

# Empowering with Reggio-Inspired Documentation: Fostering Child-Centred and Democratic Attitudes among Preschool Teachers<sup>1</sup>

Hatice Merve İMİR<sup>2</sup>  Belma Tuğrul<sup>3</sup> 

<sup>2</sup>Dr. Öğr. Üye., Ankara Yıldırım Beyazıt Üniversitesi, Sağlık Bilimleri Fakültesi, Çocuk Gelişimi, Ankara, Türkiye

[derelihm@gmail.com](mailto:derelihm@gmail.com) (Sorumlu Yazar/Corresponding Author)

<sup>3</sup>Prof. Dr., İstanbul Aydın Üniversitesi, Eğitim Fakültesi, Temel Eğitim, Okul Öncesi Öğretmenliği, İstanbul, Türkiye  
[belmatugrul@aydin.edu.tr](mailto:belmatugrul@aydin.edu.tr)

## Article Info

## ABSTRACT

**Article History**  
Received: 19.08.2023  
Accepted: 11.09.2023  
Published: 29.10.2023

**Keywords:**  
Reggio Emilia,  
Documentation,  
Democracy,  
Teacher Training,  
Preschool Education

**Purpose:** The Reggio Emilia approach underscores child-centred pedagogy, highlighting documentation as a democratic practice within preschool settings. This study examines the impact of Reggio-inspired documentation training on preschool teachers' attitudes toward child-centred and democratic classroom practices. **Method:** Employing mixed-methods, attitudes of trained and non-trained teachers are compared, revealing trained teachers' heightened democratic attitudes and reduced autocratic perspectives. **Results:** However, no significant variance surfaces in laissez-faire attitudes between groups. Trained teachers exhibit preferences for more democratic, participatory, process-oriented, and child-centred classroom practices. The study concludes that Reggio-inspired documentation significantly shapes teachers' democratic convictions concerning curriculum design and child assessment. **Conclusion and Suggestions:** Implications for early childhood education underscore the necessity of teacher training and professional development programs, stressing the significance of nurturing child-centred and democratic classroom methodologies to uphold children's participatory rights in impactful decisions. This research accentuates Reggio-inspired documentation's pivotal role as a democratic agent, empowering children to contribute to determinations affecting them. It further accentuates the importance of pedagogical training and professional development initiatives in propelling child-centred and democratic classroom practices in early childhood education.

# Reggio-İlhamlı Dokümantasyonla Güçlendirme: Okul Öncesi Öğretmenlerinde Çocuk Odaklı ve Demokratik Tutumların Teşvik Edilmesi

## Makale Bilgileri

## ÖZ

**Makale Geçmişi**  
Geliş: 19.08.2023  
Kabul: 11.09.2023  
Yayın: 29.10.2023

**Anahtar Kelimeler:**  
Reggio Emilia,  
Dokümantasyon  
Demokrasi  
Öğretmen Eğitimi  
Okul Öncesi Eğitimi

**Amaç:** Reggio Emilia yaklaşımı, okul öncesi eğitimi çocuk merkezli ve demokratik bir perspektifle ele alırken, özellikle pedagojik dokümantasyon süreçlerinin de altını çizer. Bu çalışma, Reggio Emilia ilhamlı dokümantasyon eğitiminin okul öncesi öğretmenlerinin çocuk merkezli ve demokratik sınıf uygulamalarına yönelik tutumları üzerindeki etkisini incelemeyi amaçlamaktadır. **Yöntem:** Karma yöntem kullanılarak gerçekleştirilen çalışmada eğitim almış ve almamış öğretmenlerin tutumları karşılaştırılmıştır. **Bulgular:** Araştırma sonucunda, eğitim almış öğretmenlerin daha yüksek düzeyde demokratik tutumlara sahip olduğu ve otokratik görüşlerinin azaldığı görülmüştür. Bununla birlikte, gruplar arasında ilgisiz/boşvermiş tutumlar açısından anlamlı bir farklılık ortaya çıkmamıştır. Eğitim alan öğretmenlerin, daha demokratik, katılımcı, süreç odaklı ve çocuk merkezli sınıf uygulamalarını tercih ettikleri saptanmıştır. **Sonuç ve öneriler:** Çalışma, Reggio ilhamlı dokümantasyonun öğretmenlerin program tasarımı ve çocuk değerlendirmesi konusundaki demokratik inançlarını önemli ölçüde şekillendirdiğini göstermektedir. Sonuç olarak, araştırma bulguları erken çocukluk eğitimi için öğretmen eğitimi ve mesleki gelişim programlarının gerekliliği ortaya çıkarmakla birlikte, çocuk merkezli ve demokratik sınıf ortamlarını desteklemenin çocukların katılım haklarını korumak açısından önemini vurgulamaktadır.

**Atf/Citation:** İmir, H. M. & Tuğrul, B. (2023). Reggio-İlhamlı Dokümantasyonla Güçlendirme: Okul Öncesi Öğretmenlerinde Çocuk Odaklı ve Demokratik Tutumların Teşvik Edilmesi. *Ahmet Keleşoğlu Eğitim Fakültesi Dergisi (AKEF) Dergisi*, 5(3), 1358-1372.



"This article is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/) (CC BY-NC 4.0)"

<sup>1</sup>Bu araştırma, Prof. Dr. Belma Tuğrul danışmanlığında Hatice Merve Dereli (İmir) tarafından hazırlanan ve 2013 yılında Hacettepe Üniversitesi Eğitim Bilimleri Enstitüsü'nce yüksek lisans tezi olarak kabul edilen "Reggio Emilia Temelli Dokümantasyon Eğitiminin Okul Öncesi Öğretmenlerinin Demokratik Tutum ve Çocuk-Merkezli Uygulamaları Üzerindeki Etkisi" başlıklı tezden derlenerek hazırlanmıştır.

## INTRODUCTION

Numerous theories in the field of early childhood education posit that young children are fundamentally different from adults, viewing childhood as a time of incomplete development. Such theories often inform early childhood education practices, which prioritize the protection of children perceived to be vulnerable. This pervasive "weak child" perspective is evident in many societies and is reflected in common child-raising activities (Lam, 2012). Recently, some educational practices have begun to challenge the notion of the weak child. For instance, the Reggio Emilia approach to early education, which emerged in Emilia Romagna, Italy, adopts a social constructivist philosophy and underscores children's strengths rather than their weaknesses. This approach refutes the assumption that young children are inherently vulnerable and instead focuses on their capabilities (Rinaldi, 2006b; Thornton & Brunton, 2009).

