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Pre-Service English Teachers' Knowledge and Beliefs about Dyslexia: Insights from Türkiye

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Abstract

Dyslexia is one of the most common conditions that significantly affects learners' academic achievement as well as their self-confidence. Its symptoms typically become more apparent when children start school. Regrettably, not every teacher is aware of the condition or is adequately equipped to support children who require effective guidance. This lack of awareness, and in some cases insufficient knowledge and practical experience, makes it even more critical for teachers to recognize their key role in supporting these students in the classroom. Teachers play a crucial role in providing such guidance and creating a supportive learning environment. This responsibility makes it essential for teachers to acquire the necessary knowledge and skills related to dyslexia. However, first identifying pre-service teachers' knowledge, opinions, and practices concerning dyslexia will help determine the type of training and education that should be provided. Embracing the motto "the earlier, the better," this study aims to explore the knowledge and awareness of dyslexia among pre-service English language teachers during their initial teacher education in Türkiye. Early identification, intervention, and diagnostic efforts are crucial in addressing the challenges associated with dyslexia. Therefore, this study investigates the opinions of 46 pre-service English language teachers regarding dyslexia. A scale consisting of 36 items and four open-ended questions was administered. A mixed-methods design was employed, integrating quantitative and qualitative approaches to provide a comprehensive understanding of participants' knowledge and beliefs about developmental dyslexia. Descriptive statistics, including mean values and standard deviations, were used to identify participants' knowledge and beliefs about dyslexia. The findings reveal that pre-service English language teachers lack sufficient knowledge and awareness to recognize the signs of dyslexia and are uncertain about how to support learners with dyslexia effectively. They also hold several misconceptions about the condition. Furthermore, the findings indicate that the current Special Education and Inclusivity course, offered in the fourth year of teacher education programs, does not adequately address pre-service teachers' needs in supporting these learners. Therefore, it is essential to integrate compulsory courses on dyslexia into the teacher education curriculum, distributed across the final two years of the program (four semesters), to systematically develop pre-service teachers' knowledge and professional competence in this area.

Keywords: developmental dyslexia, knowledge, beliefs, pre-service English language teachers

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INTRODUCTION

Everyone has their own way of learning, and information is therefore processed differently. This learning variation is more visible especially in those with autism, ADHD, dysgraphia, dyscalculia, and dyslexia, who may need special attention. Therefore, such conditions, including dyslexia require tailored support in the educational setting. Dyslexia is one of the most prevalent specific learning disabilities and is recognized as a language-based learning difficulty (Zavadenko et al., 2021; Dyslexia Help, 2017). Its causes range from genetic mutations which affect brain regions related to reading (Corona et al., 2012) to differences in processing frequencies and speeds (Goswami, 2011). Both in mother tongue and foreign language contexts dyslexia presents some challenges as it directly affects reading, writing and spelling, which are the foundation skills of language learning. Despite these challenges, individuals with dyslexia can be successful in other areas, including the arts and sports, showing that with appropriate interventions, they can succeed academically (Balci, 2019).

The role of teachers is crucial in identifying and supporting students with dyslexia. However, studies suggest that many pre-service teachers often lack sufficient knowledge about dyslexia in Türkiye, which limits their ability to take early steps for intervention effectively (Balci, 2019; Özçelik & Elverici (2024). In Türkiye, awareness about these challenges remains limited, especially among teachers, making it harder to diagnose and provide substantial assistance. The role of teachers is crucial in identifying and supporting students with dyslexia. However, studies suggest that many pre-service teachers often lack sufficient knowledge about dyslexia, which limits their ability to take early steps for intervention effectively (Balci, 2019) in Türkiye.

Teacher training programs that include dyslexia education have been shown to enhance knowledge, foster positive attitudes, and improve readiness to implement inclusive practices (Bimali, 2019). In the Turkish educational context, where early intervention is especially critical in English language classes, the need for well-trained teachers is essential as English language teaching starts in the second year of primary school in Türkiye. Research highlights a gap in training programs regarding developmental dyslexia, which may contribute to the challenges faced by both students and teachers (Balci, 2019; Özçelik & Elverici (2024). This lack of knowledge and preparedness affects the implementation of inclusive practices, making it difficult to address the specific needs of students with dyslexia in language classrooms. According to Atar & Amir (2023) and Balci, (2019), there is a notable lack of research on teaching learners with dyslexia in English language classes, highlighting the need for more empirical studies in this area. This also supports that despite the global rise in dyslexia diagnoses, particularly awareness and recognition are limited in lower-income and developing countries, where teachers play a critical role in raising awareness and initiating diagnoses.

Additionally, previous research suggests that teachers' knowledge and beliefs may vary according to personal variables, including gender. Several studies have reported gender-related differences in teachers' attitudes, beliefs, and awareness regarding learning difficulties and inclusive education, often attributing these differences to variations in educational experiences, socialization processes, and professional roles (Tuncay et al. (2025)). In the context of developmental dyslexia, examining gender differences is particularly relevant, as differential beliefs and levels of knowledge may influence identification practices, instructional decisions, and support strategies. Accordingly, gender is considered a meaningful variable in the present study.

In the Turkish educational context, where early intervention is especially critical in English language classes, the need for well-trained teachers is essential. Considering the crucial role that pre-service English language teachers play in shaping future educational environments, this study offers the knowledge and beliefs of pre-service English language teachers about dyslexia and offers potential implications for their future training.

2. BACKGROUND

2.1 Dyslexia and Learning Difficulties

Dyslexia derived from the two Greek words "dys" (difficulty) and "lexis" (language or words), is a language-based learning difficulty that affects individuals' ability of reading, writing, and interpreting language symbols (Adamu & Soykan, 2019). Indications of dyslexia may reveal themselves in various forms of learning difficulties with mathematics, reading, decoding, and writing, poor spelling, decoding, line-skipping, and word recognition. Dyslexia mainly affects the ability of individuals to distinguish sounds with similar forms, such as mistaking 'b' for 'd' or 'p' for 'q', as well as 'u' for 'an', 'if' for 'm', and 'w' for 'm' (Adubasim & Nganji, 2017) and may also have impact on learners' first, second and foreign languages (Kormos, 2017; Simon, 2000; Atar & Amir, 2023).

