili Erciyes Üniversitesi eğitim fakültesinde fen bilgisi öğretmenliği bölümünde eğitim gören adaylar ile yürütülmüştür. Çalışmanın nicel kısmında 151 fen bilgisi öğretmen adayı yer alırken nitel kısmı için 8 fen bilgisi öğretmen adayı yer almıştır. Katılımcılara daha önce geçerliği ve güvenirliği sağlanmış olan ölçek ve görüşme soruları uygulanmıştır. Ölçekten aldıkları puanlara ve görüşme sorularına verdikleri cevaplara göre analizler yürütülmüştür. Çalışmada fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik olumlu duygu ve tutuma sahip oldukları sonucuna ulaşmıştır. Bunun yanı sıra öğretmen adaylarının kaynaştırma eğitimine yönelik kaygılarının olduğu tespit edilmiştir. Bu nedenle öğretmen adaylarının özel eğitim ile ilgili bilgi ve becerilere sahip olmak için eğitim fakültelerinde bu derslerin artırılması araştırmacı tarafından önerilmektedir.

Öğretmen ve öğretmen adayları sınıflarında kaynaştırma öğrencisi bulunduğunda iletişim, sosyal, akademik yönlerden sorunlar yaşayabilmektedir. Mesleklerinin ilk yıllarında öğretmenler bu konuda daha çok zorlanabilmektedirler (Leblebici ve Türkan, 2021). Öğretmen adayları da bu noktada kendilerini yetersiz hissedebilirler (Stites vd., 2018). Nishimura ve Busse (2016)'a göre öğretmen adayları sınıflarında kaynaştırma öğrencisi bulunma ihtimalini düşündüklerinde bu konuda yeterli bilgi ve tecrübe sahibi olmadıklarını belirtmişlerdir. Bu nedenle kaynaştırma için olumsuz görüşe sahip olduklarını ifade etmişlerdir. Birçok öğretmen adayının kaynaştırma eğitimi hakkında yeterli bilgisi olmadığı ve kaynaştırma eğitimi hakkında yeterli eğitimi almadıkları için bu konuda eksiklerin ve zorlanmaların olduğu görülmüştür (Stites et al., 2018). Özellikle fen bilgisi öğretmen adaylarının özel eğitim yönünden hazırlıklarının ve mesleki gelişimlerinin yeteri kadar desteklenmediğini belirten çeşitli çalışmalar yer almaktadır (Kang ve Martin, 2017; McCray ve McHatton, 2011).

Fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik duygu ve düşüncelerini araştırmak, bu alandaki eğitim ve öğretim süreçlerinin etkili bir şekilde tasarlanması için önemli bir gerekliliktir. Bu çalışma, fen bilgisi öğretmen adaylarının

kaynaştırma eğitimi hakkındaki görüşlerini almak duygu ve düşüncelerini anlamak, ihtiyaçlarını belirlemek ve bu alandaki potansiyel gelişim alanlarını ortaya koymak amacıyla gerçekleştirilmiştir. Böylece, öğretmen adaylarının mesleki yetkinliklerini artırmaya ve kaynaştırma eğitimine katkı sağlamaya yönelik stratejiler geliştirilmesine katkı sağlayacağı düşünülmüştür.

Eğitim her bireyin hakkıdır. Engelli bireylerin de eğitiminin önemsenmesi önemlidir. Bu, onları yetiştirecek öğretmenlerin sayesinde olacaktır. Günümüz eğitim sistemleri, farklı öğrenme ihtiyaçlarına sahip öğrencilere eşit ve adil bir eğitim sunmayı hedeflemektedir. Bu bağlamda, kaynaştırma eğitimi, özel gereksinime sahip öğrencilerin genel eğitim ortamında yer almasını ve toplumsal katılımını teşvik eden bir yaklaşım olarak önem kazanmıştır. Fen bilgisi öğretmen adaylarının kaynaştırma eğitimi hakkındaki duygu ve düşüncelerini inceleyen bu çalışma, eğitim sisteminin ve öğretmen yetiştirme programlarının önemli dönüşümüne nasıl katkı sağlayabileceğine dair değerli içgörüler sunabilir.

