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Investigation into the Process of Providing Speech and Language Therapy to Students with Special Needs

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Abstract

This study examines the delivery of speech and language therapy services to students with hearing loss (HL) and Down syndrome (DS) at a special education and rehabilitation center (SERC). Accordingly, speech and language therapy services were delivered to three students with HL and two with DS. The study employed an action research design. Data were collected through field observations, a reflective research diary, video recordings, interviews, document analysis, and standardized tests. During the preparation phase, field observations were conducted at the SERC. During the implementation phase, the speech and language abilities of the participating students were assessed, and individualized speech and language therapy interventions were planned and delivered. The assessment and monitoring phases systematically analyzed students' speech and language development. Data were analyzed concurrently using a systematic approach. The findings guided the planning of subsequent actions. The results of the study indicate that speech and language therapy services significantly contributed to the speech and language development of the participating students. Based on these findings, recommendations are proposed to enhance speech language therapy support services in similar educational settings.

Keywords: Special education and rehabilitation, students with hearing loss, students with Down Syndrome, speech and language therapy

About the Article

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Introduction

Speech and language difficulties can significantly hinder individuals' communication, academic achievement, and social interactions (Hitchcock et al., 2015). Students with special needs often face challenges in these domains, making it essential to provide appropriate support services to help overcome or minimize such difficulties (Allen & Mayo, 2020; Westby, 2021). Speech and language therapy for students with special needs encompasses the assessment, prevention, and treatment of disorders related to speech, language, communication, and swallowing (American Speech-Language-Hearing Association [ASHA], n.d).

The term "students with special needs" includes various groups who require specialized educational, therapeutic, and supportive services. Among them, students with hearing loss (HL) often experience significant delays in acquiring speech and language skills. Language development in children with HL can be affected across all components of language. Their phonological awareness may be limited, resulting in difficulties distinguishing sounds and achieving accurate articulation. Morphological and syntactic structures develop with delays; sentences may be simple and grammatically incomplete. In terms of lexical development, they often struggle with learning, understanding, and generalizing new words. Semantically, they may experience limitations in comprehending and using concepts appropriately. Therefore, interventions should be planned holistically to target all components of language (Girgin & Büyükköse, 2015; Goberis et al., 2012; Spencer & Guo, 2013; Wiggin et al., 2021; Zaidman-Zait & Most, 2020). Effective use of hearing technologies, early intervention, and family involvement are critical factors that contribute to the development of speech and language in individuals with HL. Research has shown that children with hearing loss can develop language skills comparable to their typically developing peers when provided with early diagnosis and appropriate interventions (Kaipa & Danser, 2016). Consequently, speech and language therapy programs tailored to the individual needs of students with HL are crucial in supporting their communication development (Asad et al., 2018; Nittrouer, 2016; Paul & Norbury, 2012).

Students with Down syndrome (DS) generally experience difficulties across many components of language development, although certain areas of strength can also be observed. Research on articulation and phonology indicates the presence of developmental delays and atypical speech errors that are not commonly observed in typical development (Kent & Vorperian, 2013). Sentence formation (syntax) is usually weak, with utterances tending to be short and simple (Witecy & Pence, 2017). Significant difficulties are commonly observed in morphology, another language component. Grammatical structures, such as tense, person, and plural markers, are often acquired late or used inaccurately. This adversely affects expression accuracy and sentence construction (Smith et al., 2017; Katsarou & Andreou, 2022). Pragmatic language skills are notably difficult, particularly with regard to understanding context, initiating conversations, and maintaining narratives. While weaknesses in the appropriate use of context are evident, nonverbal communication skills, such as gestures, facial expressions,

and body language, as well as receptive vocabulary, are considered relative strengths. However, compared to their typically developing peers, these strengths may become more limited over time (Laws et al., 2015; Lee et al., 2017; Smith et al., 2017). This complex profile highlights the importance of early, individualized, and comprehensive language interventions that address all areas of language development (Burgoyne et al., 2013; Moraleda-Sepúlveda et al., 2022). Furthermore, families should engage in communication practices that promote language development. Active parental involvement in speech and language therapy can improve outcomes, and therapy goals should promote effective parent–child interaction (Seager et al., 2022).

Supporting the communication skills of students with special needs not only helps reduce barriers in daily life but also enhances their participation and achievement in academic domains such as reading and writing (Hitchcock et al., 2015; Marschark et al., 2007; Snowling & Hulme, 2011). To address these needs effectively and promote inclusion in educational and everyday contexts, integrated therapy services delivered in coordination with school-based programs and interdisciplinary teams are essential (Blosser & Means, 2020; Cahill et al., 2024). In Türkiye, speech and language therapy services are predominantly provided outside the school setting, including university-affiliated centers, private clinics, hospitals, and special education and rehabilitation centers (SERCs). These centers offer individualized support programs tailored to different types of disabilities and employ a range of specialists to support the development of communication, language, and academic skills from early childhood onwards (Atmaca & Uzuner, 2020; Bekar et al., 2021; Gürgür et al., 2016; Kalaycı, 2019; Savaş & Toğram, 2013).