The Reggio Emilia approach to early childhood education has garnered recognition from both educators and parents for over two decades as a high-quality practice (New, 2007). Its innovative interpretation of art, creativity, and curriculum has captured the interest of educators and researchers, propelling it to the forefront of acclaimed practices in the field of early childhood education (Ganus, 2010). At the heart of the Reggio Emilia approach lies the significance of documentation, a practice that involves meticulously recording the learning journey of children (Schroeder-Yu, 2008). This emphasis on documentation serves as a pivotal link, providing a comprehensive view of children's growth and understanding within the framework of the approach. (Shroeder-Yu, 2008). It involves creating a chronological history of children's progress and the activities they engage in during their educational journey. Documentation serves the purpose of making learning visible, enabling communication among children, teachers, and families, and providing a system for decision-making (Moss, 2011; Fawcett, 2009). It is used for reflection on previous experiences of teachers and children, for planning educational activities, and for fostering mutual understanding (New & Cochran, 2007; Fyfe, 2012). Furthermore, documentation is considered a means of communication (Clark, 2010; Sussna, 1995).

This practice involves several steps, including observing children, interpreting their actions and thoughts, collaborating on planning and assessment (Weigand, 2011). It plays a crucial role in educational planning by inspiring later discussions and research based on children's dialogues (Schroeder-Yu, 2008). Previous documentation from earlier children can also inspire later children to explore subjects in a different way. Additionally, projects initiated at an earlier stage can serve as a source of inspiration for children and teachers at a later stage, with some projects continuing for up to three years after the initial documentation is completed (Turner & Wilson, 2009).

Buldu (2010) highlights that in the Reggio Emilia approach, documentation serves as more than just a record of children's knowledge and abilities; it also offers a detailed history and process of learning. Documentation emphasizes the importance of revisiting and reflecting on previous experiences, making it closely connected to the assessment process (McClure, 2008). However, in contrast to standard-based assessment tools that check whether predetermined outcomes are acquired by children, documentation is considered a cure against such methods, as stated by Dahlberg (2012). It is not based on any criteria for assessment, but rather reflects a democratic learning environment where children can learn and give meaning to the world (Dahlberg, 2012). Documentation helps in the continuous evaluation and reflection of children's ongoing projects rather than assessing a finished process based on specific criteria. (Fawcett, 2009; Hansen, 2012). Therefore, documentation serves as a valuable tool for both teachers and children in understanding their learning process and making informed decisions for future educational activities.

### **Reggio Emilia Approach, Documentation and Democracy**

The Reggio Emilia approach places a strong emphasis on democracy and diversity in its educational practices. Moss (2012) notes that this approach adopts a multidimensional view of

democracy, where learning, decision-making, and assessment are conducted democratically. In addition, documentation is considered a tool for research, assessment, professional development, planning, and democratic practice (Moss, 2012). According to Rinaldi (2005), documentation is more than just an exhibition showcasing what children have learned; it reflects children, parents, and teachers and provides an opportunity for complete participation in democracy (Dahlberg, 2012). It makes individual differences visible and creates an environment where these differences are accepted and appreciated (Rinaldi, 2006b, 2012). Documentation in education has a significant connection with democracy, as it upholds values like negotiation, exchange of ideas, listening to different perspectives, participation, and collaborative learning. As a result, young children can participate in democratic living (Kinney & Wharton, 2008) through dialogues, collaborations, participation, and sharing of ideas (Bath, 2012; MacDonald, 2007; Moss, 2007). This allows children to take an active role in deciding what they learn and engage in democratic processes such as negotiating with teachers regarding learning programs (Moran, Desrochers & Cavicchi, 2007; Moss, 2007). Through documentation, all educational activities can be integrated with democratic principles, making it a crucial tool for promoting democracy in education (McKenna, 2005).

### **Theoretical Background**

#### *Preschool Education Practices and Assessment in Turkey*

Preschool education in Turkey caters to children aged 0-72 months, with a particular focus on children aged 36-72 months. However, it should be noted that preschool education is not mandatory in Turkey. The Turkish Preschool Education Programme has undergone significant revisions over the years, with the most important changes occurring in 2006 and 2012. The latest version of the program, released in 2013 by the Turkish Ministry of National Education, introduced discovery-based and experiential learning, child-centred practices, active parent involvement, and multidimensional assessments as its some defining features. It is noteworthy that many of these characteristics align with the Developmentally Appropriate Practices (DAP) framework. DAP, developed by the National Association for the Education of Young Children (NAEYC) in 1986, is based on principles of educational effectiveness, child development, and learning. As noted by Şahin-Sak, Tantekin-Erden, and Pollard-Durodola (2016) and Copple and Bredekamp (2009), the Turkish Preschool Education Programme shares many common features with the DAP framework.

The Turkish Preschool Education Programme employs a comprehensive assessment procedure that evaluates not only children but also teachers and the programme itself. Although the program does not offer explicit instructions for how to record the developmental progress of children, it does require teachers to maintain detailed observational notes. These notes are then used to fill out an Observational Development Form for each child. Additionally, teachers are required to write a Development Report and create a Development Portfolio for each child. The portfolio should contain various items such as observation notes, reports, letters from family, and artifacts. Such a holistic approach to assessment is in line with the program's emphasis on multidimensional evaluation, as outlined by the Turkish Ministry of National Education (2013).

#### *Why Documentation in Turkey? Its Importance and Purpose*

Introducing alternative education programs and their theoretical and practical characteristics, born and applied in different cultures, is crucial for improving the quality of preschool educational practice in Turkey (Temel, 2012). As Ganus (2010) suggested, exposing preschool educators to innovative approaches and ideas can significantly improve their educational practices. Educating teachers on documentation and exploring its potential benefits can be a step towards achieving this goal. That's why, the study's primary objective is to explore Turkish preschool teachers' perceptions and interpretations of documentation with respect to educational democracy, a distinct preschool education practice that originated in Italy, following their training on documentation. Specifically, the study will focus on Turkish teachers' democratic attitudes and beliefs about child-centred practices in relation to documentation.