Although it is believed that symptoms appear at school age, there are other studies such as Adubasim and Nganji (2017) which argue that certain symptoms such as confusion between left and right hemispheres, difficulties in reproducing rhythms, telling time, and being easily disoriented are noticeable even before the school age. So, reversals are also found in young learners. Moreover, learners with dyslexia often face challenges both in academic and non-academic settings, impacting their social and communication skills both at home and in school environments (Stevani & Tarigan, 2022).

Language is the only tool to interact with others and those learners experience difficulties both in written and oral language (Atar & Amir, 2023). Although individuals with dyslexia can have average or above average intelligence, and good working hearing functions, reading and spelling are challenging for them, (Goswami, 2011; Lyon et al., 2003; Adesokan, 2022; Vellutino et al., 2004; Fiveash et al., 2020).

Despite these challenges, individuals with dyslexia can be successful outside of school, often performing well in IQ tests, arts, or sports (Balci, 2019). This shows that, with appropriate support, those students can achieve the desired success in school subjects. The role of teachers is crucial in this context, as they can significantly impact the educational outcomes of students with dyslexia by implementing effective teaching strategies and fostering an inclusive classroom environment (Tosun et al., 2021).

According to the International Dyslexia Association (IDA) (2022), Adubasim and Nganji (2017), and Balci (2019), dyslexia is one of the most seen conditions. According to IDA (2022), approximately 1 in 10 individuals may have dyslexia, which could go undiagnosed throughout their lives. Balci (2019) found that around 14.8% of primary and secondary school students were diagnosed with dyslexia in Turkey.

Although dyslexia is common, Balci (2017) notes that both in Türkiye and globally, there is a lack of awareness about dyslexia. Another study focusing on English language teachers in Türkiye underscored the lack of sufficient knowledge and awareness about dyslexia among educators (Balci, 2019). Similarly, Bimali (2019), in their study, found that English language teachers have negative attitudes and limited knowledge about dyslexia. Upon this finding, in the mentioned study, the author also proposed and provided a teacher training program for English language teachers. The results of the questionnaire and interview responses in Bimali's study revealed that well-structured teacher training program improved teachers' knowledge about dyslexia and promote inclusive practices, increased their readiness to practice inclusive classroom techniques, and changed their negative attitudes towards dyslexia.

Additionally, Bimali (2019) found that institutional obstacles, such as an examination system and a lack of adaptability in the curriculum, could impede the implementation of inclusive practices; moreover, negative sociocultural attitudes and certain practical challenges in the classroom might influence the application of these practices. Research indicates that teacher training programs focusing on dyslexia can enhance educators' knowledge and foster positive attitudes toward inclusive practices, thereby improving their self-efficacy and readiness to meet the needs of students with learning difficulties (Bimali, 2019). Given the importance of early intervention and the role of language teachers in supporting students with dyslexia, it is crucial to equip teachers with the appropriate competencies to create inclusive learning environments.

Proper guidance, curriculum, materials, and practice can help learners with dyslexia improve their language skills, though their needs are unique (Juan, 2023). Teachers must recognize and adapt to these diverse needs to promote engagement.

Understanding teachers' knowledge and beliefs about dyslexia is crucial for diagnosing their needs and improving their ability to support learners. Research indicates that many teachers feel inadequate in providing specialized support, which highlights the

importance of enhancing their background knowledge and awareness (Altuntaş, 2010; Balcı, 2017; Bimali, 2019). Early intervention in neurodivergent classrooms is vital for the academic, social, and emotional development of learners with special needs (Illingworth, 2005; Evans, 2014; Balcı, 2017; Balcı, 2019; Bimali, 2019).

Tosun et al. (2021) argue that well-informed teachers can significantly contribute to the diagnosis and educational advancement of students with dyslexia. Early diagnosis is particularly crucial in language classes, as English language teaching often begins at a young age, urging timely interventions. On the other hand, Bimali (2019) emphasizes the urgency for language teachers to gain a deep understanding of the real classroom difficulties and effective inclusive teaching techniques. The author believes that teacher training can improve teachers' knowledge of dyslexia and build positive attitudes towards inclusion and improve their perceptions and beliefs. Considering the significance of early intervention, it becomes clear that teachers are the central figures in promoting an inclusive learning environment, highlighting the importance of knowledgeable teachers. Without guidance and practice, individuals with dyslexia have difficulty completing tasks at school. Therefore, teachers' knowledge and skills of how to teach those learners, may significantly have a positive impact on the academic achievement of those students. Education faculties are the institutions where pre-service teachers can acquire and enhance their teaching skills, and teachers are the first key person to identify their students' learning difficulties in classrooms. In line with this, incorporating courses such as inclusive language teaching and dyslexia and extending the current course 'Special Education and Inclusivity' in education faculty programs can contribute to pre-service teachers' knowledge and improve their practice on dyslexia and other areas of learning difficulties.

2.2 Studies on Dyslexia

Nijakowska (2010) and Juan (2023) indicate that the difficulty learners experience during language learning is related to the learners' native language and the level of transparency of the target language. For instance, lack of phonological knowledge, which is one of the features of learners with dyslexia, may not be a significant problem for learners who speak Spanish, Italian, or German. Because in these languages' phoneme-grapheme relation is more transparent (Juan, 2023).

Additionally, improving reading skills may be challenging for them because of the difficulties in identifying sounds. However, these skills are improved by using repeated oral reading, reading with audio, silent reading, reading aloud, etc. (Adesokan, 2022). Gradiner (2001) and Adesokan (2022) suggest that silent reading and reading aloud affect their reading skills positively. Silent reading includes subvocalization or silent speech, which help students imagine the sound of the words.