Speech-language therapists (SLTs) must possess specialized expertise in providing effective communication and academic support to students with special needs. Ongoing professional development is essential for SLTs to implement up-to-date, evidence-based therapeutic approaches (Houston & Perioge, 2010; Page et al., 2018). However, research examining the internal processes of SERCs and strategies to enhance service quality remains limited. Existing studies primarily reflect expert opinions, highlighting the need for more comprehensive investigations into the implementation of speech and language therapy (Kalaycı, 2019; Savaş & Toğram, 2013). Students with HL and those with DS experience various challenges in speech and language development. Systematic and individualized interventions, however, are effective in addressing these challenges. Studies indicate that early-starting programs involving parental participation significantly enhance both language development and social–academic engagement (Arráez-Vera et al., 2023; Moraleda-Sepúlveda et al., 2022). Although current research provides a valuable foundation for speech and language interventions, further comprehensive studies are needed, particularly about age groups, intervention types, assessment methods, and long-term outcomes. Notably, original research investigating the delivery of speech and language therapy services in SERCs remains scarce.

Given this gap in the literature, examining the provision of speech and language therapy as an out-of-school support service is essential for informing and guiding practitioners in enhancing the quality of the services they deliver. Moreover, such research can provide a valuable foundation for future studies in the field. In this context, this study aims to examine the speech and language therapy service delivery process provided to students with special needs. Accordingly, the study seeks to answer the following research questions:

1. How was the speech and language therapy service structured and delivered in the SERC context?
2. How was the speech and language therapy service implemented for students with HL and DS during the study?
3. What improvements were observed in the speech and language skills of students with HL and DS following therapy?
4. In what ways did the research process enhance the researcher's professional practice and reflective skills?

Method

Research Methodology

This study, which was conducted to examine the speech and language therapy service to be provided to students with HL and DS in a SERC, was conducted as action research. While defining the current situation, action research also aims to develop active interventions and innovative strategies to improve this situation. The researcher meticulously collects data at every stage of the process, makes in-depth reflective inquiries based on these data, and prepares and implements new action plans in line with these inquiries (Gürgür, 2017; Johnson, 2012).

This research process aligns with the steps of the action research cycle defined by Johnson (2012), including identifying the issue, gathering information, conducting a literature review, developing a research plan, implementing the plan and analyzing the data, and writing the final report. In the first phase, the research topic/problem was identified based on the researcher's academic background in special education and speech-language therapy, professional experience in the SERC, and a literature review. Observations were conducted at the SERC during the initial stage of the study. In the implementation phase, assessments were carried out for the participating students, individualized education plans (IEPs) were prepared, and speech and language therapies were planned and applied. During the assessment and follow-up stages, the students were reassessed.

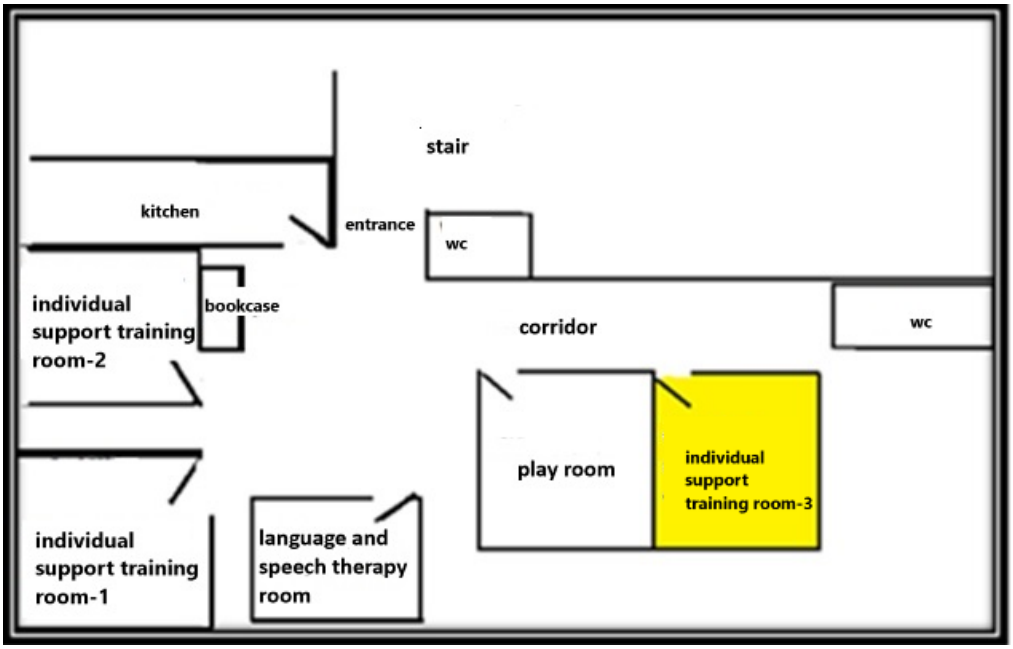
Throughout the process, the therapies provided to the students during the implementation phase were revised and planned in line with the opinions of the validity

committee. Thus, as is characteristic of action research, the steps of continuous assessment, planning, and intervention were carried out in an integrated manner.

