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Comparison of distance and face-to-face training practices in inclusive education

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ABSTRACT Teachers' knowledge of inclusive education policies and principles is a fundamental component of their professional development. This study aims to compare the effects of face-to-face and distance education on teachers' awareness of inclusive education. The study included 34 teachers from a primary school in Ankara's Mamak district during the 2023-2024 academic year. A two-group pre-test/post-test factorial design was used to compare the effectiveness of the methods. Data were collected using a Personal Information Form and the Inclusive Education Awareness Scale. A dependent-samples t-test was used for data analysis based on the results of the Shapiro-Wilk normality test. While the study's findings indicate that both modalities are effective, they reveal that the average awareness scores of teachers who received face-to-face education on inclusive education differed significantly from those of teachers who received distance education. However, the potential offered by distance education in light of technological advancements should also be considered. It is recommended that future research examine the effects of blended learning.

Keywords: *Awareness, Distance training, Face-to-face training, Inclusive education, Teacher training*

Kapsayıcı eğitimde uzaktan ve yüz yüze eğitim uygulamalarının karşılaştırılması

ÖZ Öğretmenlerin kapsayıcı eğitim politikaları ve ilkeleri hakkındaki bilgisi, mesleki gelişim süreçlerinin temel bir bileşeni olarak kabul edilmektedir. Bu çalışma, yüz yüze ve uzaktan eğitimin öğretmenlerin kapsayıcı eğitim farkındalığı üzerindeki etkilerini karşılaştırmayı amaçlamaktadır. Çalışma grubu, 2023-2024 akademik yılında Ankara'nın Mamak ilçesindeki bir ilkokuldan 34 öğretmenden oluşmuştur. Yöntemlerin etkinliğini karşılaştırmak için iki gruplu ön test/son test faktöriyel tasarım kullanılmıştır. Veriler, Kişisel Bilgi Formu ve Kapsayıcı Eğitim Farkındalık Ölçeği kullanılarak toplanmıştır. Shapiro-Wilk normal dağılım testi sonuçlarına dayanarak veri analizi için bağımlı örneklem t testi kullanılmıştır. Çalışmanın bulguları her iki modelin de etkili olduğunu gösterirken, yüz yüze eğitim alan öğretmenlerin kapsayıcı eğitim farkındalık puanlarının uzaktan eğitim alan öğretmenlerin puanlarından anlamlı olarak farklılaştığını ortaya koymaktadır. Bununla birlikte, teknolojik gelişmeler doğrultusunda uzaktan eğitimin sunduğu potansiyelin de göz önünde bulundurulması gerekmektedir. Gelecekte gerçekleştirilecek araştırmalarda karma eğitimin etkilerinin incelenmesi önerilmektedir.

Anahtar Sözcükler: *Farkındalık, Kapsayıcı eğitim, Öğretmen eğitimi, Uzaktan eğitim, Yüz yüze eğitim*

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INTRODUCTION

Inclusive education (IE) is an approach that requires education systems and learning environments to be prepared or adapted according to students' variability. This approach encompasses educational strategies that address the needs of all disadvantaged individuals in society, including religious, ethnic, and cultural minorities; immigrants, refugees, and asylum seekers; those with low socioeconomic status; women; individuals with special needs, and patients (Karaan et al., 2025).

Inclusive Education and Its Components

Inclusive education is increasingly conceptualized as a systemic and continuous process aimed at ensuring that all learners have equitable opportunities to access, participate in, and benefit from education, regardless of their individual characteristics or learning needs. Rather than focusing solely on the placement of students with disabilities in general education settings, contemporary approaches emphasize removing barriers to learning and participation and transforming educational environments to accommodate learner diversity. In this regard, inclusion encompasses not only students with special educational needs but also learners who may experience educational disadvantage because of social, cultural, linguistic, economic, or other individual characteristics. An inclusive education system, therefore, requires coordinated efforts at the policy, school, classroom, and community levels to promote equity, participation, belonging, and meaningful learning outcomes for all students (Organization for Economic Co-operation and Development [OECD], 2023).

The implementation of inclusive education involves multiple interrelated components, including inclusive policies and governance, adequate and equitable resourcing, teacher capacity building, inclusive teaching and learning practices, supportive school environments, collaboration with families and communities, and systematic monitoring and evaluation. At the classroom level, these components are reflected in teachers' capacity to adapt instruction and learning materials, respond to individual learning needs, employ flexible teaching strategies, and establish environments that foster participation and a sense of belonging. At the school and system levels, effective inclusion requires appropriate resource allocation, professional development, collaborative structures, stakeholder engagement, and mechanisms for monitoring student participation and educational outcomes. Thus, inclusive education should be understood not as a single intervention or instructional strategy but as a multidimensional framework in which policy, resources, teacher competencies, school practices, and assessment processes interact to reduce barriers and enhance the educational experiences of diverse learners (OECD, 2023, 2025a, 2025b).

Inclusive Teacher Education Practices

Contemporary inclusive education requires teacher education programs to equip teachers with the knowledge, skills, and pedagogical competencies needed to respond effectively to increasingly diverse classrooms. Recent evidence emphasizes that initial teacher education alone is insufficient; teachers require sustained opportunities to develop and refine their capacity to address diverse learning needs throughout their professional careers (OECD, 2025a, 2025b). In particular, teacher preparation should explicitly address teaching students with special educational needs, differentiated instruction, classroom-based assessment, and the adaptation of instructional practices to individual learners' characteristics.