To those scholars, this type of reading decreases the cognitive loads, and students comprehend and remember the words. On the other hand, while students read aloud, at the same time they decontextualize language, which helps the development of receptive skills, (Sénéchal & Le Febvre 2002; Adesokan, 2022). In addition, Gibson (2008) indicates that reading aloud promotes reading skills with linking and alphabetic improvement. Along with improving their reading skills, writing skills should be practiced during the classes. Multisensory language programs are effective to help students with dyslexia improve their reading and writing skills (Slavin, 2018). However, recognizing and using these programmes requires teachers to gain certain skills. Furthermore, computers and tablets, in other words, use of technology, are effective ways of improving language learning (Juan, 2023). Integration of technology into the classroom may be helpful to create an interactive and inclusive learning environment. Various activities may be designed by using Web 2.0 tools. Vouglanis (2023) supports the idea that integrating new technologies into teaching students with dyslexia may be effective. This is because it is possible to find various learning support tools that help students with recognition difficulties or confusion between words and meaning.

Awareness or the number of teaching strategies may increase around the world about teaching language to learners with dyslexia by finding solutions and adapting teaching accordingly. However, according to Atar and Amir (2023), there is not enough research about how common dyslexia is in Türkiye or language teachers' knowledge about dyslexia, which is a prime step to create solutions for the challenges the students with dyslexia experience during their education.

If there is not enough research on the awareness of the language teachers, designing teaching programs or materials aiming to the needs of the students may be ineffective because the language teachers are the practitioners. Also, Özkardeş (2013) and Özçelik & Elverici (2024), emphasized the number of studies conducted about dyslexia is insufficient. Thus, creating awareness, identifying problems, finding solutions, and finally acting may take time. However, because it is a long period of time, some students may be ignored during their education life because of the lack of awareness and competence. According to the research conducted by Özçelik and Elverici (2024), a significant number of teachers with students who have dyslexia lack awareness of how to effectively approach their needs, with 8.9% ($n = 16$) reporting this issue. This also highlights a critical gap in the field of English Language Teaching regarding dyslexia awareness.

Interestingly, previous studies have also revealed that despite increasing attention to the topic, the gap in dyslexia awareness among English language teachers has persisted over the years. For instance, research conducted in 2017, 2019, 2023, and 2024 (Balci, 2017, 2019; Kılavuz, 2023; Özçelik & Elverici, 2024) indicates that studies focusing on English teachers' views, awareness, perceptions, and practices regarding dyslexia are

still insufficient. The recurrence of this issue in 2024 suggests that the education system persistently continues to overlook the needs of those children.

Furthermore, the inadequacy of university courses offered under the umbrella of "inclusion" in Turkey necessitates a thorough revision. The placement of children with special educational needs in mainstream classrooms with their typical peers—while expecting them to succeed—indicates a violation of these children's right to equitable education. Students who struggle even in their native language after starting school are left to navigate high-anxiety foreign language learning environments without adequate support. Given that English is considered a critical skill of the 21st century, it is essential that children with learning difficulties are provided the same opportunities to acquire this skill as their peers

2.3. Beliefs and knowledge

Beliefs and knowledge are two concepts that are usually difficult to distinguish. Beliefs are the truths that we, as human beings, adopt as correct. These can be about anything around us, and this adoption of truth shapes our feelings, decisions, and actions, as well as our way of living, as they reflect our own personal truths. Briefly, beliefs can be described as personal truths because everyone has their own unique reality and people act upon this understanding. Studies by Bandura (1986), Pajares (1992), Rokeach (1968) indicate that our decisions, preferences, actions, and intentions are all shaped by our beliefs. They serve as principles that largely guide our lives and are shaped by our environment, norms, upbringing, and values at the universal, national, local, and family levels which is also called a nested system. These beliefs are often deeply rooted in a person's worldview and, as Rokeach (1968) states, they are 'resistant to persuasion'. To Rokeach (1968), beliefs are mental structures, through which the world is viewed, shaped by experience of individuals, and he emphasized that beliefs are strongly held convictions about the nature of reality and the self. To Philipp (2007) beliefs are 'lenses' that affect one's interpreting a certain dimension of reality 'that has enough validity, truthy or credibility to guide thought and behaviour' (Harvey, 1986)

Buehler & Vasquez (2007) also highlights that beliefs act as foundational representations that help individuals interpret the world and act upon this reflection. This means that while beliefs are influenced by the environment, they also shape one's interpreting that environment. Similarly, in an educational context, these deeply held assumptions guide a teacher's perceptions and actions in the classroom 'in consistent and 'inconsistent ways', (Fang, 1996) and also reflected in their teaching style, (Guerra & Wubbena, 2017), influence their teaching behaviours, attitudes and shape their expectations and methods of supporting students (Derakhshan et al., 2023). On the other hand, teachers' beliefs have an impact on their assessment-related actions, (Guerra & Wubbena, 2017). Moreover, Dayal (2021) explains that teachers' beliefs about learning and teaching are often interrelated, with each influencing the other. Gao et al. (2023) further suggest that

teachers who have a deep understanding of their own beliefs are better equipped to meet their students' needs, which in turn positively impacts students' academic achievements.

To Dewey (1933) belief is crucial, for "it covers all the matters of which we have no sure knowledge and yet which we are sufficiently confident of to act upon and also the matters that we now accept as certainly true.

Like other cognitive, mental, and emotional entities, beliefs have certain characteristics; for instance, they are resistant to change, even when presented with objectively convincing evidence, they are closely linked to emotions (Pajares, 1992); operates at sub-conscious level, (Nussbaum, 2001); they are affected by social and cultural norms, (Hargreaves, 1994); impact on every sphere of teaching practices, (Wang & Kuo, 2022)). As the studies above show, teachers' beliefs influence their perceptions and decisions, which, in turn, affect their classroom behavior (Pajares, 1992). Actions, interventions related to teachers and students cannot be perceived and meaningful without a proper understanding of the nature of beliefs. Therefore, understanding pre-service teachers' beliefs is crucial, as it helps to recognize teachers' behaviours and the reasons behind these behaviours, enables teachers to recognize their assumptions, judgments, and teaching practices and how to address students' needs more effectively.