Research Environment

This research was conducted in a SERC in Eskişehir Province. The SERC has three floors, and the implementation took place in one of the individual education rooms on the first floor. As shown in Figure 1, the first floor includes three individual education rooms and one speech language therapy support room. The study was carried out in the third individual education room visible in the figure.

Figure. 1
Sketch of the First Floor of the SERC



Researchers

In this study, the first author assumed a multifaceted role as data collector, practitioner, and observer. As a professional specialized in both special education and speech and language therapy, the researcher actively participated in all phases of the research. During the implementation phase, the researcher conducted student assessments, prepared IEPs, and carried out speech and language therapies. In addition, observations related to the sessions were recorded in reflective diaries, enabling continuous evaluation of the process.

The second and third authors served as members of the credibility committee during the research process. They contributed expert opinions in the evaluation of the therapies, validation of findings, and interpretation of the data. Furthermore, they played an active role in the preparation of the research report by contributing to the organization of the findings and the refinement of the manuscript.

Participants

The participants of the present study were three students with HL and two DS. Also involved in the research process were the students' mothers, members of the validity committee, and other experts. The information about the students with HL who participated in the present study is given in Table 1. The information on students with DS is also given in the Table. 2. The students' names were changed, and they were given code names to keep their identity information confidential.

Table 1
Information about Students with Hearing Loss

Student Name	Age	Hearing technology used	Degree of hearing loss	Age of diagnosis of hearing loss
Ayşe	8	Right ear: Hearing aid Left ear: Cochlear implant	The right ear is severe, Left Ear profound sensorineural hearing loss	2
Ali	9;02	Right ear: Cochlear implant Left ear: Hearing aid	Profound bilateral sensorineural hearing loss	Congenital
Emre	9;02	Right Ear: Hearing aid Left Ear: Hearing aid	Moderate bilateral sensorineural hearing loss	Unknown

Students with HL received special education support, but have not received speech and language therapy support before.

Table 2
Information about Students with Down Syndrome

Student Name	Information
Duru	The student is 5 years and 8 months old. She began speaking her first words at the age of 1 year and 8 months. According to the report from the guidance and research center, she has a diagnosis of mild intellectual disability. She currently uses single-word utterances.
Feyza	The student is 6 years old. Babbling began at around 7–8 months of age, but there was a delay in the transition to meaningful words. According to the report from the guidance and research center, she has a diagnosis of mild intellectual disability. She can produce two-word phrases.

Students with DS receive special education support, but have not received speech and language therapy support before.

The families of the students: The educational processes of the students participating in the study were generally overseen by their mothers. Duru, Feyza, and Ayşe came to the SERC with their mothers. Meanwhile, Ali and Emre arrived at the center using its transportation service. Ayşe's mother was 36 years old and a teacher. Duru's mother is 46 years old, a high school graduate, and a housewife. Feyza's mother was 45 years old and had retired from a public institution. Ali and Emre were twin brothers, and their mother was a 39-year-old housewife. She had severe congenital hearing loss.

SERC staff: The IEP development for students was carried out in cooperation with the education coordinator and the SLT of the SERC. To understand how the SERC functions, the therapies performed by the SLT were observed. The SERC speech and language therapist had a bachelor's degree in Speech and Language Therapy and was pursuing a master's degree in the same field. The education coordinator specialized in Psychology and held a master's degree in the field.

Validity committee member 1: A Professor Doctor in the Department of Education for the Hearing Impaired, who supported the planning and finalization phases of the research. He had experience with action research in the education of students with HL.

Validity committee member 2: A lecturer in the field of Speech and Language Therapy who provided expert feedback on therapy sessions and contributed to process planning. Her research focused on phonological awareness and speech sound disorders, and she taught these topics in the undergraduate Speech and Language Therapy program.

Validity committee member 3: An expert with 40 years of experience in the education and communication skills of children with hearing loss.

Validity committee member 4: A professor in the English Language Teaching program who also taught in the Speech and Language Therapy program.

Data Collection

In the present research, various data collection techniques were employed to ensure data diversity. The data sources included a researcher diary, interviews, observations, documents, video recordings, and standardized tests (Table 3).