One important strategy is to embed inclusive education within the broader curriculum of initial teacher education rather than treating it as a separate or isolated area of study. Teacher candidates should have opportunities to develop practical competencies through case-based learning, classroom observation, microteaching, collaborative problem solving, and supervised teaching experiences. Such practice-oriented approaches can help prospective teachers translate theoretical knowledge into instructional decisions and develop greater confidence in responding to diverse learners. Recent research also highlights the importance of strengthening teachers' competencies as a central condition for the effective

implementation of inclusive education (Kebede & Phasha, 2024).

The Role of Teachers in Inclusive Education

Teachers are key to the success of inclusive education. Teachers play a significant role in shaping a tolerant, moderate, and socially harmonious society (Amini & Fitriani, 2026) and create a positive classroom climate by ensuring equal opportunities and social justice (Heinz et al., 2025). Up-to-date information about IE helps teachers understand students' learning needs and identify and address learning obstacles (Ní Bhroin & King, 2020). Therefore, teachers need to be aware of the policies and principles of IE (Sirem & Catal, 2023). It has been observed that teachers unfamiliar with the basic principles of IE are reluctant to teach in inclusive environments (Sirem & Catal, 2023).

Teachers' knowledge, skills, beliefs, and instructional practices play a significant role in the effective implementation of inclusive education within the classroom. Therefore, the sustainability of inclusive education policies and practices requires supporting teachers with the pedagogical competencies needed to address diverse student needs. Indeed, a comprehensive meta-analysis has demonstrated that professional development programs focused on inclusive education have a positive impact on teachers' knowledge and skills regarding inclusive education, and are also associated with positive changes in teachers' beliefs and student behaviors (Donath et al., 2023; Zhang et al., 2024).

However, the effectiveness of teacher training cannot be explained solely by the transmission of theoretical knowledge. Current research highlights the importance of effective professional development programs incorporating components such as opportunities for practice, feedback, coaching, and peer collaboration alongside theoretical content. In a scoping review examining in-service professional development initiatives for inclusive education, Wood et al. (2025) found that workshops and didactic instruction were frequently structured in conjunction with practice, coaching, and feedback processes, and that these multi-component approaches were associated with improvements in teachers' knowledge, attitudes, and inclusive teaching practices.

Inclusive Teacher Education Practices in Türkiye

In Türkiye, the effectiveness of inclusive education is closely tied to the extent to which teachers are prepared to respond to learner diversity through informed, adaptive instructional practices. Although inclusive education has increasingly gained prominence in teacher preparation and professional development initiatives, recent evidence suggests a gap between the principles of inclusion and their implementation in everyday classroom practice. Turkish teachers have reported difficulties in adapting instructional methods and techniques, planning instruction, addressing diverse learner needs, and accessing adequate professional support. Moreover, insufficient knowledge, training, and practical experience have been identified as significant barriers that shape teachers' attitudes toward inclusive education (Savas & Isaoglu, 2025). Recent studies similarly indicate that teachers may have a general understanding of inclusion yet struggle to translate it into differentiated and individualized classroom practices (Balik & Ozgun, 2024; Yenen & Gultekin, 2024). These findings suggest that the central challenge in Türkiye is no longer simply whether teachers are aware of inclusive education, but whether teacher education enables them to transform inclusive principles into deliberate, context-sensitive pedagogical decisions.

Accordingly, inclusive teacher education in Türkiye needs to move beyond predominantly theoretical approaches toward sustained, practice-oriented professional learning. Recent evidence demonstrates that structured training can positively influence teachers' adoption of inclusive education principles. For example, a teacher education seminar addressing inclusive culture, inclusive structures, and inclusive practices significantly increased novice teachers' adoption of principles related to inclusive school climate, clear expectations, inclusive curriculum content, accessibility, and reflection (Yilmaz et al., 2024). More recent research has further emphasized the value of collaboration between general education and special education teachers, particularly in instructional adaptation, classroom

management, individualized support, and problem-solving (Bozpolat & Gucer Dizikaraoglu, 2025). Thus, effective teacher education in Türkiye should be conceptualized as an ongoing developmental process that integrates theoretical knowledge, authentic classroom practice, reflection, collaboration, and feedback. Such an approach has the potential to narrow the persistent theory–practice gap and to strengthen teachers' capacity to design genuinely accessible and responsive learning environments for diverse learners.