2.4. Teacher's knowledge

Teacher knowledge encompasses the information acquired during initial teacher education, additional training, and the evolving sense of teaching shaped by life experience. It includes both pedagogical knowledge and subject-specific expertise, covering classroom methods, material selection, delivery, and classroom management. Shulman (1987) introduced the relationship between content knowledge (what teachers know) and pedagogy (how they teach), forming a specialized body of knowledge essential for effective teaching. Shulman (1987) identified key types of teacher knowledge: content knowledge, pedagogical content knowledge, and curricular knowledge. Content knowledge refers to educators' understanding of their subject and effective delivery methods, including the organization of content, effective teaching strategies, and question framing to enhance understanding. This knowledge enables teachers to address classroom challenges effectively, contributing to deeper student comprehension.

Pedagogical Content Knowledge (PCK) extends beyond content knowledge. It involves understanding how to teach specific content effectively, making it engaging and comprehensible for students of various learning levels and contexts. PCK requires knowing how to sequence topics, assess their complexity, and adapt instruction accordingly (Shulman, 1987). Curricular Knowledge, on the other hand, relates to a teacher's ability to design and evaluate educational programs.

Pajares (1992) highlighted practical knowledge, drawn from teachers' experiential learning, which differs from personal knowledge. Nespor (1987) emphasized that teachers' ways of thinking and understanding are fundamental components of classroom practice and play a critical role in how teachers conceptualize instructional tasks and learn from experience. He argued that teachers' beliefs function as organizing frameworks that guide interpretation, judgment, and decision-making, functioning differently from formal knowledge. Beliefs are often shaped by personal experiences, values, and contextual factors, and they strongly influence how teachers understand their roles, their students, and the subject matter they teach. Nespor (1987) further noted that insufficient attention had been given to the structure and function of teachers' belief systems, despite their powerful role in shaping instructional practices. Therefore, understanding teacher knowledge is critical, as it directly influences their way of implementing teaching strategies, their ability to introduce new topics and adjust instructional practices to meet diverse learners' needs.

As a result, teachers' beliefs and knowledge are interrelated and conceptualized in the literature but analytically they are two distinct constructs. Knowledge is commonly accepted as information grounded in research and professional learning, whereas beliefs are personal and based on experience, and often shape teachers' interpretations and instructional decisions (Nespor, 1987; Pajares, 1992). In the context of developmental dyslexia, teachers' factual knowledge and its characteristics may coexist with belief-based assumptions regarding instructional practices and learners' capabilities. Research suggests that such beliefs play a critical role in mediating how teachers apply or fail to apply their knowledge in classroom practice. This theoretical distinction provides the conceptual framework through which teachers' beliefs and knowledge are studied in the current study.

3. THE AIM OF THE STUDY

The aim of the current study is to examine pre-service English language teachers' knowledge and beliefs regarding developmental dyslexia and to determine whether there are any significant differences in their knowledge and beliefs with respect to gender. In addition, the study examines the impact of the Special Education and Inclusion course on pre-service teachers' knowledge and beliefs about developmental dyslexia.

To perform the aim of the research, the following research questions were addressed:

Research Questions (RQ)

RQ1: What is the pre-service English language teachers' knowledge and beliefs about developmental dyslexia?

RQ2: To what extent does the “Special Education and Inclusivity” course contribute to pre-service English teachers’ knowledge and beliefs regarding developmental dyslexia?

RQ3: Is there a significant difference among pre-service English language teachers’ knowledge and beliefs about developmental dyslexia and their gender?

Open-ended Questions (OEQ)

OEQ1: How can students with dyslexia be identified in the classes?

OEQ2: How would you support a student with dyslexia in your class if you had any?

OEQ3: How can you facilitate foreign language learning for students with dyslexia in a mixed class?

OEQ4: "To what extent do you perceive the course 'Special Education and Inclusion' as beneficial for your future teaching with special needs students? Explain briefly."

4. METHOD

4.1 Participants and Setting

98 pre-service English language teachers from a state university in Türkiye voluntarily participated in this study. Participants, who are in their final year, include 61 females, 35 males with ages ranging between 21 and 26. Two of the participants chose not to disclose their gender. To become English teachers in Türkiye, prior to university, students are required to take 3-hour English comprehension test along with Turkish language, geography and history tests. After enrolling, they had to pass English exam to start their first year at the faculty of education. If they fail the exam, they are required to join a one-year intensive English class and take various exams. During their 4 year- teacher education, they receive various theoretical and practical courses including linguistics, language acquisition, pragmatics, grammar, reading, academic writing, assessment in language teaching, research skills, translation, teaching methods, special education and inclusion and practicum to improve their English, gain insights in pedagogical knowledge and sharpen their teaching skills.

During the first semester in their last year, students receive 2-hour-course—Special Education and Inclusion. The course covers the following topics: Regulations, referral process, diagnosis process, Guidance and Research Centre (called RAM in Türkiye) evaluation, parents, families, special needs status, family-specialist relationship, Intellectual disability, Hearing impairment, Visual impairment, Early childhood special education, Learning difficulties, Emotional and behavioral disorders, Autism spectrum

disorder, Communication disorders, Gifted and talented individuals, Physical disabilities, Severe and multiple disabilities, Inclusion practices and support services. As seen, the course covers a wide range of topics within a limited timeframe, which may lead to superficial understanding of the course. The course mainly focuses on the theoretical aspects of special education, and inclusion and therefore, it lacks opportunities for pre-service teachers to practice.