Table 3
Data of the Research

Observation	Field notes on the sessions of the speech and language therapist in the SERC 50 pages
Video recordings	65 therapy videos, 21 assessment videos A total of 11 video recordings of validity committee meetings and 2 IEP meeting videos
Researcher diary	127 pages
Documents	Validity committee minutes, reports issued by the guidance and research center for the students, audiological tests, therapy plans and materials for students, and messages with families.
Interviews	Unstructured interviews with families 133 minutes in total
Standardized Tests:	Turkish Articulation and Phonology Test, Turkish (TEDİL: Test of Early Language Development-Third Edition and TODİL: Test of Language Development-Primary-Fourth Edition)

Data Analyses

An iterative and systematic qualitative data analysis approach was adopted in this action research. Data collection and analysis were conducted simultaneously, and the findings from each implementation cycle guided the planning of subsequent steps (Feldman et

al., 2018). The analysis involved rapid data review, comparison with the research questions, validation of findings, and the development of action plans for future practice. This approach ensured that analysis was not limited to a single stage but embedded throughout the entire research process in a continuous analytic cycle (Miles et al., 2014).

The researcher presented preliminary findings to the thesis monitoring committee and revised implementation strategies by the committee's feedback. This process reflected both reflective thinking and action-oriented decision-making, aligned with the fundamental principles of action research, where data collection, analysis, planning, and implementation proceed in an iterative, interconnected manner (Johnson, 2012; Mertler, 2014).

Trustworthiness

In qualitative action research, trustworthiness refers to the rigor and credibility of the entire research process, including data collection, analysis, and the reporting of findings (Mertler, 2014; Miles et al., 2014). To ensure trustworthiness in this study, several strategies were implemented. First, the researcher employed triangulation through the use of multiple data collection methods, thereby enhancing the credibility and depth of the findings. Following each speech and language therapy session, therapy videos were reviewed, and observational notes were documented in a reflective diary. These records, including the challenges experienced during sessions and observed student progress, were shared with a credibility committee composed of field experts. Feedback received from this committee guided the refinement of practices throughout the research process (Bogdan & Biklen, 2007).

Before the implementation phase, the researcher conducted field observations at the SERC to gain contextual awareness. The researcher holds dual expertise as both a speech and language therapist and a special education specialist. Additionally, she previously worked for two years as a Teacher of the Hearing Impaired at a different SERC. This professional experience and dual-field expertise enabled the researcher to develop a deeper understanding of the context (Mertler, 2014).

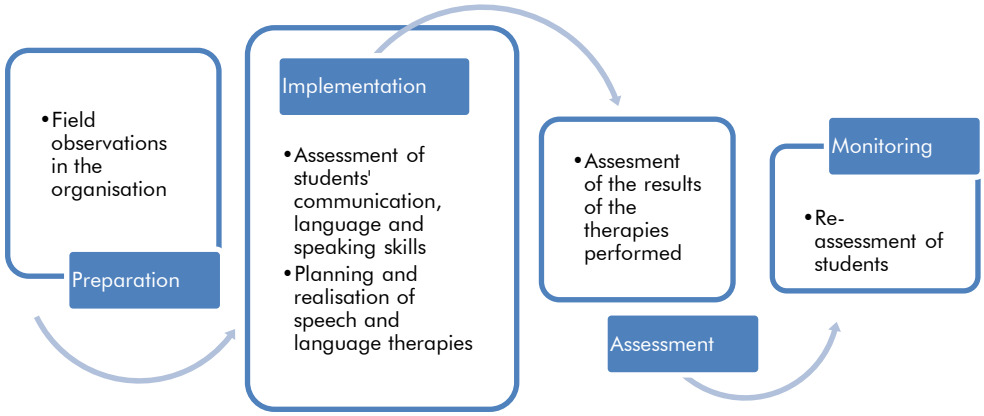
Research Ethics

In this research, ethical approval was obtained from the Anadolu University Social and Human Sciences Scientific Research and Publication Ethics Committee with the decision numbered 122612. Before this research, verbal and written information about this research was given to SERC managers and the coordinator, and permission was obtained. The families of the students participating in this study were informed about the research, and consent forms were signed. Families were informed at every stage of the research. The identity information of the families and students was kept confidential. Students were given code names in this study.

Findings

In this study, which was conducted in a SERC to provide speech and language therapy services to children with HL and DS, four main stages were found. The stages of this research included preparation, implementation of practices, assessment of students, and monitoring of student progress. This section presents the findings obtained from the action research in line with the four main research questions. First, the structure and delivery of the speech and language therapy service within the context of the SERC were examined. Second, the implementation process of speech and language therapy services for students with HL and DS was addressed. Third, students' speech and language improvements were assessed after the therapy sessions. During the monitoring phase, students were re-evaluated three months after the completion of the speech and language therapy sessions. Finally, the impact of the research process on the researcher's professional development and reflective practices, as the therapist conducting the study, was analyzed. The findings are presented in a manner consistent with the research questions and the emerging themes. Figure 2 shows the stages of this research visually.