Fen bilgisi öğretmen adaylarının, kaynaştırma eğitimi hakkındaki duygu ve düşüncelerini görmek ve anlamak, onların mesleki hazırlık sürecine değerli katkılarda bulunabilir. Bu görüşler, öğretmen adaylarının kaynaştırma uygulamalarına yönelik farkındalığını artırabilir ve onları eğitimde farklılıkları anlamaya teşvik edebilir. Fen bilgisi öğretmen adaylarının kaynaştırma eğitimi hakkındaki görüşlerinin anlaşılması, bu öğretmenlerin kaynaştırma sınıflarında çalıştığında öğrenci başarısını nasıl etkileyebileceğini anlamamıza yardımcı olabilir. Bu sayede, öğrencilerin öğrenme deneyimleri daha etkili hale getirilebilir. Kaynaştırma eğitimi, toplumsal katılımı ve kaynaştırma öğrencisini topluma dahil etmeyi teşvik eder. Fen bilgisi öğretmen adaylarının kaynaştırma eğitimi hakkındaki görüşleri, toplumsal katılımın nasıl güçlendirilebileceği konusunda önemli ipuçları sunabilir. Fen bilgisi öğretmen adaylarının kaynaştırma eğitimi hakkındaki görüşleri, mevcut fen eğitimi yaklaşımlarını zenginleştirebilir ve dolayısıyla öğretmenlerin profesyonel gelişimine katkı sağlayabilir.

Fen bilgisi öğretmen adaylarının kaynaştırma eğitimi hakkındaki duygu ve düşünceleri eğitim politikalarının ve öğretmen yetiştirme programlarının şekillenmesinde önemli bir rol oynayabilir. Elde edilen sonuçlar, kaynaştırma eğitimi konusunda yapılan eğitim içerikleri ve yöntemlerinin etkinliğini değerlendirmeye yardımcı olabilir. Fen bilgisi öğretmen adaylarının kaynaştırma eğitimi hakkındaki duygu ve düşüncelerini belirten bu çalışma, eğitim sistemini daha kapsayıcı ve etkili

hale getirme çabalarına destek sağlamaktadır. Öğretmen adaylarının kaynaştırma eğitimiyle ilgili lisans eğitimleri boyunca daha fazla bilgi edinmelerini desteklemek ve bu sayede kaynaştırma eğitimi konusunda daha yetkin, hazırlıklı, duyarlı, farkındalığı yüksek öğretmenlerin yetişmesine katkı sunacağı düşünülmektedir.

Bu tez çalışmasının temel amacı, fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik duygu ve düşüncelerini derinlemesine araştırmak ve anlamaktır. Kaynaştırma eğitimi, farklı öğrenme ihtiyaçlarına sahip öğrencilerin genel eğitim ortamında yer almasını teşvik eden önemli bir yaklaşımdır. Öğretmen adaylarının bu konudaki görüşleri, gelecekteki öğretmenlerin kaynaştırma uygulamalarını daha etkili bir şekilde yönlendirmelerine yardımcı olabilir.

Araştırmamızın sonuçları, fen bilgisi öğretmen adaylarının kaynaştırma eğitimine yönelik olumlu bir tutuma sahip olduklarını göstermektedir. Katılımcılar, kaynaştırma eğitiminin öğrenci çeşitliliğini kabul eden ve farklı öğrenci ihtiyaçlarına duyarlı bir yaklaşımı teşvik ettiğini düşünmektedirler. Bu durum, öğretmen adaylarının eğitim programlarında kaynaştırma eğitimine daha fazla vurgu yapılması gerektiği fikrini desteklemektedir. Kaynaştırma eğitiminin iyileştirilmesine yönelik öğretmen adaylarının sınıftaki diğer öğrencilere bu farkındalığı kazandırmanın, iş birlikli öğrenmeyi ve akran desteğini sağlamanın önemini vurgulamışlardır. Dolayısıyla kaynaştırma eğitiminin amaçlarından olan toplumda farklılıkları hoşgörü ile karşılamanın önemi hakkında bilince sahip oldukları söylenebilir.