4.2 Data Collection Tools

Based on the theoretical distinction between teacher knowledge and teacher beliefs discussed in the literature review section, the present study employed a questionnaire developed by Soriano-Ferrer et al., (2015). The instrument was designed to capture both factual knowledge about developmental dyslexia and belief-based judgments reflecting participants' personal assumptions, interpretations, and attitudes toward dyslexia. The items of the scale have subcategories aligned with beliefs and knowledge about dyslexia.

The study was conducted during 2024-25 academic year at a state university depending on the institutional permissions and ethical approval. The average completion time to answer the questions was 10-15 minutes. To perform the aim of the study two different tools were employed: a survey and four open-ended questions. The Scale of Knowledge and Beliefs of Teachers about Developmental Dyslexia, and four open-ended questions were employed.

4.2.1 The Scale of Knowledge & Beliefs of Teachers about Developmental Dyslexia

This survey adapted from Soriano-Ferrer et al., (2015) s' study. The coefficient is .76 and includes 36 items. Each item rated using a three-point Likert scale with True, False, and Do not know, assesses pre-service English language teachers' knowledge and beliefs about developmental dyslexia. The items address different dimensions of dyslexia such as reasons, traits, and implications for teaching.

4.2.2 Open-Ended Questions

Additionally, four open-ended questions were included to elicit detailed responses on specific aspects of dyslexia that may not be fully captured by the survey items. Using qualitative and quantitative research design provides a comprehensive understanding of study and advances more accurate and reliable findings.

4.4. Data Analysis

The data were analyzed using SPSS Statistics version 27. Descriptive statistical, including analysis of correlation, mean differences, and standard deviations, were used to

evaluate pre-service teachers' knowledge and beliefs about dyslexia. Pearson's correlation coefficient was used to assess the relation between knowledge and beliefs across different groups, while mean differences and standard deviations provided insights into the main patterns and spread of values. Quantitative data was analysed through descriptive statistics. Also, the frequency table was adopted including the answers to the scale items. Additionally, it was examined if there is a difference between the participants' knowledge and beliefs about developmental dyslexia depending on the sub-dimensions in the scale. Similarly, an independent samples t-test was employed to determine if there were significant differences in knowledge and beliefs about dyslexia between male and female participants. The results were presented in tables. (see Table 1)

Table 1. Descriptive Statistics of Pre-service Teachers' Knowledge and Beliefs about Developmental Dyslexia (N:98)

Items	Range	Min	Max	Mean	SD
1 Problems in establishing laterality (body schema) are the cause of dyslexia.	2	3	5	4.48	.70
2 Physicians can prescribe medications to help students with dyslexia.	2	3	5	4.24	.82
3 Multisensory instruction is not an effective training method.	2	3	5	4.15	.79
4 Intelligence tests are useful in identifying dyslexia.	2	3	5	4.15	.56
5 Dyslexia is hereditary.	2	3	5	4.15	.76
6 Most studies indicate that about 5% of school-age students have dyslexia.	2	3	5	4.07	.98
7 I think dyslexia is a myth, a problem that does not exist.	2	3	5	4.04	.30
8 All poor readers have dyslexia.	2	3	5	4.04	.42
9 People with dyslexia have below average Intelligence.	2	3	5	4.04	.52
10 Dyslexia has a greater occurrence in males than in females.	2	3	5	4.02	.93
11 Children with dyslexia have problems with decoding and spelling but not with listening comprehension.	2	3	5	3.93	.95
12 Most teachers receive intensive training in working with dyslexic children.	2	3	5	3.93	.65
13 Children with dyslexia can be helped by using colored lenses/colored overlays.	2	3	5	3.93	.83
14 Dyslexia usually lasts for a long time.	2	3	5	3.89	.97
15 Giving students with dyslexia accommodations, such as extra time on tests, shorter spelling lists, special seating, etc., is unfair to other students.	2	3	5	3.89	.48
16 Dyslexia refers to a relatively chronic condition that is often not completely overcome.	2	3	5	3.87	.83

Table 1. (con't) Descriptive Statistics of Pre-service Teachers' Knowledge and Beliefs about Developmental Dyslexia (N:98)

Items	Range	Min	Max	Mean	SD
17 Students who have reading disabilities without an apparent cause are called dyslexic.	5	0	5	3.87	.91
18 Dyslexic children often have emotional and social disabilities.	2	3	5	3.63	.83
19 Many students with dyslexia continue to have reading problems as adults.	2	3	5	3.63	.85
20 Applying an individual reading test is essential to diagnosing dyslexia.	2	3	5	3.61	.86
21 The brains of individuals with dyslexia are different from those of people without dyslexia.	2	3	5	3.59	.81
22 Children with dyslexia are more consistently impaired in phonemic awareness (i.e. ability to hear and manipulate sounds in language) than any other ability.	2	3	5	3.54	.75
23 Repeated reading techniques are useful reading material to improve reading fluency.	2	3	5	3.50	.81
24 Difficulty with the phonological processing of information is one of the most important deficits in dyslexia.	2	3	5	3.46	.81
25 Intervention programs that emphasize the phonological aspects of language with the visual support of letters are effective for students with dyslexia.	2	3	5	3.46	.81
26 Many students with dyslexia have low self -esteem.	2	3	5	3.43	.72
27 Modeling fluent reading is often used as a teaching strategy.	2	3	5	3.43	.81
28 Students with dyslexia need structured, sequential, direct instruction in basic skills and learning strategies.	2	3	5	3.37	.74
29 Dyslexics tend to spell words wrong.	2	3	5	3.33	.70
30 Dyslexia is caused by visual-perception deficits, producing the reversal of letters and words.	2	3	5	3.30	.66
31 Seeing letters and words backwards is a basic characteristic of dyslexia.	2	3	5	3.28	.62
32 The reading of students with dyslexia is often characterized by inaccuracy and lack of fluency.	2	3	5	3.28	.66
33 Dyslexia is the result of a neurologically based disorder.	2	3	5	3.26	.65
34 A child can be dyslexic and gifted.	2	3	5	3.24	.60
35 Dyslexia is characterized by difficulty with learning to read fluently.	2	3	5	3.24	.60
36 Children with dyslexia are not stupid or lazy. Being knowledgeable about dyslexia can help them."	2	3	5	3.09	.35