Figure 2
Research Process



Preparation Phase: Observations Conducted in the SERC

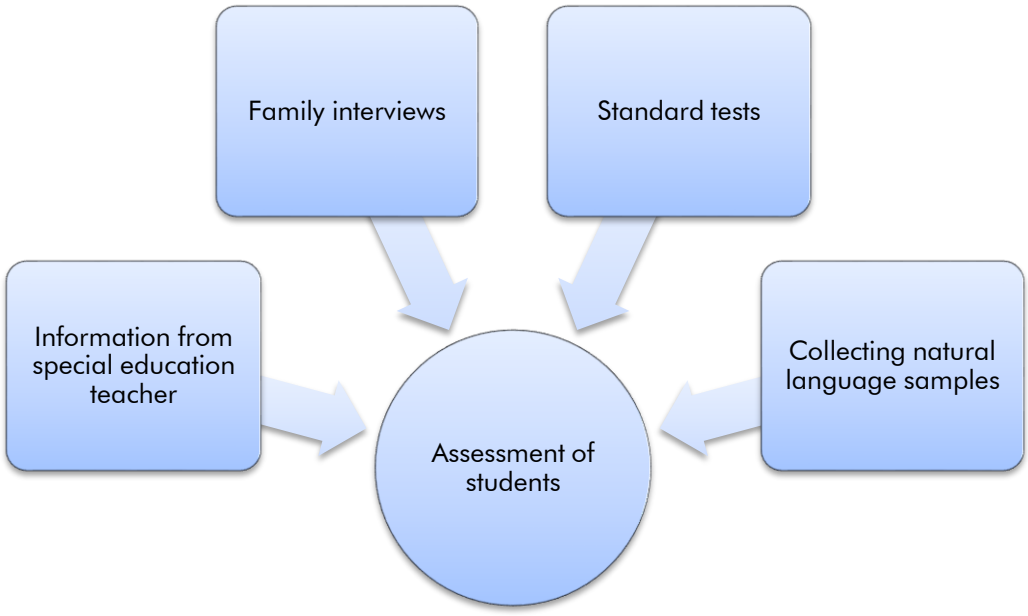
In the preparatory phase of this research, field observations were carried out to determine how the speech and language therapy support service provided in the SERC was implemented. The researcher conducted field observations focusing on the practices of the SLT working at the SERC. In total, 15 field observations were made, and field notes were recorded. The observations revealed that the students receiving services from the SLT had various diagnoses (e.g., autism, speech sound disorder, stuttering, HL) or had come to the SERC solely for assessment purposes. These students were referred to the

SLT by the SERC coordinator. One of the students with HL who attended during the observation period did not have a diagnostic report and had come for assessment only. The other student was enrolled at the SERC and was referred by the coordinator to determine whether speech and language therapy was needed. The SLT assessed students' speech and language skills through observation, family interviews, and standardized tests to determine the need for speech and language therapy. Following the assessment, the therapist planned the therapy process, informed families, and assigned homework (Field observation notes, pp. 1–50). Based on a meeting with the validity committee member 1, it was concluded that the field observations were sufficient, and it was decided to proceed to the implementation phase.

Implementation Phase: Speech and Language Therapy Practices for Students with HL and DS

During the implementation phase of the study, students' speech and language skills were assessed, and IEP plans were created. Then, therapies were planned based on these plans. Speech and language therapy services were provided to students. Student assessments included family interviews, input from special education teachers, analysis of natural language samples, and the administration of standardized tests to evaluate language and speech abilities (Figure 3).

Figure 3
Assessments of Students



After assessing the students' speech and language development, the areas that would receive speech and language therapy support were determined. Table 4 shows the areas in which support was provided. In determining the target areas for speech and language therapy, various factors were taken into account, including the results of the student's speech and language assessment, the educational and support services previously received, parental input, and the planned duration of the therapy.

Table 4
Language and Speech Areas Identified for Support After Assessment

Students	Language and Speech Areas Identified for Support
Ayşe	Articulation, pragmatics
Ali	Articulation, pragmatics
Emre	Articulation, pragmatics
Duru	Providing language therapy in the areas of morphology, syntax, semantics and pragmatics
Feyza	Providing language therapy in the areas of morphology, syntax, semantics and pragmatics

IEP Meetings: To create IEPs for the students, the researcher held two meetings with the coordinator of the SERC, the SLT working in the SERC, and committee member 1 at the SERC. In the meetings, the students' assessment results were discussed, and IEP decisions were made for the students.

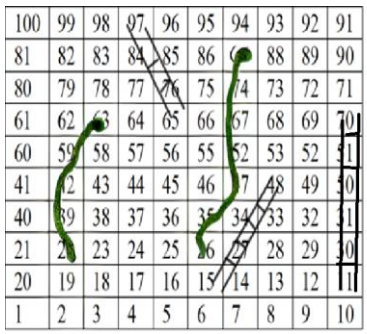
Speech and language therapies with Ali

Individual speech and language therapy intervention was carried out with Ali for 15 weeks. The student who was assessed with the Articulation subtest of the Turkish Articulation and Phonology Test revealed that he had difficulty in producing only the phoneme /ɾ/ correctly. For 14 weeks, articulation therapies were carried out for the correct production of the phoneme /ɾ/. In the therapies with the student, studies on the production of the phoneme /ɾ/ were generally carried out for the first 30 minutes. In some therapies, dialogues were planned to support the student's usage knowledge without disturbing the naturalness of the game. In some therapies, the student was asked to explain the rules of the game (Figures 4 and 5). For example: In one therapy session, Ali was asked to explain the rules of a game they had played before and discussed the rules (Video recording, No: 65):

Ali: "I choose one, the numbers are written on the paper, and it goes up to five. But if it was three, there would be a staircase at three. Then it goes to high numbers. The one who goes up to 100 wins. For example, there is a snake here. The snake takes us down, how far is its tail, then it goes down."