The theoretical background for the present study is rooted in the notion that teachers' attitudes and beliefs are fundamental to shaping their teaching practices. Prior research has shown that teachers' attitudes and beliefs can significantly impact their instructional strategies and interactions with students in the classroom (Mansour, 2009; Pajares, 1992; Richardson, 1996). Direct observation is a valuable method for evaluating teachers' child-centred practices, but it can be time-consuming and uncomfortable for teachers. Alternative methods, such as self-report surveys, interviews, or analysing existing data, can be more cost-effective and less intrusive, while still providing valuable insights into teachers' attitudes and perceptions towards child-centred practices. These methods can also provide access to larger and more diverse samples. Qualitative data from alternative methods can offer detailed information about the complexities of child-centred practices. Therefore, alternative methods can be valuable and effective approaches for researching teachers' child-centred practices. Moreover, in a study by Sak (2013) on Turkish preschool teachers' beliefs and practices related to child-centred education, it is discovered that teachers had both appropriate and inappropriate attitudes and behaviours in different areas, including the physical environment, instructional activities, relationships with students, behaviour management, assessment, and parent involvement. The research emphasized the significance of providing ongoing professional development and training to assist teachers in implementing child-centred practices effectively. Therefore, it is critical to train and assess teachers' attitudes and beliefs as a first step towards promoting changes in classroom practices. This study seeks to explore how teachers construct their attitudes and beliefs regarding child-centred and democratic classroom practices and how such constructions can be influenced by training. Through this exploration, the study aims to contribute to the understanding of how teacher training can impact teacher attitudes and beliefs, and ultimately, classroom practices.

The scholarly literature has established a theoretical connection between documentation, respectful teacher attitudes, and democratic education. Documentation practices have the potential to influence teachers' democratic attitudes and views on child-centred education by encouraging children's active participation, collaboration, and expression of opinions (Daniel-Simmonds, 2009; Falk & Darling-Hammon, 2009). Despite this theoretical link, no empirical research has been conducted to explore the relationship between documentation and teachers' democratic attitudes and child-centred beliefs. Thus, the current study aims to address this gap by examining the effects of Reggio-inspired documentation training on Turkish preschool teachers' attitudes toward democratic education and child-centred practices. Specifically, the study aims to address the following questions:

- (1) How does the Reggio-inspired documentation training impact Turkish preschool teachers' democratic, autocratic, and laissez-faire attitudes in educational settings?
- (2) In what ways does the Reggio-inspired documentation training affect Turkish preschool teachers' beliefs related to child-centred education and democratic principles in the classroom?

## **METHOD**

### **Research model**

According to Ayiro (2012), mixed methods studies are particularly suitable for educational research as they provide a more comprehensive and logical understanding of a given subject. This research design involves combining both qualitative and quantitative data, where numerical data is analysed using statistical methods, and descriptive and verbal expressions are analysed using qualitative methods. Specifically, in the current study, changes in teachers' attitudes were assessed through quantitative methods, while changes in beliefs were examined using qualitative research methods. By employing both approaches, the study aimed to provide a more comprehensive understanding of the complex relationship between teachers' attitudes and beliefs and their child-centred practice views. By employing both approaches, the study aimed to provide a more comprehensive understanding of the complex relationship between teachers' attitudes and their beliefs on child-centred practice

### **Participants**

For this study, 64 preschool teachers from six private preschools located in central Konya, specifically Meram and Selcuklu provinces, were recruited. The preschools were divided equally into intervention and control groups, with three preschools in each group. However, the number of teachers in each group differed, with 35 teachers in the intervention group and the remaining teachers in the control group. All participants were female, with 45% holding a bachelor's degree in preschool teaching program and 23% holding a pre-bachelor's degree in child development program. All teachers worked in single age classes, with 72% working with six-year-old children and the remaining 28% working with five-year-old children. The intervention and control groups were similar in terms of education level, years of experience, child-teacher ratio, and presence of a co-teacher in the classroom. Additionally, none of the teachers in either group had prior knowledge of the Reggio Emilia approach. Both groups took pre-tests and post-tests, but only the intervention group received training between the tests.

## **Research Instruments and Processes**

### ***Demographic Information Form***

The demographic form was used to collect personal details such as gender and age, as well as teaching information like current position, years of experience, and educational qualifications. An additional question gathered data on the number of children in each participant's classroom. Furthermore, participants' familiarity with the Reggio Emilia approach was also assessed. These details collectively provided a holistic understanding of participants' backgrounds and teaching contexts for the study.

### ***Teaching Attitude Questionnaire for Preschool Teachers***

The study utilized different instruments to collect quantitative and qualitative data, including the Teaching Attitude Questionnaire developed by Bilgin (1996). The questionnaire measured preschool teachers' attitudes across three categories: autocratic, democratic, and laissez-faire, with 16, 17, and 19 items, respectively. Respondents rated each item on a five-point scale from "completely agree" to "completely disagree." The Cronbach alpha reliability score for the questionnaire was .63, with reliability scores of .70, .58, and .66 for autocratic, democratic, and laissez-faire attitudes, respectively.

### ***Teacher Interview Form***

The study also conducted semi-structured interviews with voluntary teachers in the intervention group to gain insights into their classroom practices. The interviews were conducted twice, once before the training and again after all the trainings were completed, and explored various classroom practices, including children's participation in decision-making processes, assessment of learning, and children's right to voice their opinions on educational plans and programs.

### ***Documentation Training***

The documentation training program comprised seven sessions, each of which lasted for approximately three hours. These sessions included a 30–40-minute period designated for teachers to ask questions and engage in discussions at the conclusion of each session. In total, the training program spanned 25 hours and incorporated four key components: (1) the dissemination of essential information pertaining to the central topic of each session through the use of images and videos, (2) active participation by teachers through role-playing, drawing from past experiences, responding to questions, or directly applying the newly acquired knowledge, (3) homework and assignments linked to the central topic of each session, and (4) group discussions, involving the sharing of homework/assignment results and experiences. While each session was structured around these components, the central topic differed from session to session, as illustrated in Table 1.