A growing body of research conducted both in Türkiye and internationally has examined teachers' awareness of, attitudes toward, and perspectives on inclusive education (Aktepe & Sumer Dodur, 2025; Azevedo et al., 2025; Bai & Martin, 2015; Khamzina et al., 2024; Saracoglu & Postalli, 2024; Savas & Isaoglu, 2025; Selisko et al., 2024; Sirem & Catal, 2023; Srivastava et al., 2017; Zagona et al., 2017). The research results revealed that teachers' pedagogical skills regarding inclusive education are low. However, teachers are responsible for planning the school curriculum, adapting their teaching methods, and supporting students' cognitive and affective development. Therefore, teachers need to adopt inclusive teaching strategies to promote the effective development and learning of all students, regardless of their characteristics (Stemberger & Kiswarday, 2018). This way, they can become more sensitive to individuals from different cultures, with different abilities, genders, beliefs, and special education needs. Their sense of social responsibility is strengthened, motivating them to fulfill the roles and responsibilities expected of them. Within inclusive education (IE), teachers are responsible for adapting the curriculum to accommodate diverse learner needs, organizing instructional and physical resources, maintaining appropriate classroom records, fostering effective collaboration with relevant stakeholders, and ensuring clear and purposeful communication. Given that teacher competence directly influences the quality and effectiveness of the educational process, all teachers working in inclusive settings are expected to possess and effectively apply the knowledge, skills, and competencies required to manage instructional processes and fulfill their professional roles and responsibilities (Deniz & Ilik, 2021).

Teacher Training

Studies conducted in Türkiye and internationally suggest that teachers may still lack sufficient knowledge and skills to effectively integrate information and communication technologies into their teaching practices (Fernández-Batanero et al., 2022; Savas & Isaoglu, 2025). Therefore, teachers should be provided with professional development opportunities, and teacher training should be designed to address this issue (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2020).

Teacher training and professional development play a critical role in strengthening teachers' knowledge, skills, attitudes, and perceived competence. Effective professional development requires opportunities for teachers to engage with evidence-based instructional approaches and to develop the competencies needed to respond to diverse learners' needs. High-quality teaching involves not only establishing ambitious learning goals but also continuously refining instructional, assessment, and leadership practices to support student learning. Achieving such improvements requires sustained and systematically structured professional learning opportunities for both teachers and educational leaders, with a clear focus on instructional goals and student outcomes. Among the various forms of professional learning, workshops remain one of the most widely used approaches for supporting teachers' professional development (Ahadi et al., 2024; Beimel et al., 2024; Ndlovu et al., 2024; Polat et al., 2024). In this context, both face-to-face and distance training can provide structured environments for professional learning, knowledge exchange, and collaborative engagement around specific educational topics (Linder & Weissblueth, 2023).

Face-to-Face Training

Face-to-Face Training (FTFT) is a traditional professional learning approach that can be delivered to groups of any size. It provides opportunities for interaction, particularly in small groups, and fosters a close relationship between educators and learners (Benson et al., 2005). Researchers consider face-to-

face communication one of the most effective learning methods because participants can benefit from visual cues, receive immediate verbal feedback, and interact through body language. Face-to-face interactions can boost the motivation to learn for both students and teachers (Daft & Lengel, 1986).

Distance Training

There is a transition period in education from the traditional FTFT teaching model to teaching models that benefit from technological developments. The internet is becoming an increasingly significant part of our lives, which, in turn, is making distance training (DT) more popular (Haleem et al., 2022; Pan et al., 2024; Rienties et al., 2025). It is predicted that DT will be the norm in educational presentations in the digital age (Sun & Chen, 2016). Indeed, in 2020, the COVID-19 pandemic brought about a paradigm shift across all levels of education, especially in higher education (Sangster et al., 2020). Thus, FTFT was replaced by DT through online platforms (Malan, 2020). Educational actions for teachers are generally implemented through FTFT or remotely, synchronously/asynchronously. Additionally, blended learning methodologies that combine these two approaches are also employed (Zagouras et al., 2022).

In-Service Training of Teachers in Türkiye

Türkiye is a dynamic country shaped by its diverse cultural structure, population density, migration policies, and evolving education system. Large-scale migration from Syria, particularly since 2011, has significantly influenced the socioeconomic, cultural, and demographic composition of Turkish schools (United Nations International Children's Emergency Fund [UNICEF], 2023). A UNESCO report (2017) emphasized the need to strengthen the education system for all disadvantaged children in Türkiye and improve the quality and accessibility of inclusive education (IE). Accordingly, identifying teachers' awareness of IE and determining effective strategies to enhance it have become increasingly important. An examination of current practices indicates that the Ministry of National Education (MoNE) has increasingly implemented distance training (DT) activities for teachers. According to data published on MoNE's official website (2022), 6,111,158 participants attended more than 100 training programs organized through the Teacher Information Network, established on January 24, 2022. Although these figures demonstrate the quantitative scope of DT, they provide limited insight into its qualitative effectiveness. Moreover, the COVID-19 pandemic, which led to school closures in Türkiye and many other countries, transformed DT from an optional approach into a necessity, further underscoring the importance of evaluating its effectiveness. Nevertheless, face-to-face training (FTFT) remains the most widely preferred and indispensable training model. This preference is understandable given the limitations of DT, including restricted teacher–learner interaction, technical difficulties, and limited access to or use of essential educational materials.

Purpose of the Study

This study aims to compare the effects of face-to-face and distance training on teachers' awareness of IE. Therefore, we sought to answer the following research question:
Is there a statistically significant difference in pretest/posttest scores on the IEAS (Inclusive Education Awareness Scale) for teachers receiving FTFT?
Is there a statistically significant difference between the pretest/posttest scores of the "IEAS" of teachers receiving DT?
Is there a significant difference in IE awareness between teachers receiving FTFT and those receiving DT?