Researcher: "We're going down to the snake's tail."

Figures 4 and 5
Play in Therapy Session with Ali

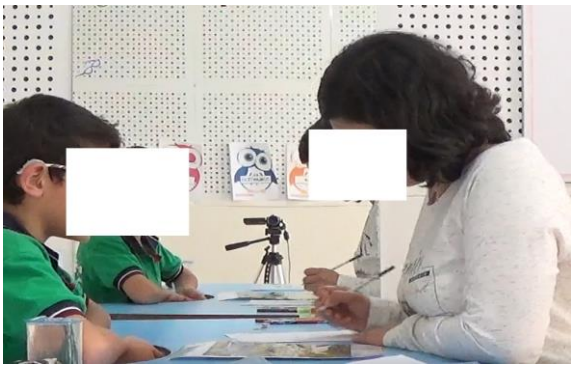


100	99	98	97	96	95	94	93	92	91
81	82	83	84	85	86	87	88	89	90
80	79	78	77	76	75	74	73	72	71
61	62	63	64	65	66	67	68	69	70
60	59	58	57	56	55	52	53	52	51
41	42	43	44	45	46	47	48	49	50
40	39	38	37	36	35	34	33	32	31
21	22	23	24	25	26	27	28	29	30
20	19	18	17	16	15	14	13	12	11
1	2	3	4	5	6	7	8	9	10

Speech and language therapies with Emre

A total of 14 individual speech and language therapy sessions were conducted with Emre. In the therapy sessions, the primary focus was on the correct use and generalization of the phoneme /t/ in all word positions. Emre was able to produce the phoneme /t/ correctly in isolation, but during connected speech, he substituted it with the phoneme /k/ or its allophone. After three weeks of phoneme-level work, the generalization phase for /t/ was initiated, and while this phase continued, work on a new phoneme also began. Emre was able to produce the phoneme /ʧ/ correctly in isolation. (The /ʧ/ symbol, part of the International Phonetic Alphabet [IPA], represents a voiceless postalveolar affricate sound, as in the initial sound of the English word "chair." In Turkish, it corresponds to the letter "ç.") However, since he made various errors at the beginning and end of words, targeted practice was planned to support correct production of this phoneme in those positions. Articulation therapy with the /ʧ/ phoneme continued until the end of the intervention (Video Recording, No: 64). After the articulation sessions, age-appropriate games were played with Emre, and planned conversations were conducted. These activities were intended to support the pragmatic dimension of language use (Researcher's diary, p. 81).

Figure 6
A Therapy Session with Emre



Speech and language therapies with Ayşe

A total of 12 individual speech and language therapy sessions were conducted with Ayşe. It was determined that Ayşe's language development matched her age level, except for a persistent difficulty with the phoneme /r / (Video recording, No: 63). For 12 weeks, articulation therapies were carried out for the correct production of the /r / phoneme. In some of the therapies with Ayşe, as with the other students, planned games were played and conversations were held to support pragmatics (Figure 7).

Figure 7
A Therapy Session with Ayşe

Speech and language therapies with Duru

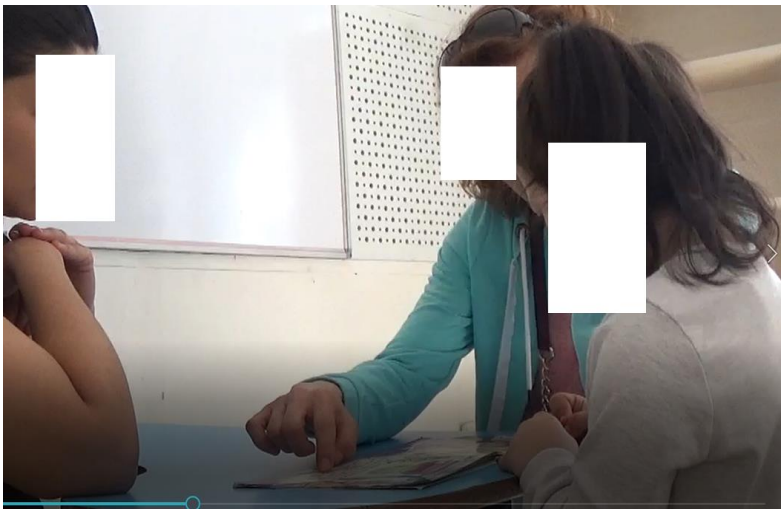
14 individual speech and language therapy sessions were conducted with Duru. During the individual speech and language sessions with Duru, it was aimed to support her language development through planned conversations. The therapist prepared pre-therapy materials and identified possible questions about the child's language development. The mother attended and observed all sessions, and she also conducted some of the conversations herself. The mother actively participated in the therapies to observe and implement strategies that support language development. When Duru began therapy, she typically used single-word utterances. The therapy sessions aimed to support her in producing two- to three-word sentences and to enhance her use of morphemes and vocabulary. For example, in one session, the therapist introduced a sequencing card activity about a picnic. During this session, which also included the mother's participation, a conversation was conducted based on the visual stimulus (Figure 8). When the researcher asked, "*What are you going to put on it?*" Duru said, "*Plate*" and the researcher expanded it as "*I will put a plate*". Duru repeated, "*Tabak koyacağım. (I will put a plate)*" (Video recording, No: 39).