**Table 1. Summary of Documentation Training Sessions.**

SESSIONS	DISCUSSION POINTS
Session 1	Fundamentals of Reggio Emilia approach: <ul style="list-style-type: none"> <li>• Overview of Reggio Emilia's principles, including teacher's role, emergent curriculum and projects, physical environment, and documentation.</li> </ul>
Session 2	Theory of children's hundred languages: <ul style="list-style-type: none"> <li>• Understanding the meaning of hundred languages and exploring ways to develop and nurture them.</li> </ul>
Session 3	Projects in Reggio Emilia approach: <ul style="list-style-type: none"> <li>• Comprehensive understanding of projects in Reggio Emilia approach in relation to documentation, including "progettazione," emergent and negotiated curriculum, provocation activities, and real-life examples from Reggio schools.</li> </ul>
Session 4	Introduction to documentation: <ul style="list-style-type: none"> <li>• The documentation process, including steps and techniques for observation, making observations in the Reggio way, and creating observation forms.</li> </ul>
Session 5	Second step of documentation: <ul style="list-style-type: none"> <li>• Interpretation of observation data, establishing the relation between projects and documentation, reflecting and critically evaluating the documentation process, and following the observation-interpretation-documentation cycle</li> </ul>
Session 6	Examining documentation samples: <ul style="list-style-type: none"> <li>• Reflecting on sample documentations, understanding the differences between documentation and portfolios, and exploring the best practices for documentation.</li> </ul>
Session 7	Getting ready to prepare documentation: <ul style="list-style-type: none"> <li>• Examining documentation samples, discussing technical procedures in preparing documentation, highlighting the benefits of documentation, and exploring possible solutions for difficulties encountered during the documentation process.</li> </ul>

### Data Analysis

The study analysed quantitative and qualitative data separately. Non-parametric tests were used for the quantitative data as pre-test and post-test scores did not exhibit normal distribution. That's why, the Mann-Whitney U test was used to compare teaching attitudes between the intervention and control groups before training, while the Wilcoxon Signed Ranks Test was used to compare pre-test and post-test scores within each group. Qualitative data from semi-structured interviews were transcribed and analysed descriptively, sorted, and categorized within the framework of the interview questions. Frequencies of each category were examined and detailed expressions and comments by teachers were considered for better understanding of their viewpoints and experiences.

### Ethic

Following ethical guidelines (British Educational Research Association [BERA] 2011), respondent teachers were informed about the study's purpose, procedures and their right of withdrawal from the study at any time. Participants were provided with an outline of study procedures should they agree to participate. They were assured for confidentiality and anonymity.

### FINDINGS

The quantitative part of study aimed to examine the effect of documentation training on preschool teachers' attitudes towards democratic, autocratic, and laissez-faire leadership styles. The analysis found no significant differences between the intervention and control groups in terms of their attitudes before the training, indicating that the groups were comparable at the outset ( $p > .05$ ). (See Table 2).

**Table 2.** Pre-Test Score Comparison: Mann Whitney U Test for Intervention vs. Control

Attitudes	Group	n	Mean Rank	Sum of Ranks	U	p
Autocratic	Experimental	35	32.99	1154.50	524.500	0.515
	Control	33	36.11	1191.50		
Democratic	Experimental	35	37.94	1328.00	457.000	0.137
	Control	33	30.85	1018.00		
Laissez-faire	Experimental	35	35.50	1242.50	542.500	0.667
	Control	33	33.44	1103.50		

Furthermore, the data in Table 3 demonstrates that the pre-test and post-test scores of teachers in the control group exhibited no noteworthy changes in their attitudes across any dimensions of teaching attitudes during the training period ( $p > .05$ ).

**Table 3.** Control Group's Pre-test vs. Post-test Scores Comparison via Wilcoxon Signed-Rank Test

Attitudes	Ranks	n	Mean rank	Sum of Ranks	z	p
Autocratic (pretest- posttest)	Negative ranks	14	13.46	188.50	-.907	.364
	Positive ranks	16	17.28	276.50		
	Ties	3				
	Total	33				
Democratic (pretest- posttest)	Negative ranks	14	12.04	168.50	-.494	-.622
	Positive ranks	13	16.12	209.50		
	Ties	6				
	Total	33				
Laissez-faire (pretest- posttest)	Negative ranks	16	16.09	257.50	-.122	-.903
	Positive ranks	16	16.91	270.50		
	Ties	1				
	Total	33				

Table 4 displays the results of the Wilcoxon signed-rank test analysis conducted to compare the pre-test and post-test scores of the intervention group teachers. The analysis revealed that the intervention group teachers' scores on democratic and autocratic attitudes showed a statistically significant difference ( $p < .05$ ), while no significant difference was observed in the laissez-faire attitude ( $p > .05$ ). Specifically, the results showed a significant decrease in autocratic attitudes and a significant increase in democratic attitudes after the training program.

**Table 4.** Intervention Group's Pre-test vs Post-test Score Comparison via Wilcoxon Signed-Rank Test

Attitudes	Ranks	n	Mean rank	Sum of Ranks	z	p
Autocratic (pretest- posttest)	Negative ranks	10	12.55	125.50	-2.942	.003*
	Positive ranks	24	19.56	469.50		
	Ties	1				
	Total	35				
Democratic (pretest- posttest)	Negative ranks	21	21.33	448.00	-2.181	.029*
	Positive ranks	14	13.00	182.00		
	Ties	0				
	Total	35				
Laissez-faire (pretest- posttest)	Negative ranks	12	19.63	235.50	-.805	.421
	Positive ranks	21	15.50	325.50		
	Ties	2				
	Total	35				

\* $p < .05$

Furthermore, a comparison of the post-test scores between the intervention and control group teachers was conducted, as presented in Table 5. The findings indicated a significant difference in the autocratic and democratic attitudes of the two groups ( $p < .05$ ), with intervention group teachers showing significantly less autocratic attitudes and more democratic attitudes than control group teachers. However, no significant difference was found between the two groups in terms of laissez-faire attitude ( $p > .05$ ).

**Table 5.** Pre-Test Score Comparison: Mann Whitney U Test for Intervention vs. Control

Attitudes	Group	n	Mean Rank	Sum of Ranks	U	p
Autocratic	Experimental	35	27.94	978	348	0.005*
	Control	33	41.75	1368		
Democratic	Experimental	35	43.09	1508	277	0.000*
	Control	33	25.39	838		
Laissez-faire	Experimental	35	31.46	1101	471	0.190
	Control	33	37.73	1245		

\* $p < .05$

Alongside quantitative analysis, qualitative analysis was conducted through interviews with 10 voluntary teachers from the experimental group before and after the training program. These interviews focused on child-centred and democratic practices and are presented in Table 6, with the teachers' remarkable words indicated in italics. The first question in the interview was regarding the teachers' opinions on children's right of choice, and their responses are also included in Table 6.