5. RESULTS

The descriptive statistics in Table 1 provide some indications on pre-service English language teachers' knowledge and beliefs about developmental dyslexia. To this, the highest mean scores were associated with items suggesting that problems in establishing laterality (left and right orientation) are the cause of dyslexia ($M = 4.48$), physicians can prescribe medications to help individuals with dyslexia received the second highest score ($M = 4.24$), the item 'intelligence tests are useful in identifying dyslexia' received ($M = 4.15$) and 'multisensory instruction is ineffective teaching method' ($M = 4.15$) both items shared the third highest score. There was an agreement on the statements 'intelligence tests are useful in identifying dyslexia' ($M = 4.15$) and 'dyslexia is hereditary' ($M = 4.15$). Additionally, participants showed less certainty regarding statements like dyslexia is characterized by difficulty with learning to read fluently ($M = 3.24$) and a child can be gifted and can be diagnosed with dyslexia ($M = 3.24$), suggesting some hesitation in accepting the complexity and nuances of dyslexia.

Other high scores were obtained for two items indicating that most participants believed that dyslexia is not a myth and that individuals with dyslexia are neither stupid nor lazy. However, a similarly high score (89.8%) was observed for the item "All poor readers have dyslexia," reflecting a common misconception. Similarly, participants agree that with the statement like 'students with dyslexia need structured, sequential, direct instruction in basic skills and learning strategies' ($M = 3.37$), indicating a possible gap in knowledge about effective interventions.

Table 2 presents relatively relationship between participants' gender and their beliefs concerning dyslexia. Item 1 (Pearson Correlation-17) shows a weak correlation between gender and belief that dyslexia is based on neurological causes. This indicates that there is a moderate positive correlation of 0.38 between gender and the belief being measured. A significant negative correlation is seen between gender and belief about phonemic awareness which is item 9.

Gender has a significant positive correlation ($.38, p = .01$) with the belief (item 21) that individuals with dyslexia are not lazy or stupid. Gender is negatively correlated ($-.31, p = .04$) with the belief (item 25) that dyslexia is a myth, this suggests that females are less likely to agree with this misconception.

The responses to the open-ended questions were analyzed and categorized according to the emerging themes (see Table 3). The superficiality of the course, the need for enhancing the course content and incorporating experiences, lack of both knowledge and practice, the desire for improving methods and strategies, and preparedness to teach students with dyslexia were among the key themes identified from the responses.

Table 2. Correlation Analysis of Gender and Beliefs about Dyslexia among Pre-service Teachers

	Items		Age	Gender
1	Dyslexia is the result of a neurologically based disorder.	Pearson Correlation	-.02	-.17
		Sig. (2-tailed)	.87	.26
2	Dyslexia is caused by visual-perception deficits, producing the reversal of letters and words.	Pearson Correlation	-.15	-.13
		Sig. (2-tailed)	.32	.40
3	A child can be dyslexic and gifted.	Pearson Correlation	.51**	.18
		Sig. (2-tailed)	.00	.22
4	Dyslexic children often have emotional and social disabilities.	Pearson Correlation	.18	-.09
		Sig. (2-tailed)	.24	.55
5	The brains of individuals with dyslexia are different from those of people without dyslexia.	Pearson Correlation	-.02	-.23
		Sig. (2-tailed)	.89	.13
6	Dyslexia is hereditary.	Pearson Correlation	.17	.07
		Sig. (2-tailed)	.27	.62
7	Most studies indicate that about 5% of school-age students have dyslexia.	Pearson Correlation	.08	.00
		Sig. (2-tailed)	.61	.99
8	Dyslexia has a greater occurrence in males than in females.	Pearson Correlation	.05	.02
		Sig. (2-tailed)	.75	.92
9	Children with dyslexia are more consistently impaired in phonemic awareness (i.e. ability to hear and manipulate sounds in language) than any other ability.	Pearson Correlation	-.14	-.33*
		Sig. (2-tailed)	.34	.03
10	Modeling fluent reading is often used as a teaching strategy.	Pearson Correlation	.19	.05
		Sig. (2-tailed)	.20	.76
11	People with dyslexia have below average Intelligence.	Pearson Correlation	-.12	-.02
		Sig. (2-tailed)	.42	.88
12	The reading of students with dyslexia is often characterized by inaccuracy and lack of fluency.	Pearson Correlation	.23	-.09
		Sig. (2-tailed)	.12	.56
13	Seeing letters and words backwards is a basic characteristic of dyslexia.	Pearson Correlation	.45**	-.03
		Sig. (2-tailed)	.00	.84
14	Difficulty with the phonological processing of information is one of the most important deficits in dyslexia.	Pearson Correlation	-.04	-.03
		Sig. (2-tailed)	.78	.82
15	Intelligence tests are useful in identifying dyslexia.	Pearson Correlation	.17	-.11
		Sig. (2-tailed)	.26	.47
16	All poor readers have dyslexia.	Pearson Correlation	.169	-.122
		Sig. (2-tailed)	.26	.42
17	Children with dyslexia can be helped by using colored lenses/colored overlays.	Pearson Correlation	.22	-.10
		Sig. (2-tailed)	.15	.52
18	Physicians can prescribe medications to help students with dyslexia.	Pearson Correlation	.05	-.20
		Sig. (2-tailed)	.74	.18

Table 2. Correlation Analysis of Gender and Beliefs about Dyslexia among Pre-service Teachers