METHOD

Model of the Research

This study used a two-group pretest/posttest factorial design to compare the effectiveness of FTFT and DT modalities. In between-group factorial designs, more than one group is compared, and there is more than one independent variable. In this design, also known as a mixed design, at least two independent variables are examined to determine their effects on the dependent variable (Farooq et al., 2016). This study created two experimental groups using the unbiased assignment method. Teachers in the experimental groups were selected randomly. The study's independent variables were FTFT and DT on IE. In the dependent variable, the training provided examined teachers' awareness of IE. This study used the Personal Information Form and the Inclusive Education Awareness Scale. The pretest-posttest, experimental-experimental group (split-plot) design used in the research is given in Table 1.

Table 1.
Research Design

Groups	Pretest	Process	Posttest
Experiment1	O1.1	Face-to-Face Training	O1.2
Experiment2	O2.1	Distance Training	O2.2

Note: O1.1 = experiment1 pretest, O1.2 = experiment1 posttest, O2.1 = experiment2 pretest, O2.2 = experiment2 posttest

In Table 1, the Personal Information Form and IEAS pretest were administered to the first experimental group, followed by FTE training on IE. The Personal Information Form and the IEAS pretest were administered to the second experimental group, and then the DT on IE was administered. Afterward, the two experimental groups were given a posttest, and their pretests and posttests were compared.

Study Group

The study group consisted of 34 teachers from a primary school in the Mamak district of Ankara Province during the 2023-2024 academic year. Information on the teachers' demographic characteristics is presented in Table 2.

Table 2.
Frequency and Percentage Distribution of Demographic Information of Teachers

Variables	Categories	Experiment Group 1		Experiment Group 2	
		f	%	f	%
Gender	Female	16	94.1	12	70.6
	Male	1	5.9	5	29.4
Age	30-40 years	3	17.6	8	47.1
	41-51 years	9	52.9	5	29.4
	52 years or more	5	29.4	4	23.5
Marital status	Married	14	82.4	11	64.7
	Single	3	17.6	6	35.3
Perceived Income Level	Low	0	0	0	0
	Middle	12	70.6	13	76.5
	Good	5	29.4	4	23.5
Professional Seniority	0-10 years	1	5.9	3	17.6
	11-21 years	7	41.2	7	41.2
	22 years or more	9	52.9	7	41.2

Upon examining Table 2, it is evident that 6 of the teachers included in the study are male, and 28 are female. According to Table 2, 11 teachers are between the ages of 30-40, 14 are between 41-51, and 9 are 52+. 25 teachers are married, and nine teachers are single. The perceived income level of 25 teachers is middle, and nine teachers have a high-income level. 16 teachers have 22 or more years of professional seniority, 14 have 11-21 years, and 4 have 0-10 years.

Table 3.
Teachers' Prior Knowledge Regarding IE Training

Variables	Categories	Experiment Group1		Experiment Group2	
		f	%	f	%
Have you received training on inclusive education?	Yes	10	58.8	13	76.5
	No	7	41.2	4	23.5
If you have received training on inclusive education, do you think it was sufficient?	Yes	7	41.2	5	29.4
	No	3	17.6	8	47.1
Do you think you need additional training on inclusive education?	Yes	11	64.7	12	70.6
	No	6	35.3	5	29.4

As shown in Table 3, 58.8% of the teachers in Experimental Group 1 and 76.5% in Experimental Group 2 received training on IE. Furthermore, 41.2% of the teachers in the first experimental group and 29.4% in the second experimental group found the IE training to be insufficient. A survey of the teaching staff revealed that 64.7% of those in Group 1 and 70.6% of those in Group 2 indicated a need for further instruction in IE.

Data Collection Tools

The research used the Personal Information Form and the Inclusive Education Awareness Scale as data-collection tools.

Personal Information Form

After conducting a literature review and consulting experts, researchers developed the Personal Information Form to collect information from teachers. The form includes questions to determine sociodemographic information about teachers.

Inclusive Education Awareness Scale (IEAS)

The scale used in the study was developed by Kilcan and Simsek (2021) to measure teachers' awareness of IE across different school levels. The scale is divided into five factors: the purpose of IE, IE for disadvantaged groups, the relationship between IE and legislation, the success of IE, and the origin of IE. There are 22 items on the scale. A 5-point Likert rating system is used in the scale: (1) Strongly disagree, (2) Disagree, (3) Undecided, (4) Agree, and (5) Strongly agree. The Cronbach's Alpha reliability coefficients for the scale are 0.78 for the IE dimension, 0.79 for the IE for Disadvantaged Groups dimension, 0.73 for the IE and legislation dimension, 0.74 for the Success in IE dimension, and 0.62 for the Origin of IE dimension. The scale demonstrated high internal consistency, with a Cronbach’s alpha of 0.88, indicating satisfactory reliability and supporting the items' ability to measure the intended construct.

Preparation of the Program

The content of the teacher training program developed in this study was formulated by taking into account the knowledge, skills, and competencies that the program aimed to foster in teachers. During the development process, the relevant literature was first reviewed, and the needs regarding the enhancement of these competencies were identified. Based on this, the program's objectives, learning outcomes, content, and learning-teaching activities were determined.

To evaluate the program's effectiveness, the study utilized an assessment tool with established validity and reliability for measuring the construct(s) targeted by the program. The primary criterion for selecting the assessment tool was the alignment of its theoretical framework with the study's objectives and the competencies the program aimed to develop. In this context, the scale was treated not as a direct

determinant of the program content, but rather as a tool for assessing the learning outcomes targeted by the program.