**Table 6.** Summary of Teacher Responses to Interview Questions: Categories and Frequencies

Time	Categories of responses	f
<i>Question 1. "What do you think about children's right of choice?"</i>		
Pre-training	• Controlled choice	2
	• Choice Based on activity type	8
Post-training	• Choice in Learning Content	5
	• Right to self-assessment	1
	• Integrated democracy	4
<i>Question 2. "What do you think about children's right to speak?"</i>		
Pre-training	• Restricted speaking	6
	• Adult-permission speaking	4
Post-training	• Non-criticized speaking	4
	• Benefits of speaking	4
	• Concerns about speaking	1
	• Self-expression	1
<i>Question 3. "When deciding on an activity or learning experience, what are your top three considerations?"</i>		
Pre-training	• Appropriateness for teaching concepts and skills	10
	• Meeting parental expectations	8
	• Display appropriateness	6
	• Availability of necessary materials	4
	• Child's interest	2
Post-training	• Child's interest	10
	• Meeting parental expectations	8
	• Developmental appropriateness	6
	• Alignment with curriculum standards	6
<i>Question 4. "How do you think we should assess children's learning acquisitions?"</i>		
Pre-training	• Product-oriented methods (testing, checklists, worksheets)	9
	• Process-oriented methods (observation)	1

Post-training	• Process-oriented methods (observation, documentation, portfolio, self-assessment)	4
	• Product-oriented methods (testing, checklists, worksheets)	6
<i>Question 5. "How can children's learning and skill acquisitions be effectively communicated to parents?"</i>		
Pre-training	• Verbal communication	6
	• Sharing documents	4
Post-training	• Verbal communication	3
	• Communicating via documentation	7

The findings in Table 6 suggest that the training had a positive impact on the teachers' attitudes towards children's right of choice. Prior to the training, the teachers favoured a restricted right of choice, with parents and teachers making the choices for children or giving them limited options. For example before the training teachers say that *"parents should either make the choices for their kids or give them options within what they've already decided"* or *"...teachers can also give choices by asking, 'do you want to do this or that?' and let the kids pick"*, *"when it's free time, I let the kids do whatever they want"*, *"During playtime, I let the kids choose what they want to do, but I make sure they stay within the rules"*, *"when we're transitioning between activities, I ask the kids what they want to do and let them make the decision"*, *"It kind of depends on what we're doing. If asking the kids what they think won't cause a problem, then I let them have a say."*, *"during playtime, I think it's important to let the kids have a choice in what they do"*. However, after the training, the teachers emphasized the importance of children's right to choose, particularly in relation to their learning and development. They recognized that allowing children to have a voice and make choices can foster a sense of empowerment and independence, which can contribute to their overall development. One teacher also mentioned the importance of children's right of choice in relation to their self-assessment.

Here are some statements made by the teachers after the training: *"Kids should be able to learn whatever they're into. They should get to pick what they want to learn. It's very important..."*, *"If a child wants to learn about caterpillars, then I have to take that seriously and help them out"*, *"I used to think that when we talked about kids having the right to choose, it meant they were voting or something. But really, they can decide on anything and everything"*, *"...so, like, kids can pick what they want to put in their portfolio. They can choose what they think is their best work and leave out anything they don't want to show."*

The second question asked teachers about their views on children's right to speak and express themselves. Prior to training, teachers' responses focused on limiting this right, with some allowing children to speak only during specific activities and others requiring permission to speak. Examples of responses provided by teachers prior to training include: *"I want kids to talk about the story and share their ideas..."*, *"we talk about what we did on the weekend, and I let each kid take a turn"*, *"on Mondays, I let the kids tell us what they did on the weekend one by one"*, *"... when we're working on a worksheet, I let each kid speak and I give them permission..."*, *"if there's a question on the worksheet asking for their ideas, I let them speak even if their answer is short"*, *"It's important for kids to share their opinions, but they can't just talk whenever they want"*, *"... of course it's important to let kids talk. But they need to learn to raise their hand and wait for permission. That's the rule in our classroom"*.

After training, teachers emphasized an unconditional right to expression, encouraging every child to speak and expressing the benefits of this approach. Teachers mentioned the importance of *"listening to children without criticizing," "giving every child an equal right to speak,"* and *"encouraging children to continue speaking even if their ideas or answers are incorrect"* as key aspects of this right. Furthermore, teachers have highlighted several benefits associated with granting children the right to speak. According to their responses, children who are encouraged to express their ideas and opinions are more likely to *"develop a greater sense of self-confidence"*, *"become better prepared for future challenges in life"*, and *"[feel more empowered] to express their thoughts and suggestions"*. One teacher even equated children's

right to speak with the broader concept of freedom of expression, stating that it involves allowing children to express themselves in ways that feel most natural to them. As the teacher explained “...*just because just we let kids speak doesn't mean we just sit there and listen to them. It's more about giving them the chance to express themselves in their own way. Like, some kids might jump around, others might draw pictures [to express themselves]*”.

The examination of the teachers' responses before and after training regarding the top three factors they consider when deciding on activities or learning experiences for their students showed that prior to training, ten teachers placed great importance on direct teaching, and eight teachers prioritized meeting parent expectations. They believed that activities should aid children's learning or fulfill parental expectations, and focused on concepts taught, visual appeal, and material preparedness without considering the interests and curiosity of the children. After training, all teachers acknowledged the significance of planning educational activities based on children's interests. Although parent expectations and material preparedness still hold some influence over activity decisions, teachers now prioritize children's interests and curiosity.