Items			Age	Gender
19	Multisensory instruction is not an effective training method at the moment.	Pearson Correlation	.13	-.13
		Sig. (2-tailed)	.38	.40
20	Students who have reading disabilities without an apparent cause are called dyslexic.	Pearson Correlation	.27	-.31*
		Sig. (2-tailed)	.07	.04
21	People with dyslexia are not stupid or lazy. Knowing about the term helps children.	Pearson Correlation	.20	.38*
		Sig. (2-tailed)	.19	.01
22	Children with dyslexia are more consistently impaired in phonemic awareness (i.e. ability to hear and manipulate sounds in language) than any other ability.	Pearson Correlation	.02	-.06
		Sig. (2-tailed)	.92	.69
23	Intervention programs that emphasize the phonological aspects of language with the visual support of letters are effective for students with dyslexia.	Pearson Correlation	.30*	-.23
		Sig. (2-tailed)	.04	.13
24	Most teachers receive intensive training in working with dyslexic children.	Pearson Correlation	-.07	-.31*
		Sig. (2-tailed)	.65	.04
25	I think dyslexia is a myth, a problem that does not exist.	Pearson Correlation	-.21	-.31*
		Sig. (2-tailed)	.16	.04
26	Repeated reading techniques are useful reading material to improve reading fluency.	Pearson Correlation	.31*	.19
		Sig. (2-tailed)	.04	.20
27	Problems in establishing laterality (body schema) are the cause of dyslexia.	Pearson Correlation	.03	-.02
		Sig. (2-tailed)	.84	.90
28	Students with dyslexia need structured, sequential, direct instruction in basic skills and learning strategies.	Pearson Correlation	.32*	-.11
		Sig. (2-tailed)	.03	.47
29	Dyslexia refers to a relatively chronic condition that is often not completely overcome.	Pearson Correlation	.02	-.24
		Sig. (2-tailed)	.92	.11
30	Many students with dyslexia continue to have reading problems as adults.	Pearson Correlation	-.06	.00
		Sig. (2-tailed)	.71	.98
31	Many students with dyslexia have low self-esteem.	Pearson Correlation	-.03	-.06
		Sig. (2-tailed)	.86	.71
32	Children with dyslexia have problems with decoding and spelling but not with listening comprehension.	Pearson Correlation	.10	-.17
		Sig. (2-tailed)	.49	.27
33	Applying an individual reading test is essential to diagnosing dyslexia.	Pearson Correlation	.21	.17
		Sig. (2-tailed)	.16	.26
34	Dyslexics tend to spell words wrong.	Pearson Correlation	.50**	.12
		Sig. (2-tailed)	.00	.41
35	Dyslexia usually lasts for a long time.	Pearson Correlation	.16	-.19
		Sig. (2-tailed)	.30	.20
36	Dyslexia is characterized by difficulty with learning to read fluently."	Pearson Correlation	-.14	.12
		Sig. (2-tailed)	.37	.43

Table 3. Findings of the open-ended questions

Superficiality of the course	Timing and integration of the course	Need for practical experience	Awareness and understanding of special needs	Preparedness to support special needs students	Enhance course content
Desire for improved methods and strategies	Commitment to inclusive education	Reflecting on personal experiences	No idea how to approach	Incorporating practical experiences	Awareness and misconceptions
Pretend as if they are normal students	Clear hand-writing on the board	Earlier and continuous training	Enhanced the related course content	Positive reinforcement	using auditory activities

The insufficient duration of the course, the timing of the course, awareness, and misconceptions about dyslexia also emerged as significant themes. to teach students with special needs. Some of the participants' scripts were presented below.

6. DISCUSSION AND CONCLUSION

This study investigates the knowledge and beliefs of pre-service English teachers regarding dyslexia. The findings highlight a significant gap (see Table 2 and Table 3) in English language teacher education programmes regarding teachers' lack of knowledge and practice about dyslexia.

Participants expressed their lack of knowledge and experience, highlighting the broader issue of inadequate preparation in teacher education programs. They believed that multisensory instruction is not an effective method for dyslexia (item 3) and expressed misconceptions about identifying dyslexia, such as believing that doctors can treat dyslexia (item 2), IQ tests are sufficient for diagnosis (item 4). The highest scores received for the second, third and fourth items indicate a general agreement among the participants regarding misconceptions about dyslexia, particularly related to its causes and treatment. These high scores also highlight the inadequacy of the special education course received.

Participants seem to hold misconceptions, notably that providing accommodations like extra time and materials for students with dyslexia is unfair to others. About half of the participants assumed that all poor readers have dyslexia and believed that intervention programs emphasizing phonological aspects of language with visual support of letters are ineffective for students with dyslexia. This item also received one of the highest score

(see Table 2). Many also held the misconception that individuals with dyslexia have below-average intelligence (item 9). Participants viewed dyslexia as hereditary and associated it with emotional and social challenges. They also emphasized the necessity of applying individual reading tests for diagnosing dyslexia. Participants expressed a need for more comprehensive education and training to better prepare them for diverse classrooms. This finding aligns with the study of Yakut and Akgün (2023), which revealed that pre-service teachers express a willingness to teach students with dyslexia yet feel incompetent in doing so. Participants acknowledge that students with dyslexia face reading difficulties, as indicated by items 17, 19, 23, 27, and 29. However, they fail to recognize the broader scope of reading challenges and express feelings of inadequacy. This aligns with David and Dempsey (2018), who found that many pre-service teachers believe dyslexia primarily impacts reading ability while overlooking its implications for writing, spelling, and oral communication.

The participants suggested earlier and continuous exposure to special education topics, including hands-on activities, case studies, classroom observations, and practicums. This shift is crucial not only for improving educational outcomes for students with dyslexia but also for promoting more inclusive and effective teaching practices globally, which aligns with the UN SDG4 (UN-SDG4, 2015), advocating for inclusive and equitable quality education.

Additionally, participants perceived the course content as too basic or lacking depth, which suggests a disconnect between the course objectives and the actual needs of future educators in supporting students with special needs. They recommended that the Special Education and Inclusion course be more detailed and introduced earlier and for a longer period in their academic program.