A link was established between the program's learning outcomes and the dimensions of the assessment tool, and care was taken to structure the program content to encompass these dimensions. Thus, alignment in terms of content and objectives was achieved between the training program and the assessment tool. The developed program was subsequently implemented in two different formats—remote and face-to-face; while the content, objectives, and duration of the program were kept as consistent as possible across both groups, only the mode of delivery differed.

Information on the content and duration of Face-to-Face Training and Distance Training provided for IE is given in Table 4.

Table 4.
Content of Face-to-Face Training and Distance Training Program

Contents	Date	Duration (Minutes)
Concepts related to inclusive education	24/06/2024	60
Historical development of inclusive education	25/06/2024	60
Key features of inclusive education	26/06/2024	60
Legal framework for inclusive education	27/06/2024	60
The role of family and teacher in inclusive education	28/06/2024	60

Implementation of the Program

To implement the training program, the school principal was first contacted, and it was decided that the program would commence after the end of classes (the seminar period). Before the training program, all teachers were informed about the training, and they provided voluntary consent forms. The training program was planned in two stages. The Face-to-Face (FTF) phase of the training program was held in a suitable classroom at the school, and the remote phase was conducted via Zoom. The second researcher conducted training for the FTFT group in the morning and the DT group in the evening on the same day.

The activities employed during the instructional process were adapted to the characteristics of both face-to-face and remote learning environments. While face-to-face sessions utilized group work, case analyses, discussions, and hands-on activities, the remote learning process incorporated synchronous discussions, online group work, case-based activities, and individual or collaborative tasks. Thus, the aim was to strike a balance between the transmission of theoretical knowledge and interactive, collaborative, and practice-oriented learning activities.

Data Collection and Analysis

Initially, the distributional normality of the pretest/posttest scores across groups was examined. The results of the Shapiro-Wilk normality test indicate that the means, kurtosis, and skewness values in the FTFT groups are distributed within the range of -2 to +2 ($p < .05$). The Shapiro-Wilk normality test results for the DT group ($p > .05$) indicate that the kurtosis and skewness values are within the range of -2 to +2. According to George and Mallery (2024), kurtosis and skewness values between +2 and -2 on the scales are sufficient for a normal distribution. Therefore, to assess the discrepancy between pretest and posttest scores for the experimental groups before the education program, a dependent t-test was used. The data for the normality tests of FTFT are presented in Table 5.

Table 5.
Face-to-Face Training Shapiro-Wilk Distribution Normality Test

Group-Test	Statistic	df	Sig.
Face-to-Face Training-Pretest	.826	16	.005
Face-to-Face Training-Posttest	.883	16	.036

Examination of Table 5 reveals a significant difference ($p < .05$) in the average pretest and posttest scores of the FTFT groups. The skewness and kurtosis values are presented in Table 6.

Table 6.
Coefficients of Skewness and Kurtosis of Face-to-Face Training Group

Group-Test	Measure	Statistic	Std. Error
Face-to-Face Training -Pretest	Mean	3.5294	.13703
	Skewness	1.279	.550
	Kurtosis	.615	1.063
Face-to-Face Training -Posttest	Mean	4.6230	.03481
	Skewness	1.238	.550
	Kurtosis	1.965	1.063

When Table 6 is examined, it is observed that the skewness of the pretest scores of FTFTs is 1.279, the kurtosis is 0.615, and the skewness of the posttest scores is 1.238, with a kurtosis of 1.965. Based on these findings, parametric tests were used in the research.

Table 7.
Distance Training Shapiro-Wilk Distribution Normality Test

Group-Test	Statistic	df	Sig.
Distance Training-Pretest	.956	16	.556
Distance Training-Posttest	.932	16	.235

Examining Table 7 reveals no significant difference in the average pretest/posttest scores for distance training ($p > .05$).

Table 8.
Coefficients of Skewness and Kurtosis of Distance Training Group

Group-Test	Measure	Statistic	Std. Error
Distance Training-Pretest	Mean	3.1497	.04896
	Skewness	-.644	.550
	Kurtosis	.569	1.063
Distance Training-Posttest	Mean	3.1658	.03165
	Skewness	.959	.550
	Kurtosis	1.741	1.063

When Table 8 is examined, the skewness of the pretest distance training scores is -0.644, the kurtosis is 0.569; the skewness of the posttest distance training scores is 0.959, and the kurtosis is 1.741. Therefore, the distribution of the scores was considered sufficiently normal to support the use of parametric statistical analyses.

Ethics Committee Approval

Before the study, approval was obtained from the Kırıkkale University Social and Human Sciences Research Ethics Committee on June 24, 2024, with approval number E-2024/06.

FINDINGS

Table 9 shows the relationship between teachers' responses on the Inclusive Education Awareness Scale after receiving Face-to-Face Training and the pretest scores of teachers receiving DT.