The responses of teachers before and after training regarding how they believe children's learning should be assessed showed a significant shift in their approach after the training. Before the training, most of the teachers focused on grading and assessing students' learning based on their performance on worksheets and meeting parent expectations. Here are some statements made by the teachers before the training: “*assessment is important because it helps kids learn from their mistakes and not make them again*”, “*when I want to check if the kids are understanding what we're teaching, I ask them questions and their answers show me where they need more help*”, “*I also go over past learnings with them and ask them to repeat what they learned*”. “*...to grade their progress, we make a list of the skills we want them to learn and base their grades on that. Then we can share the results with their parents*”, “*we can also see how they're doing by checking their worksheet performance every month. It's cool to see that even though they might make more mistakes at first, they learn from them!*” Also, one teacher mentioned the advantage of observation in the assessment process, saying that “*If we pay close attention, we can figure out what kids have learned just by watching them. The way they behave can tell us a lot about what they've picked up*”. After the training, there was a noticeable shift towards a more process-oriented approach, which involved techniques such as observation, maintaining portfolios, and encouraging self-assessment. Although some teachers still placed some importance on worksheet performance, it is noteworthy that following the training, the majority of teachers agree that the best way to assess children's learning is by “*watching how they act and talk every day*”, “*letting them check themselves so they can learn more about themselves*”, “*keeping folders with their work and looking at pictures of their progress together, and talking about it*”, “*making documentation panels with examples of their work*”, “*making things with them and helping them think about what they made*”.

Finally, teachers were interviewed before and after their training on how they believe children's mastery of skills and learning should be shared with parents. Table 6 presents the results, which show that prior to training, most teachers (n=6) preferred to communicate verbally with parents, while four teachers reported using exhibitions, documents, fliers, and art portfolios to share information. However, following training, teachers began to view documentation as a useful tool for informing parents about their child's learning progress. Teachers' responses regarding the use of documentation are as follows “*We can share our projects and photos with our parents and ask for their thoughts. We don't always tell our parents everything that goes on at school, and sometimes kids don't show or talk about what they're learning in school when they're at home. But with documentation, our parents can get a better idea of what we're learning in school*”, “*we do art exhibitions already, but with documentation, we can explain things better to our parents because it's like a story. It's not just about art, but about everything we learn. Our parents like seeing our story this way*”, “*we never did documentation before, and it looks a bit tricky, but taking pics and notes about what we do would be cool to share with our parents*”, “*documentation is great*”.

*because it helps our parents understand how we respond and what we learn”, “we can make documentation CDs or booklets because it's better than just folders with activities. Our parents can keep them for a long time”.*

## **DISCUSSION, CONCLUSION, RECOMMENDATIONS**

The present study compared the attitudes and beliefs of teachers in an intervention group who received documentation training with those in a control group who did not receive the training. There was no significant difference between the groups in their pre-test results, indicating that they were equivalent. The pre-test and post-test results showed that there was no significant difference in the control group's attitudes before and after the study. However, the intervention group teachers showed a significant increase in democratic attitudes and a decrease in autocratic attitudes. This suggests that documentation training can have a positive impact on teachers' attitudes towards democracy. The study's findings are consistent with Falk and Darling-Hammond's (2009) assertion that documentation is an important tool in promoting democracy in education. Both democracy and documentation require respect for different opinions and a willingness to understand and accept all children, regardless of their differences.

The study found that pre-test - post-test comparisons for the intervention group teachers showed significant changes in democratic and autocratic attitudes, but not in laissez-faire attitude. The post-test scores of both groups were also compared, and no significant difference was found between the intervention and control group teachers in terms of their laissez-faire attitude. According to Dunbar (2004), laissez-faire attitudes are characterized by not having many expectations from children and conveying the message that "you can do anything you want". This attitude can result in chaos in educational settings, as noted by Şahin and Çokadar (2006). The authors suggest three possible interpretations for the insignificant results in laissez-faire attitude: first, documentation training may not influence teachers' laissez-faire attitudes; second, the favourable teacher-child ratio in private preschools where the participants worked may have resulted in lower scores for laissez-faire attitudes, as this attitude tends to be more prevalent in crowded classrooms; and third, the relatively low reliability scores of the data-gathering instrument used in the study may have affected the results. While the instrument is the only Turkish instrument available for assessing preschool teachers' attitudes, its possible drawbacks - including the insignificant results in laissez-faire attitude - are acknowledged.

The quantitative findings of the study suggest that documentation training can have an influence on preschool teachers' democratic and autocratic attitudes. This is not surprising, as documentation itself focuses on implementing democratic procedures in preschool environments, according to Bath (2012), MacDonald (2007), and McKenna (2005). Therefore, the significant changes in democratic and autocratic attitudes observed in the pre-test - post-test comparisons for the intervention group teachers are in line with the expectations of the training.

The study found that training had a positive impact on teachers' beliefs about children's rights, as they shifted from defining them restrictively to considering them more broadly. Teachers focused more on children's right to choose and discussed ways to integrate these rights into daily life, aligning with changes in their democratic and autocratic attitudes. This positive shift can be attributed to adopting a positive image of children and rights-based documentation practices (Baldacchino, 2011; Cadwell, 1997, 2003; Fraser & Gestwicki, 2002; İnan, 2009; Rinaldi, 2006a). Similarly, teachers' opinions about incorporating children's interests into educational plans changed positively after the training. However, some teachers still struggled with balancing educational goals and child-centred approaches. This finding aligns with previous research on the dilemma of meeting educational goals while providing experiences based on children's interests (Geist & Baum, 2005; Helm, 2008). According to Helm (2008), most of the teachers have difficulty in following children's interests and initiatives while trying hard to fulfill the objectives of official program. Similarly, Geist and Baum (2005) found that preschool teachers prioritize direct teaching over children's interests and curiosity due to concerns about children's transition to primary school and expectations from primary school teachers for children to master specific concepts such as preliteracy and

numeracy.

The interviews with teachers after the documentation training showed a significant change in their opinions about planning and organizing learning experiences. Before the training, teachers were more concerned about the displayability and aesthetics of educational experiences, whereas after the training, they focused more on the learning experiences embedded in educational activities and the artifacts that represent children's learning processes. Documentation does not prioritize the displayability of artifacts but rather the learning experiences (Benson, 2009; Ganus, 2010), and therefore, the change in the teachers' opinions is consistent with the documentation approach.

The researchers asked teachers about their preferred assessment methods, as it is believed that teachers' democratic attitudes are often reflected in their approach to assessment, according to Şahin and Çokadar (2006). Before the training, teachers favoured product-oriented assessment methods, focused on finding mistakes and determining deficiencies. However, after the training, teachers adopted a more democratic stance, emphasizing how learning is reflected in children's lives. Teachers recognized documentation as a tool for democratic assessment, allowing children to express their opinions about their own learning process. Documentation is intended to capture and reflect on each child's unique learning experiences, highlighting their strengths and areas for growth, rather than comparing or ranking them based on their development or abilities. Documentation encourages a democratic assessment process, as it recognizes and values each child's individuality and diverse ways of learning (Arthur & Sawyer, 2009; Fyfe, 2012; Sevey, 2010).