Figure 8
A Therapy Session with Duru

Speech and language therapies with Feyza

Feyza participated in this study after the other students. Therefore, 10 individual speech and language therapy sessions were conducted. In the therapies, efforts were made to increase the use of three-word sentences, to support her in the morphological field, and to increase her vocabulary. The mother participated in all therapies. The mother was also asked to participate in the dialogues (Figure 9)

Figure 9
A Therapy Session with Feyza



Assessment Phase: Monitoring the Progress of Students with HL and DS

This section presents the findings obtained from the assessment of the students. Students' performances were regularly assessed after the therapies and their progress was shared in the validity committees. At the end of the therapies, a final assessment was made and reported (Figure 10 and 11).

Figure 10.
Assessment of Students with Hearing Loss

Ali

- The first aim of the therapy with Ali was the correct production of the phoneme /ɾ/. Ali was not able to produce the target phoneme in isolation. He gained awareness about the location and form of the target phoneme (Video recording, No:65). The planned conversation had some benefits in terms of the learner's usage knowledge.

Emre

- In Emre's spontaneous utterances, it was found that he rarely made errors with the phoneme /t/ and generally used it correctly (Video recording, No: 68). In the assesment, it was observed that he could produce the phoneme /ʧ/ with 90% accuracy in all positions of the words. However, due to the termination of the therapies, the phoneme /ʧ/ could not be studied at the sentence level. In Emre's therapies, the use of language was supported by the conversations about the rules of various games. These studies contributed positively to Emre's language development (Researcher Diary, p. 82).

Ayşe

The last assessment session determined that she could not produce the phoneme /ɾ/ correctly in isolation. At the end of the therapies, Ayşe's mother expressed that she found the therapies useful. At the end of the therapies, the researcher tried to support other areas of language during activities and games (Researcher's Diary, p. 84).

Figure 11
Assessment of Students with Down Syndrome

Duru

- In Duru's final assessment, it was observed that she could repeat the negativity suffix and used it spontaneously in the activity. It was observed that she could use the complement suffix. She started to use two-word sentences. She started to use words, such as "cow, horse, chick" instead of animal sounds. Since the weather and the day of the week were routinely discussed before each therapy, the child started to use expressions, such as "*Yağmur yağıyor (it is raining*)." She answers the question of what day it is today? (Video Recording, No: 69).

Feyza

- A total of 10 speech and language therapy sessions were conducted with Feyza. At the end of the therapy, Feyza was able to use the negativity suffix correctly. During daily conversations, she usually responds with simple two-word sentences. She can repeat and use three-word sentences, but it was observed that the frequency of such sentences was less than two-word sentences (Video recording, No: 70). To the why question, Feyza gave answers. For example: "*Hasta olmuş. (She got sick.)*" It was observed that the student started to answer why questions (Video recording, No: 70).

Monitoring Phase: Reassessment of Students

Three months after completing the speech and language therapy sessions, follow-up assessments revealed that Ali and Ayşe were still unable to produce the /r/ phoneme in isolation. Emre was able to use the /t/ phoneme correctly in spontaneous speech and produced the /ʧ/ phoneme accurately at the lexical level, although errors persisted in spontaneous speech. Feyza began to use the "why" question spontaneously and produced two- to three-word sentences. However, due to difficulty in forming longer sentences, she often used simpler expressions. In Duru's follow-up assessment, her mother brought books from home and had a conversation with Duru about her drawings. During the interaction, the mother was observed giving her child adequate response time and using a variety of question types, including "why." Duru was able to spontaneously produce two-word sentences such as "Anne kızacak (Mum will be angry)." In the follow-up assessment, no significant changes were observed in the students' speech and language skills (Researcher's diary, p. 101).