The responses to the semi-structured question: "To what extent do you perceive the course 'Special Education and Inclusion' as beneficial for your future teaching with special needs students?" were similar to the open-ended responses and aligned with the survey results. The key themes are outlined below, and a few sample responses were provided.

Beneficial for Understanding and Supporting Special Needs Students:

Many participants highlighted the importance of the course in preparing them for working with special needs students in their future classrooms.

One participant noted,

"It is crucial for us as future teachers to be aware of these students for their educational and professional career."

Another emphasized,

"I want to understand what my students with special needs will actually need."

Concerns About Depth and Practicality:

While participants acknowledged the course as useful for raising awareness about special education, there were consistent concerns about its lack of depth and the absence of practical components.

One participant remarked,

"The course feels too superficial; we should have started a more detailed course in earlier years."

Another added,

"It is beneficial, but I don't think we'll use the information in the future because there will always be more well-informed people."

Desire for More Practical Experiences:

Several respondents indicated that, despite the theoretical benefits of the course, it lacks practical application.

One suggested,

"It might be more effective if it were more practical than theoretical; we could visit schools and observe these students. "

Another noted,

"The course is very useful, but it becomes useless without practice—it's only theories."

Studies from other countries also align with the finding above and the table 2. For example, Pack (2023) explored pedagogical approaches to teaching reading to students with dyslexia in the USA and found that teachers lacked the required skills, training, and resources. Pack (2023), Norwahi et al. (2023), and Nushi & Eshraghi (2023) all highlight that teachers lack the necessary skills and training to effectively support students with dyslexia. Teachers in this study often sought ways to improve their skills through personal efforts. Similarly, Norwahi et al. (2023) found that English language teachers lacked knowledge about dyslexia and recommended targeted training for

teachers. Another study by Mills & Clarke (2017) identified gaps in both pre-service and in-service teachers' knowledge and skills concerning dyslexia. In response, they developed certification programs aimed at addressing these deficiencies and improving teachers' understanding of dyslexia. Comparable findings were reported in the Iranian context by Nushi & Eshraghi (2023), who, like Pack (2023) and Norwahi et al., (2023), emphasized the need for improved teacher education that includes practical dyslexia training to better prepare teachers for real-world classroom challenges.

The alignment of findings from other countries, including the studies of Pack (2023), Norwahi (2023), Tuncay et al. (2025) highlights the global nature of the problem. Participants also reflected on their personal experiences with special needs education, emphasizing the need for more comprehensive inclusive education training within their teaching programs. This lack of preparedness for teaching students with dyslexia includes both insufficient knowledge about dyslexia and inadequate practical experience.

Moreover, participants acknowledged their lack of experience and understanding regarding special education. This issue is not confined to pre-service teachers, as similar challenges are likely faced by in-service teachers as well. Given the widespread nature of this problem, it suggests that despite growing recognition of inclusive education (Yakut & Akgün, 2023; Obah, 2024) teacher education globally is still failing to sufficiently prepare educators for the realities of inclusive classrooms.

The findings of this study, in conjunction with others, suggest that the challenges surrounding teacher preparation for supporting students with dyslexia are both local and global. Students with dyslexia are present in many English language classrooms, yet the misconception persists that addressing their needs falls solely to special education teachers. English teachers, as this study reveals, are not adequately prepared for the realities of diverse classrooms, and this concern extends to both pre-service and in-service teachers. In a nutshell, English language teacher education programs continue to emphasize language proficiency and general teaching skills, while the specific needs of students with dyslexia are often overlooked.

7.IMPLICATIONS

This study has several implications for language teachers, curriculum designers and programme developers. The findings from the study reveal a significant gap in the knowledge and preparedness of pre-service English language teachers regarding dyslexia.

- ◆ The course received in final year of teacher education, lacks both theory and practice. This highlights a need to improve the preparation and support of English language teachers in addressing dyslexia. Teacher education

programs should enhance their curriculum to include comprehensive training on dyslexia, emphasizing its broader implications beyond reading difficulties and critically evaluate the course content and ensure that it covers essential topics related to special education comprehensively provide opportunities to practice

- ◆ There is a need for increased practical experiences within teacher training programs, such as classroom observations, hands-on activities, and practicums. Similar to the practicum, where student teachers gain teaching experience in schools, final-year students can also engage in observation and practice at special education centers.
- ◆ Ongoing professional development opportunities should be offered to pre-service and in-service teachers to address gaps in knowledge and practice regarding dyslexia.
- ◆ A guidebook on dyslexia should be prepared for students of education faculties to become familiar with the terminology and essential knowledge related to dyslexia for pre-service teachers of English.
- ◆ Establishing continuous feedback mechanisms to gather insights from current students and recent graduates about the effectiveness of teacher education programs can help institutions to improvements
- ◆ The course on special education and inclusion should be introduced earlier and extended throughout the second, third, and fourth years of initial teacher education, rather than being limited to just one semester.
- ◆ The findings of this study are consistent with prior research, highlighting a common concern: non-special education programs lack sufficient content to effectively address the diverse learning needs of students. The curriculum in language departments outside of special education programs, such as the English Language Teaching department, fails to provide adequate theoretical or practical training to support students with learning difficulties. This underscores the need for comprehensive curriculum reform, which must not only address local educational contexts but also reflect global best practices in inclusive education. Improving these programs is essential for equipping educators with the skills and knowledge necessary to meet the varying needs of students with learning differences.

LIMITATIONS

This study has several limitations. First, the sample consisted of 98 pre-service English language teachers from a single state university in Türkiye; therefore, the findings cannot be generalized to all pre-service teachers due to the single-institution context and the limited number of participants. Second, the use of a three-point Likert scale may have restricted the depth of participants' responses. Third, the qualitative analysis was limited to thematic classification, which may not fully capture the complexity and depth of participants' beliefs. Finally, the unequal gender distribution may have influenced the results and limited the robustness of gender-related comparisons.

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