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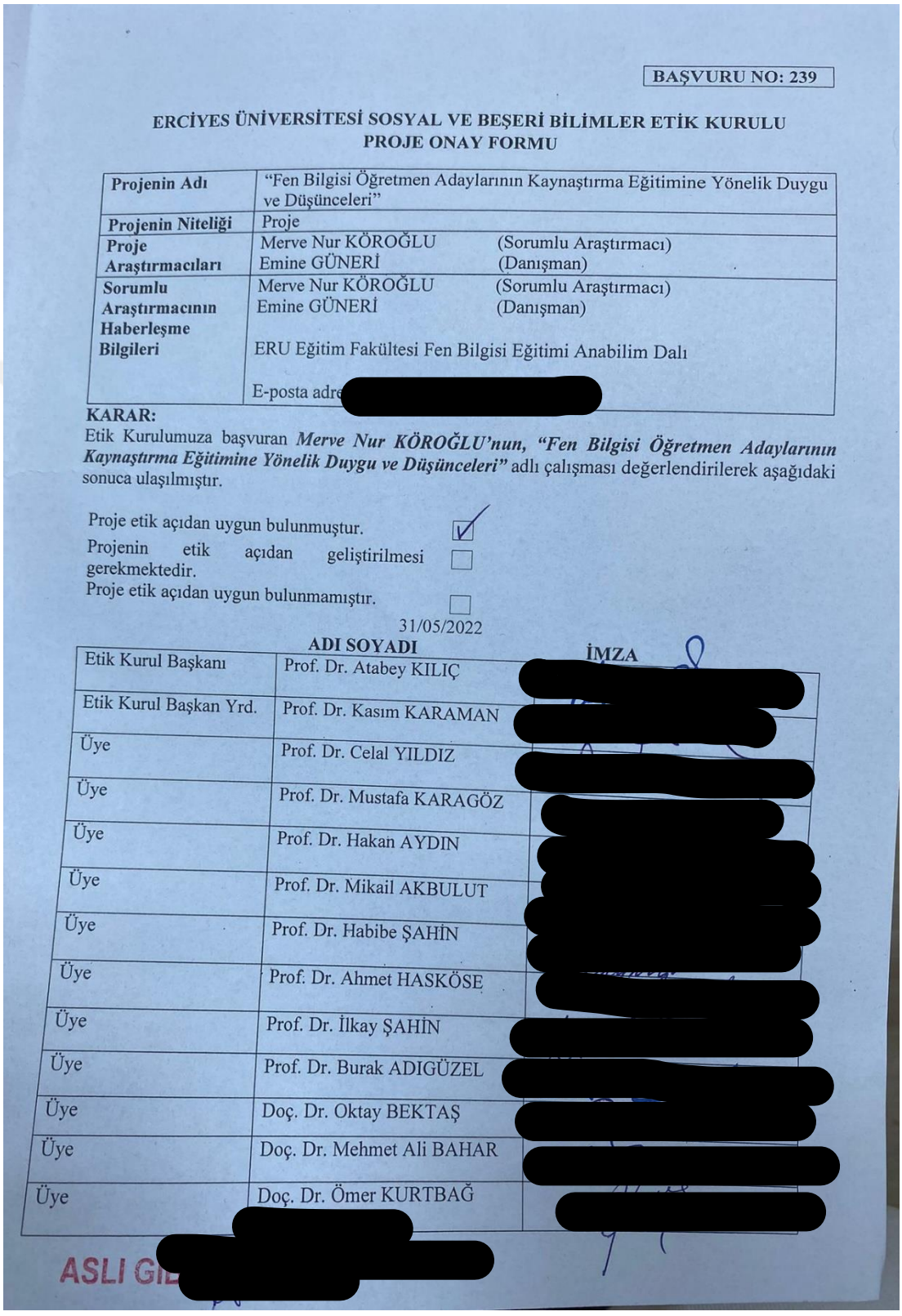
APPENDICES

APPENDIX 1: Ethics Commission Approval Notification



BAŞVURU NO: 239

ERCİYES ÜNİVERSİTESİ SOSYAL VE BEŞERİ BİLİMLER ETİK KURULU PROJE ONAY FORMU

Projenin Adı	"Fen Bilgisi Öğretmen Adaylarının Kaynaştırma Eğitimine Yönelik Duygu ve Düşünceleri"
Projenin Niteliği	Proje
Proje Araştırmacıları	Merve Nur KÖROĞLU (Sorumlu Araştırmacı) Emine GÜNERİ (Danışman)
Sorumlu Araştırmacının Haberleşme Bilgileri	Merve Nur KÖROĞLU (Sorumlu Araştırmacı) Emine GÜNERİ (Danışman) ERU Eğitim Fakültesi Fen Bilgisi Eğitimi Anabilim Dalı E-posta adre[redacted]