Table 9.
t-Test Results of Face-to-Face Training and Distance Training

Group 1	N	$\overline{X}$	Sd	t	df	p
Face-to-Face Training - Pretest	17	77.64	12.42			
Distance Training - Pretest	17	69.29	4.44	2.51	16	.65

As shown in Table 9, the mean pretest score for teachers in the FTFT group was 77.64, while the mean pretest score in the DT group was 69.29. A statistically insignificant difference was observed between the FTFT group's (Group 1) pretest total scores and the DT group's (Group 2) pretest total scores ($p > .05$). This shows that the pretest average scores of the FTFT and DT groups are not statistically different. Information on the relationships between the pretest and posttest average scores of teachers' responses to the Inclusive Education Awareness Scale who received FTFT is presented in Table 10.

Table 10.
t-Test Results of Teachers Receiving Face-to-Face Training

Group 1	N	$\overline{X}$	Sd	t	df	p
Face-to-Face Training -Pretest	17	77.64	12.42			
Face-to-Face Training - Posttest	17	101.70	3.15	-9.69	16	.00

As demonstrated in Table 10, the receiving FTFT teachers' mean pretest score on the FTFT was 77.64, while their mean posttest score was 101.70. Furthermore, a substantial discrepancy was identified in the aggregate pretest/posttest scores of Group 1 ($p < .05$). The data presented indicate a substantial discrepancy among the teachers who underwent FTFT. Table 11 presents the relationships between teachers' responses to the FTFT and the Inclusive Education Awareness Scale, as well as the pretest and posttest total scores.

Table 11.
t-Test Results of Distance Training

Group 2	N	$\overline{X}$	Sd	t	df	p
Distance Training -Pretest	17	69.29	4.44			
Distance Training - Posttest	17	69.64	3.15	-27.78	16	.36

As shown in Table 11, the teachers' average DT pretest score was 69.29, and the average posttest score was 69.64. Additionally, there is no significant difference between the DT group's (Group 2) pretest and posttest total scores ($p > .05$). According to these data, there is no significant difference among DT teachers. Table 12 presents the posttest scores of teachers who received FTFT and those who received DT on the Inclusive Education Awareness Scale.

Table 12.
t-Test Results of Teachers Receiving Face-to-Face Training and Teachers Receiving Distance Training

Group 1-2	N	$\overline{X}$	Sd	t	df	p
Face-to-Face Training -Posttest	17	101.70	12.43			
Distance Training - Posttest	17	69.64	3.15	32.60	16	.000

As demonstrated in Table 12, the mean posttest score for teachers who received FTFT was 101.70, whereas the mean posttest score for teachers who received DT was 69.64. Furthermore, a substantial discrepancy was identified between the total posttest scores of the FTFT group (Group 1) and the DT group ($p < .05$). According to these data, teachers who received FTFT showed a significant difference compared to those who received DT.

DISCUSSIONS AND CONCLUSION

The findings revealed a significant difference between teachers' total pretest and posttest scores following face-to-face training. This improvement may be attributed not only to the instructional environment but also to factors such as direct trainer–participant interaction, opportunities for immediate feedback, active participation, peer interaction, and hands-on practice. This indicates that FTFT remains an effective method. Therefore, FTFT should be preferred whenever possible in teacher training. Reports from some important organizations support this idea. For example, UNESCO (2017) emphasizes that teacher training should primarily take place in classrooms. Some researchers (Polat et al., 2024) stated that FTFT is effective in disseminating IE pedagogy and in helping teachers develop a common language of practice. Previous studies (Gross et al., 2022; Mehall, 2020; Soffer & Nachmias, 2018) have demonstrated that face-to-face training is a crucial component of teacher training programs. Critical concerns about the impact of distance training on teacher training have been identified, particularly regarding reduced opportunities for hands-on learning, the manipulation of teaching materials, and the development of pedagogical skills associated with classroom instruction (González et al., 2026).

In particular, in FTFT, interaction, effective communication, and cooperation between trainers and trainees, as well as among trainees, have been recognized as important areas in teacher training. According to Gross et al. (2022), discussions during education, experiences related to education, and the exchange of ideas and opinions stem from the nature of FTFT. It even helps create a learning community that remains active after the education program ends. Consequently, the findings of this research are consistent with those of previous studies. The findings of the present study demonstrate that there is no significant difference in total scores between teachers who received DT in the pretest/ posttest. However, this does not mean that the DT method is ineffective. There was also no significant difference in pretest scores between the DT and FTFT groups. The DT group started with an average score and showed less improvement on the posttest. Given that the DT environment is less controllable and makes it difficult for participants to adapt (Kubikova et al., 2024; Mahmood, 2021), teachers may have difficulty concentrating. FTFT, on the other hand, is dynamic and allows for real-time feedback (Paul & Jefferson, 2019). On the other hand, some studies have shown significant improvements in both distance and in-person education, and no significant difference between the two (Goss et al., 2021). The term DT is defined as learning experiences delivered partially or entirely over the internet. It has been argued that this medium can provide teachers with high-quality learning experiences (Fishman et al., 2013). Moreover, the prevailing consensus among policymakers and school leaders is that DT is more cost-effective than FTFT (Dede et al., 2009). The DT model does not require teachers to be physically present in a single location. This characteristic makes it particularly beneficial for educators operating in regions with challenging geographical conditions that may be difficult to access (Levy et al., 2025). However, teachers may also have prejudices against distance training (Kao & Tsai, 2009). Some studies have concluded that distance training can be as effective as face-to-face training (Apaza-Vila et al., 2025; Sayan & Yildiz, 2021). However, our research shows that distance training is less effective than face-to-face training. The findings of this study appear consistent with those of many other studies. Karakuş and Gencturk Guven's (2025) research also found that teachers prefer face-to-face training to distance training. Similarly, in values education, face-to-face training is more effective than distance training (Korkak & Topcu, 2025). In addition, a separate study (Ozturk & Serin, 2025) found that teachers reported trying to compensate for problems encountered during distance education at all levels during the COVID-19 pandemic by using different methods when transitioning to face-to-face education. However, in our study, there was no difference in presentation content, presentation style, training duration, or instructor between the two trainings. In addition, both groups had previously received training on IE. Moreover, the FTF training group found the training they received insufficient, whereas the DT group did not. Despite all this, DT was less effective. The reason DT was less effective in our study can be explained by findings from other studies. For instance, Gross et al. (2022) examined how instructors communicate with participants in remote learning contexts, focusing on improving the efficiency of virtual teaching methods. In a study conducted by Bailenson (2021), Zoom fatigue is defined as the phenomenon that occurs due to prolonged close-range eye contact, constant searching for