Present study highlights the importance of documentation in promoting democratic assessment methods, such as self-assessment, and in creating a more inclusive and participatory learning environment for children. This implies that documentation can be a valuable tool for promoting democratic values in education. The study also underscores the need for more teacher training in documentation and democratic assessment methods to promote child-centred and democratic practices in early childhood education. This implies that policymakers and educators should invest in professional development programs that focus on these areas.

The implications of this research suggest that teachers and teacher candidates should be informed about documentation as it is found to be useful and effective in promoting teachers' democratic attitudes and child-centred beliefs. Preservice teachers can be encouraged to use documentation during their practical trainings, and educational programs can incorporate the use of documentation. Future research can expand on this study by exploring other principles of the Reggio Emilia approach and analysing their contribution to teachers' democratic attitudes. Researchers can also consider observing teachers' daily classroom activities instead of interviews to further analyse the effectiveness of documentation. Professional development programs for teachers that focus on documentation may have a positive impact on their attitudes towards child-centred approaches and democratic assessment methods. This implies that such programs can help teachers to become more aware of the importance of considering children's interests and experiences in educational planning and assessment.

### **Acknowledgements**

We express our gratitude to all the teachers and administrators who generously contributed to and supported this study.

### **REFERENCES**

- Ayiro, L. P. (2012). *A functional approach to educational research methods and statistics: Qualitative, quantitative, and mixed methods approaches*. The Edwin Mellin Press.
- British Educational Research Association. (2011). *Ethical guidelines for educational research*. BERA. <https://www.bera.ac.uk/wp-content/uploads/2014/02/BERA-Ethical-Guidelines-2011.pdf>

- Baldacchino, A. (2011). *Localizing Reggio: Adapting the Reggio Emilia approach to early childhood education in three childcare centres on Prince Edward Island* [Unpublished master thesis]. University of Prince Edward Island.
- Bath, C. (2012). I can't read it; I don't know': Young children's participation in the pedagogical documentation of English early childhood education and care settings. *International Journal of Early Years Education*, 20(2), 190-201. <https://doi.org/10.1080/09669760.2012.715242>
- Benson, C. L. (2009). *Influence of pedagogical documentation on children's use of meta-cognition* [Unpublished master thesis]. South Dakota State University.
- Buldu, M. (2010). Making learning visible in kindergarten classrooms: Pedagogical documentation as a formative assessment technique. *Teaching and Teacher Education*, 26, 1439-1449. <https://doi.org/10.1016/j.tate.2010.05.003>
- Cadwell, L. B. (1997). *Bringing Reggio Emilia home: An innovative approach to early childhood education*. Teachers College Press.
- Cadwell, L. B. (2003). *Bringing learning to life*. Teachers College Press.
- Clark, A. (2010). Young children as protagonists and the role of participatory, visual methods in engaging multiple perspectives. *American Journal of Community Psychology*, 46, 115-123. <https://doi.org/10.1007/s10464-010-9332-y>
- Coople, C. & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). National Association for the Education of Young Children.
- Dahlberg, G. (2012). Pedagogical documentation: A practice for negotiation and democracy. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The hundred languages of children: Reggio Emilia experience in transformation* (3rd ed.). (pp. 225-231). Ablex.
- Dunbar, C. (2004). *Report of best practices in classroom management*. College of Education Michigan State University. <http://outreach.msu.edu>
- Falk, B. & Darling-Hammond, L. (2009). Documentation and democratic education. *Theory Into Practice*, 49(1), 72-81. <https://doi.org/10.1080/00405840903436103>
- Fawcett, M. (2009). *Learning through child observation*. (2nd ed.). Jessica Kingsley Publishers.
- Fraser, S. & Gestwicki, C. (2002). *Authentic childhood: Exploring Reggio Emilia in the classroom*. Delmar Thomson Learning.
- Fyfe, B. (2012). The relationship between documentation and assessment. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The hundred languages of children: Reggio Emilia experience in transformation* (3rd ed.). (pp. 273-292). Ablex.
- Ganus, L. A. (2010). *The pedagogical role of Reggio-inspired studios in early childhood education* [Unpublished doctoral dissertation]. University of Denver.
- Geist, E. & Baum, A. C. (2005). Yeah, But's that keep teachers from embracing an active curriculum: Overcoming the resistance. *Young Children*, 1-8.
- Hansen, S. G. (2012). *Children's viewpoints: Documentation and assessment in the preschool classroom* [Unpublished master thesis]. Mills College.
- Helm, J. H. (2008). Got standards? Don't give up on engaged learning! *Young Children*, 1-9.
- İnan, H. Z. (2009). Science education in preschool: how to assimilate the Reggio Emilia pedagogy in a Turkish preschool. *Asia-Pacific Forum on Science Learning and Teaching*, 10(2), 1-10.
- Kinney, L. & Wharton, P. (2008). *An encounter with Reggio Emilia: Children's early learning made visible*. Routledge.
- Lam, C. M. (2012). The disablement and enablement of childhood. *International Studies in Sociology of Education*, 22(2), 147-167. [10.1080/09620214.2012.700190](https://doi.org/10.1080/09620214.2012.700190)
- MacDonald, M. (2007). Toward formative assessment: The use of pedagogical documentation in early elementary classrooms. *Early Childhood Research Quarterly*, 22, 232-242. <https://doi.org/10.1016/j.ecresq.2006.12.001>