KARAR:
Etik Kurulumuza başvuran ***Merve Nur KÖROĞLU'nun, "Fen Bilgisi Öğretmen Adaylarının Kaynaştırma Eğitimine Yönelik Duygu ve Düşünceleri"*** adlı çalışması değerlendirilerek aşağıdaki sonuca ulaşılmıştır.

Proje etik açıdan uygun bulunmuştur. ☑
Projenin etik açıdan geliştirilmesi gerekmektedir. ☐
Proje etik açıdan uygun bulunmamıştır. ☐

31/05/2022

ADI SOYADI		İMZA
Etik Kurul Başkanı	Prof. Dr. Atabey KILIÇ	[redacted]
Etik Kurul Başkan Yrd.	Prof. Dr. Kasım KARAMAN	[redacted]
Üye	Prof. Dr. Celal YILDIZ	[redacted]
Üye	Prof. Dr. Mustafa KARAGÖZ	[redacted]
Üye	Prof. Dr. Hakan AYDIN	[redacted]
Üye	Prof. Dr. Mikail AKBULUT	[redacted]
Üye	Prof. Dr. Habibe ŞAHİN	[redacted]
Üye	Prof. Dr. Ahmet HASKÖSE	[redacted]
Üye	Prof. Dr. İlkay ŞAHİN	[redacted]
Üye	Prof. Dr. Burak ADIGÜZEL	[redacted]
Üye	Doç. Dr. Oktay BEKTAŞ	[redacted]
Üye	Doç. Dr. Mehmet Ali BAHAR	[redacted]
Üye	Doç. Dr. Ömer KURTBAĞ	[redacted]

ASLI GİB[redacted]

a

Adem Ba [redacted]

Alıcı: ben

26 Nis 2022 Sal 15:52

Merhabalar,
Ekte istemiş olduğunuz ölçek yer almakta.
Kolaylıklar diliyorum.
Doç. Dr. Adem Bayar

Merve Nur Körc [redacted] Nis 2022 Sal, 15:20 tarihinde şunu yazdı:

•••

2 ek • Gmail tarafından tarandı ⓘ

W Duygular, Tutuml...

PDF Kaynaştırma_duy...

t

Tuğb [redacted]

Alıcı: be

17 Nis 2022 22:56

Sevgili Merve Nur,

Ekte Doç. Dr. Kemal İzci ile yürttüğümüz "Preservice Turkish Teachers' Views and Perceived Competence Related to Inclusive Education " adlı çalışmada geliştirdiğimiz görüşme sorularını gönderiyorum.

Başarılar dilerim.

Assoc. Prof. Dr. Tuğba HORZUM
Necmettin Erbakan University
Ereğli Faculty of Education
Department of Mathematics and Science Education
Mathematics Education
Ereğli, Konya, Turkey 42310

Doç. Dr. Tuğba HORZUM
Necmettin Erbakan Üniversitesi
Ereğli Eğitim Fakültesi
Matematik ve Fen Bilimleri Eğitimi Bölümü
Matematik Eğitimi
Ereğli, Konya, Türkiye 42310

Kaynaştırma Eğitimi İle İlgili Duygular, Tutumlar ve Kaygılar Ölçeği

Ön bilgi ve son bilginin takip edilebilmesi için lütfen öğrenci numaranızı yazınız. Bu, kişilerin kimliğini saptama amacıyla kullanılmayacaktır.

Lütfen uygun olan yere✔işareti koyunuz.