nonverbal cues, reduced mobility, and an inadequate frequency of breaks, which hinder learning (Bailenson, 2021). Similarly, the research by Ananga and Biney (2017) suggested that academics or lecturers should adopt a mixed or hybrid teaching approach.

The research presented here has several limitations. The present study exclusively employs quantitative analysis to compare content awareness between the two groups. More information can be obtained from interviews, focus groups, and instructor observations regarding the methods used in teacher education. Additionally, this study is limited to primary school classroom teachers. Studies can also be conducted with preschool, middle, and high school teachers. The topic of IE can be considered a subject for future experimental research. Future research can examine the impact of the mixed training model and compare it with the FTFT and DT models.

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TÜRKÇE GENİŞLETİLMİŞ ÖZET

Kapsayıcı eğitim, eğitim sistemlerinin ve öğrenme ortamlarının öğrencilerin farklılıklarına göre hazırlanmasını ya da uyarlanmasını gerekli kılan bir yaklaşımdır (UNESCO [United Nations Educational, Scientific and Cultural Organization / Birleşmiş Milletler Eğitim, Bilim ve Kültür Kurumu], 2017). Bu yaklaşım, dini, etnik ve kültürel azınlıkları, göçmenleri, mültecileri ve sığınmacıları, sosyoekonomik düzeyi düşük olanları, kadınları, özel gereksinimli bireyleri ya da hastaları içine alacak şekilde toplumda dezavantajlı olan tüm bireylerin gereksinimlerine yanıt verecek bir eğitim anlayışını içermektedir (Karaan vd., 2025). Diğer bir deyişle, kapsayıcı eğitimin çıkış noktasını, herkesin koşulsuz kabulü ve eşit eğitim fırsatlarından yararlanması gerektiği felsefesi oluşturmaktadır (Stemberger ve Kiswarday, 2018). Öğretmenlerin bu felsefenin farkında olmaları ve bu farkındalığı nasıl kazanabilecekleri önemli bir konudur. Kapsayıcı eğitimin yürütülmesindeki kilit unsurlardan birini öğretmenler oluşturmaktadır. Çünkü öğretmenler sınıf içerisinde fırsat eşitliği ve sosyal adaleti sağlayarak olumlu bir sınıf iklimi oluştururlar ve bu da kapsayıcı eğitim için önemli bir unsurdur (Heinz vd., 2025). Öğretmenlerin kapsayıcı eğitim hakkındaki farkındalığı, araştırmacılar tarafından (Sirem ve Çatal, 2023; Zagouras vd., 2022) incelenmiştir. Araştırma sonuçları, öğretmenlerin kapsayıcı eğitime ilişkin pedagojik becerilerinin düşük olduğunu ortaya koymuştur. Oysaki öğretmenler, okulda eğitim programını planlamak, öğretimi uyarlamak, öğrencilerin bilişsel ve duyuşsal gelişimlerini desteklemekle görevlidir. Bu nedenle, öğretmenlerin sınıflarında yer alan farklı özelliklere sahip tüm öğrencilerin gelişim ve öğrenmelerini etkin bir şekilde desteklemek için kapsayıcı öğretim stratejilerini benimsemeleri ve kullanmaları gerekmektedir (Stemberger ve Kiswarday, 2018). Bu şekilde, farklı kültürlere, yeteneklere, cinsiyetlere, inançlara ve özel eğitime gereksinimi olan bireylere karşı daha duyarlı hale gelebilirler. Toplumsal kabulleri harekete geçirir ve yapılması gerekenlere yönelir. Öğretmen yeterliliğinin eğitim sürecini doğrudan etkileyen bir faktör olduğu düşünüldüğünde, kapsayıcı eğitimde hizmet vermekte olan tüm öğretmenlerin rol ve sorumluluklarını yerine getirecek şekilde süreci yönetmeleri beklenmektedir (Deniz ve İlik, 2021). Bu kapsamda, öğretmenlerin hizmet öncesinde ve hizmet içi eğitim kapsamında kapsayıcı eğitime yönelik eğitim almaları onların kapsayıcı eğitime yönelik olumlu tutumlarının geliştirilmesinde etkili olabilecektir (Ní Bhroin ve King, 2020). Araştırmacılara göre, yüz yüze iletişim, katılımcıların görsel ipuçları ve sözlü geri bildirim sağlamalarına ve beden diliyle iletişim kurmalarına olanak tanıdığı için en etkili öğrenme yolu olarak görülmektedir. Yüz yüze etkileşimler hem öğrencilerin hem de öğretmenlerin öğrenme motivasyonunu artırmaktadır (Daft ve Lengel, 1986). Ancak eğitimde geleneksel yüz yüze öğretim modelinden teknolojik gelişmelerden yararlanılan öğretim modellerine doğru bir geçiş dönemi yaşanmaktadır. İnternetin modern yaşamın her alanında hızla büyümesi, çevrimiçi eğitimleri daha çekici bir hale getirmektedir (Haleem vd., 2022). Millî Eğitim Bakanlığı (MEB, 2022)'ye göre, 24 Ocak 2022 tarihinde kurulan Öğretmen Bilişim Ağı üzerinden açılan yüzden fazla eğitime 6 milyon 111 bin 158 katılım sağlanmıştır. Bu verilerin, uzaktan eğitimin nicel boyutunu ortaya koyduğu söylenebilir. Ancak nitel boyutu hakkında fikir verdiğini söylemek zordur. Yakın tarihte bütün dünyaya yayılan COVID-19 salgınının birçok ülkede olduğu gibi Türkiye'de de okulların tatil edilmesine neden olduğu, uzaktan eğitimin bir tercih değil zorunluluk haline geldiği düşünüldüğünde, uzaktan eğitim yöntemlerinin etkililiğinin belirlenmesinin önemli olduğu görülmektedir. Diğer yandan, yüz yüze eğitim en çok tercih edilen ve vazgeçilmeyen bir eğitim modelidir. Uzaktan eğitimin öğreten-öğrenen etkileşimini sınırlaması, teknik aksaklıkların yaşanması, gerekli eğitsel materyallerin kullanılamaması gibi sınırlılıkları düşünüldüğünde, yüz yüze eğitimin önemi de anlaşılmaktadır. Bu çalışmanın amacı, yüz yüze ve uzaktan eğitim yöntemlerinin öğretmenlerin kapsayıcı eğitime ilişkin farkındalık düzeylerine etkisini karşılaştırmaktır. Bu kapsamda aşağıdaki araştırma sorularına yanıt aranmıştır: Yüz yüze eğitim alan öğretmenlerin "Kapsayıcı Eğitim Farkındalık Ölçeği" öntest-sontest puanları arasında istatistiksel olarak anlamlı bir farklılık var mıdır? Uzaktan eğitim alan öğretmenlerin "Kapsayıcı Eğitim Farkındalık Ölçeği" öntest-sontest puanları arasında istatistiksel olarak anlamlı bir farklılık var mıdır? Yüz yüze eğitim alan öğretmenler ile uzaktan eğitim alan öğretmenlerin kapsayıcı eğitime ilişkin farkındalıkları arasında anlamlı bir farklılık var mıdır?