- Mansour, N. (2009). Science teachers' beliefs and practices: Issues, implications and research agenda. *International Journal of Environmental & Science Education*, 4(1), 25-48.
- McClure, M. A. (2008). *Building Theories: Play, making, and pedagogical documentation in early childhood art education* [Unpublished doctoral dissertation]. Pennsylvania State University.
- McKenna, D. E. (2005). Documenting development and pedagogy in the Swedish preschool: The portfolio as a vehicle for reflection, learning, and democracy. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 12, 161-184.
- Moran, M. J., Desrochers, L. & Cavicchi, N. M. (2007). Progettazione and documentation as sociocultural activities: Changing communities of practice. *Theory Into Practice*, 46(1), 81-90. <https://doi.org/10.1080/00405840709336552>
- Moss, P. (2007). Bringing politics into the nursery: early childhood education as a democratic practice. *European Early Childhood Education Research Journal*, 15(1), 5-20. <https://doi.org/10.1080/13502930601046620>
- Moss, P. (2011). Early childhood education in Reggio Emilia and social pedagogy: Are they related? In C. Cameron & P. Moss (Eds.), *Social pedagogy and working with children and young people: Where care and education meet* (pp. 59-175). Jessica Kingsley Publishers.
- Moss, P. (2012). Micro-project and macro-policy: Learning through relationships. In C. Edwards, L. Gandini, & G. Forman (Eds.), *The hundred languages of children: Reggio Emilia experience in transformation* (3rd ed.) (pp. 101-113). Ablex.
- New, R. S. (2007). Reggio Emilia as cultural activity: Theory in practice. *Theory Into Practice*, 46(1), 5-13. <https://doi.org/10.1080/00405840709336543>
- New, R. S. & Cochran, M. (Eds.). (2007). *Early childhood education: An International Encyclopedia: Vol.1. Documentation*. (pp. 296-300). Praeger.
- Pajares, M. F. (1992). Teachers' beliefs and education research: Cleaning up a messy construct. *Review of Education Research*, 62, 307-332.
- Richardson, V. (1996). The role of attitudes and beliefs in learning to teach. In J. Sikula (Ed.), *Handbook of research on teacher education* (2nd ed.) (pp. 102-119). Macmillan.
- Rinaldi, C. (2006a). The space of childhood. In C. Rinaldi (Ed.), *In dialogue with Reggio Emilia: Listening, researching and learning* (pp. 76-88). Routledge.
- Rinaldi, C. (2006b). The construction of the educational project: An interview with Carlina Rinaldi by Lella Gandini and Judith Kaminsky. In C. Rinaldi (Ed.), *In dialogue with Reggio Emilia: Listening, researching and learning* (pp. 121-136). Routledge.
- Schroeder-Yu, G. (2008). Documentation: Ideas and applications from the Reggio Emilia approach. *Teaching Artist Journal*, 6(2), 126-134. <https://doi.org/10.1080/15411790801910735>
- Sak, R. (2013). *Turkish preschool teachers' beliefs and practices related to child-centred education* [Unpublished doctoral dissertation]. Middle East Technical University.
- Şahin-Sak, İ. T., Tantekin-Erden, F., & Pollard-Durodola, S. (2018). Turkish preschool teachers' beliefs and practices related to two dimensions of developmentally appropriate classroom management. *Education 3-13*, 46(1), 102-116. <https://doi.org/10.1080/03004279.2016.1194447>
- Sevey, L. A. (2010). *The role of pedagogical documentation in developing young children's thinking processes* [Unpublished doctoral dissertation]. University of Rhode Island and Rhode Island College.
- Sussna, A. G. (1995). *The educational impact on preschool teachers of an adaptation of the Reggio Emilia documentation process* [Unpublished doctoral dissertation]. University of Massachusetts Amherst.
- Şahin, A. & Çokadar, H. (2006). Teaching process, authority, and democratization: teachers' behavior against the pitfall of authoritarian, laissez-faire, and indifferent approaches. *International Journal of Environmental and Science Education*, 1(2), 120-136.
- Thornton, L. & Brunton, P. (2009). *Understanding the Reggio approach* (2nd ed.). Routledge.
- Turner, T. & Wilson, D. G. (2009). Reflections on documentation: A discussion with thought leaders from Reggio Emilia. *Theory Into Practice*, 49(1), 5-13. <https://doi.org/10.1080/00405840903435493>

Weigand, R. (2011). *A garden of learning: Exploring critical place-based pedagogy in kindergarten* [Unpublished master's thesis]. University of Toronto.

## ÖZET

**Giriş:** Bu araştırma, Reggio ilhamlı dokümantasyon uygulamasına dair yapılan bir eğitim programının okul öncesi öğretmenlerinin demokratik tutum ve çocuk merkezli uygulamalarla ilgili görüşlerine etkisini belirlemek amacıyla gerçekleştirilmiştir.

**Yöntem:** Araştırmaya Konya'da görev yapmakta olan 64 okul öncesi öğretmeni katılmıştır. Araştırma karma modelde olup nitel ve nicel veriler eşzamanlı olarak toplanmıştır. Öğretmenler deney ve kontrol grubu olarak ayrıldıktan sonra, deney grubundaki öğretmenlere yedi oturumdan oluşan bir eğitim programı uygulanmıştır. Bu eğitim programında öğretmenlerle Reggio Emilia yaklaşımının özgün uygulamalarından olan dokümantasyon konusunda teorik bilgi verilmiş ve uygulamalar gerçekleştirilmiştir. Eğitim programı öncesinde ve sonrasında tüm katılımcılara Öğretmen Tutum Anketi uygulanmış olup, deney grubunda bulunan on gönüllü öğretmenle eğitim öncesinde ve sonrasında görüşme yapılmıştır.

**Bulgular, Sonuç ve Öneriler:** Nicel analiz bulguları, eğitim öncesi deney ve kontrol grupları arasında tutumlar arasında anlamlı farklılıklar olmadığını göstermektedir. Ancak eğitim sonrasında müdahale grubunun kontrol grubuna göre daha demokratik tutumlar benimsediği görülmüştür. Müdahale grubu öğretmenleri ile yapılan görüşmelerin analizi de bu bulguları desteklemekte olup öğretmenlerin yanıtları çocuk merkezli ve demokratik uygulamalara doğru bir değişim olduğunu göstermektedir.

Bu araştırma Reggio temelli dokümantasyon eğitiminin okul öncesi öğretmenlerinin demokratik tutumlarını ve çocuk merkezli uygulamalarını teşvik etmede etkili olabileceğini ortaya koymaktadır. Bu bağlamda, öğretmenlerin ve öğretmen adaylarının dokümantasyon konusunda bilgilendirilmeleri, staj ve uygulamaları sırasında dokümantasyon kullanmalarını teşvik edilmesi önerilebilir. Ek olarak, gelecekteki araştırmalar Reggio Emilia yaklaşımının diğer ilkelerini inceleyebilir ve bunların öğretmen tutumlarına katkısını inceleyebilir. Sınıf gözlemleri gibi farklı veri toplama yöntemleri dokümantasyonun etkinliğini daha fazla analiz etmek için kullanılabilir.