A. **Öğretmenlik yapmaktayım/ eğitimi almaktayım:**

1. Okul Öncesi _____ 3. Ortaöğretim _____

2. İlkokul/İlköğretim _____ 4. Özel Eğitim _____

B. **Cinsiyet:** 1. Erkek _____ 2. Kadın _____

C. **Yaşınız kaç?**

1. 25 yaş ve altı _____ 3. 36-45 yaş arası _____
2. 26-35 yaş arası _____ 4. 46 yaş ve üstü _____

D. **Öğrenim durumunuz:**

1. Lise mezunu ve dengi _____ 3. Yüksek lisans _____
2. Üniversite mezunu ve dengi _____ 4. Diğer _____

E. **Özel eğitime ihtiyaç duyan bir birey ile anlamlı/kayda değer etkileşimim olmuştur**:

1. Evet _____ 2.Hayır _____

F. **Özel eğitim ile ilgili aşağıda belirtilen düzeyde eğitim aldım:**

1. Hiç ____ 2. Biraz ____ 3. Üst (en az 40 saat) ____

G. **Özel eğitime ihtiyaç duyan çocuklarla ilgili yerel mevzuat ve politikalara dair bilgim:**

1. Hiç ____ 2. Zayıf____ 3. Orta ____ 4. İyi____ 5. Çok iyi ____

H. **Özel eğitime ihtiyaç duyan öğrencilere eğitim verme konusundaki öz güvenim:**

1. Çok düşük ____ 2. Düşük ____ 3.Orta ____ 4. Yüksek ____ 5. Çok yüksek ____

İ. **Özel eğitime ihtiyaç duyan bir öğrenciye eğitim verme tecrübem:**

1. Hiç ____ 2. Biraz ____ 3. Üst (en az 30 tam gün) ____

Aşağıdaki ifadeler normal okullarda akranlarıyla birlikte eğitim alan, farklı geçmişlere ve yeteneklere sahip öğrencileri içeren kaynaştırma eğitimine ilişkindir. Vereceğiniz cevaplar sayesinde mevcut program yeniden düzenlenebilecek veya tamamen değiştirilebilecektir.

Lütfen size en uygun olan cevabı daire içine alınız.

	Kesinlikle Katılmıyorum	Katılmıyorum	Katılıyorum	Kesinlikle Katılıyorum
	1	2	3	4
1	Kaynaştırma öğrencilerinin sınıf arkadaşları tarafından kabul edilmeyeceğine dair endişelerim var.			1 2 3 4
2	Sonunda bir engelli olacağımı düşünmek beni korkutur.			1 2 3 4
3	Düşüncelerini sözel olarak ifade etmekte zorlanan öğrenciler normal sınıf ortamında yer almalıdır.			1 2 3 4
4	Kaynaştırma öğrencisinin bulunduğu bir sınıftaki tüm öğrencilere gerekli özeni gösterme konusunda endişelerim var.			1 2 3 4
5	Özel eğitime ihtiyaç duyan insanlarla iletişimimi olabildiğince kısa tutarım.			1 2 3 4
6	Dikkat eksikliği olan öğrenciler normal sınıf ortamında bulunmalıdır.			1 2 3 4
7	Sınıfımda kaynaştırma öğrencisi olması durumunda iş yükümün artacağını düşünürüm.			1 2 3 4
8	İletişim teknolojilerine (Braille Alfabesi/ İşaret Dili gibi) ihtiyaç duyan öğrenciler normal sınıflarda bulunmalıdır.			1 2 3 4
9	Eğer herhangi bir engelim olsaydı kendimi kötü hissederdim.			1 2 3 4
10	Sınıfımda kaynaştırma öğrencisi olması durumunda daha fazla stresli olacağımı düşünürüm.			1 2 3 4
11	Engelli bir birey ile karşılaştığımda ona bakmaya korkarım.			1 2 3 4
12	Sınavlarda sıkça başarısız olan öğrenciler normal sınıf ortamında bulunmalıdır.			1 2 3 4
13	Ciddi fiziksel engeli olan insanlarla karşılaştığımda yaşadığım ilk şoku atlatmakta zorlanırım.			1 2 3 4
14	Kaynaştırma öğrencilerine eğitim verme konusunda gerekli bilgi ve becerilere sahip olmadığım için endişeliyim.			1 2 3 4
15	Bireyselleştirilmiş eğitim programına ihtiyaç duyan öğrenciler normal sınıf ortamında bulunmalıdır.			1 2 3 4

Türkçe ve matematik öğretmen adaylarının kaynaştırmaya ilişkin görüleri için hazırlanan görüşme formu