Bu çalışmada yüz yüze ve uzaktan eğitim yöntemlerinin etkililiğini karşılaştırmak amacıyla, iki gruplu

öntest-sontest faktöriyel desen kullanılmıştır. Gruplar arası faktöriyel desenlerde, birden fazla grup karşılaştırılır ve birden fazla bağımsız değişken vardır. Karışık desen olarak da bilinen bu desende, bağımlı değişken üzerinde etkisi incelenen en az iki bağımsız değişken bulunmaktadır (Farooq vd., 2016). Bu araştırmada yansız atama yöntemiyle iki deney grubu oluşturulmuştur. Deney gruplarındaki öğretmenler seçkisiz yöntemle seçilmiştir. Çalışmanın bağımsız değişkenlerini kapsayıcı eğitim ile ilgili yüz yüze eğitim ve uzaktan eğitim oluşturmaktadır. Bağımlı değişken ise verilen eğitimlerin öğretmenlerin kapsayıcı eğitime ilişkin farkındalıklarına etkisidir. Bu araştırmada, Kişisel Bilgi Formu ve Kapsayıcı Eğitim Farkındalık Ölçeği kullanılmıştır. Bu çalışmada, uzaktan eğitim ve yüz yüze eğitim uygulamalarının öğretmenlerin kapsayıcı eğitim farkındalığı üzerindeki etkileri karşılaştırılmıştır. Araştırma, yüz yüze eğitim alan öğretmenlerin ön test/son test puanlarında dikkat çekici bir fark olduğunu ortaya koymuştur. Bu durum, yüz yüze eğitimin etkili bir yöntem olmaya devam ettiğini göstermektedir. Bu nedenle, öğretmen eğitiminde mümkün olduğunca yüz yüze eğitimin tercih edilmesi gerektiği düşünülmektedir. Bazı önemli kuruluşlardan gelen raporlar bu fikri desteklemektedir. Örneğin, UNESCO (2017) öğretmen eğitiminin öncelikle sınıflarda gerçekleştirilmesi gerektiğini vurgulamaktadır. Önceki çalışmaların bulguları (Gross vd., 2022; Mehall, 2020; Soffer ve Nachmias, 2018) da yüz yüze eğitimin öğretmen eğitim programlarının önemli bir bileşeni olduğunu göstermektedir.