1. Sizce kaynaştırma eğitimi olmalı mıdır? Neden?
2. Sizce kaynaştırma eğitimi alan öğrencilerin eğitimi nasıl iyileştirilebilir?
3. Öğretmen olarak atandığınızda sınıfınızda kaynaştırma öğrencisi olmasını ister misiniz?
    a. Neden?
    b. Sınıfınızda kaynaştırma öğrencisi olmasının size avantajları ve dezavantajları neler olabilir?
4. Mevcut kaynaştırma eğitimi uygulamalarının yeterliliği hakkında ne düşünüyorsunuz?
5. Sizce kaynaştırma uygulamasında yer alan öğrenciler ek olarak ne tür destek hizmet eğitimi almalıdır?
6. Kaynaştırma öğrencisi olan sınıflarda sınıfın fiziksel ortamı nasıl olmalıdır?
7. Kaynaştırma öğrenciniz olursa onu dikkate alarak nasıl bir oturma düzeni uygularsınız?
8. Kaynaştırma öğrencisine ayrılan zaman
    a. Diğer öğrencileri nasıl etkilemektedir?
    b. Sınıfın atmosferini nasıl etkilemektedir?
9. Sınıfta kaynaştırma öğrencisinin bulunması sınıf içi kuralların uygulanmasını nasıl etkilemektedir? (Derse vaktinde gelme, parmak kaldırarak konuşma, başkalarının sözünü kesmeme, nöbet görevinin yerine getirilmesi…)
    a. Bu sorunlarla nasıl başa çıkıyorsunuz?
10. Sınıftaki diğer öğrenciler, kaynaştırma öğrencisine destek olmak konusunda nasıl görevlendirilebilir?
    a. Sizce bu yaklaşımın yarar ve sakıncaları neler olabilir?
11. Kaynaştırma öğrenciniz için bireyselleştirilmiş eğitim planı (BEP) hazırladınız mı?
    a. Hazırlık aşamasında kimlerden yardım aldınız? (Rehber öğretmen, özel eğitim öğretmeni gibi)
    b. Bu planı uygularken nelere dikkat ettiniz?
12. Kaynaştırma öğrencilerini öğrenmeye karşı nasıl motive edilebilir?
13. Sınıftaki kaynaştırma öğrencisi ve diğer öğrenciler için eğitime başlamadan önce ne tür hazırlıklar yapılır?
14. Sınıfınızdaki kaynaştırma öğrencisi/lerinin diğer öğrencilerle etkileşimde bulunması için ne tür çalışmalar yapılabilir?
15. Sınıftaki diğer öğrencileri kaynaştırma uygulamasına hazırlamak için ne tür çalışmalar yapılabilir?
16. Sınıftaki diğer öğrencilerin kaynaştırma öğrencisine uyum sağlamasında ne tür sorunlarla karşılaşılabilir?

Dr. Tuğba HORZUM

Dr. Kemal İZCİ

Evrak Tarih ve Sayısı: 10.01.2023-377157

T.C.
ERCİYES ÜNİVERSİTESİ REKTÖRLÜĞÜ
Eğitim Fakültesi Dekanlığı
İdari İşler Birimi

Sayı : E-35312859-044-377157 10.01.2023
Konu : Araştırma İzni (Merve Nur KÖROĞLU)

EĞİTİM BİLİMLERİ ENSTİTÜSÜ MÜDÜRLÜĞÜNE

İlgi : 09.01.2023 tarihli ve 376337 sayılı yazınız

Enstitünüz Matematik ve Fen Bilimleri Eğitimi Anabilim Dalı Fen Bilgisi Eğitimi Bilim Dalı Yüksek Lisans Programı öğrencisi 4050530084 numaralı Merve Nur KÖROĞLU'nun "Emotions And Thoughts Of Candidates Of Science Teachers About Inclusive Education" adlı tez çalışması kapsamında Fakültemizde anket ve görüşme uygulamak üzere izin talebi, çalışmanın araştırmacı tarafından yapılması ve gönüllülük esasında katılım şartıyla Dekanlığımız tarafından uygun görülmüştür.

Bilgilerinizi ve gereğini rica ederim.

Prof.Dr. İbrahim BAYAZIT
Dekan

Bu belge, güvenli elektronik imza ile imzalanmıştır.

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