Contributions of Speech and Language Therapy Service Provision Process to the Researcher

The researcher wrote a reflective diary throughout the whole process. Expert opinion was obtained from the members of the validity committee. The videos of the therapies performed in the committees were watched by the committee members, and feedback was given. During the implementation process, the researcher constantly questioned how to provide more effective therapies for the students and planned actions to solve the problems that emerged. For example, after the therapy session, the researcher reflected on the process and wrote the following note in her diary: "*I noticed that the mother had*

difficulty expanding the child's language and waiting for the child for a sufficient amount of time. Maybe I should review my modeling style. I was able to increase the time I allocated to the mother today and observe the interaction better." (Researcher's diary, p. 69). She received support from Committee Member 1 for reflective diary writing. Committee member 1 read the diaries and wrote her suggestions using email.

Discussion and Conclusion

In this study, support services were provided to students with HL and DS in a SERC. During the preparation phase, field observations revealed that students with speech and language disorders were referred by the education coordinator and received assessment and therapy services from the specialist. However, a significant limitation observed in the process was that these services were typically carried out individually, without systematic IEP team collaboration. Similarly, previous studies have indicated that specialists often work in isolation when assessing students and determining the goals of support services, and that structured IEP teamwork is not implemented (Aslan-Armutcu et al., 2024; Gürgür et al., 2016).

One of the key reasons for this issue is the intense daily schedules of professionals working in SERCs. As highlighted in the literature, specialists conduct consecutive individual sessions throughout the day, leaving them with little to no time for collaborative planning (Aslan-Armutcu et al., 2024; Eldeniz-Çetin & Şen, 2017; Yenigün & Odluyurt, 2020; Yıldız, 2023). The lack of available time and structural limitations stand out as major barriers to effective IEP team collaboration. Yet, the literature consistently emphasizes the need for a cooperative, team-based approach involving all stakeholders in the planning and implementation of support services (Mastropieri & Scruggs, 2010; Mathers et al., 2024; Veyvoda et al., 2019; Wallace et al., 2022). Therefore, fostering a culture of teamwork in SERCs, revising organizational structures, and allocating designated time within working hours for professionals to engage in collaborative IEP development should be considered essential.

This study involved three students with HL. The therapies focused on speech sound disorders and targeted the phonemes that the students with HL struggled to produce. Ayşe and Ali could not produce the /ɾ / phoneme correctly, though they did not have difficulty with other phonemes. Despite therapy, producing the /ɾ / phoneme remained challenging for them, which is consistent with findings in other languages (Gosling, 2012). Unlike phonemes such as /b/, /p/, and /m/, which have visible articulation cues, /ɾ / lacks these cues, making it more difficult to teach. Previous research has also documented this articulation challenge in individuals with HL (Girgin & Büyükköse, 2015; Büyükköse & Girgin, 2018). Emre successfully learned to produce the /t/ phoneme through therapy and generalized this skill to sentence-level speech. He also produced the phoneme /ʧ/ correctly in various word positions. Post-therapy activities included games in which students explained rules to enhance skills such as providing

information and maintaining communication by rephrasing when misunderstood (Paul & Norbury, 2012). This study involved conducting articulation therapy with students once a week for a limited period. There is no definitive research on the optimal frequency of speech sound disorder therapy for children with hearing loss. Kaipa and Peterson (2016) emphasized the need for more research on therapy duration, suggesting that higher intensity may improve outcomes; however, they did not provide any specific recommendations. Further research is needed to determine the ideal frequency and duration of articulation therapy for students with hearing loss.

Individuals with DS exhibit a complex language profile characterized by pervasive difficulties across multiple components (Kent & Vorperian, 2013; Witecy & Pence, 2017; Smith et al., 2017; Lee et al., 2017). Their sentence construction skills are usually limited to short, simple structures, and they often acquire morphological elements such as tense, person, and plural markers late or use them incorrectly. This negatively affects their grammatical accuracy (Smith et al., 2017; Katsarou & Andreou, 2022). The findings of this study are consistent with previous research. Students with DS demonstrated particular difficulties in syntax, morphology, and other areas. Their utterances were generally short and lacked some grammatical markers, confirming the need for early, individualized interventions targeting these domains. In response to these needs, the current study implemented an intervention aimed at supporting language development through planned, natural conversations, encouraging active maternal participation. Language support strategies were modeled directly for mothers, who participated actively in therapy sessions. Paternal involvement was limited due to work-related constraints. Nevertheless, mothers' active role made a meaningful contribution to the therapeutic process. Previous studies have emphasized that family involvement improves therapy outcomes and equips parents with strategies they can apply in daily interactions (Erim & Seçkin-Yılmaz, 2021; Owens, 2016; Seager et al., 2022). Furthermore, therapy planning should consider the child's individual needs and the level of family engagement (Klatte et al., 2020; McKean et al., 2012; Roberts & Kaiser, 2011). In this context, it is important to regularly inform families about the child's development, even if progress is slow. The findings of this study suggest that language interventions for students with DS should be planned and include regular family involvement. In this study, children with DS received language and communication support only one day per week. However, previous systematic reviews have highlighted the potential benefits of higher-intensity interventions. For example, Seager et al. (2023) emphasized that high-intensity interventions implemented in naturalistic settings and co-delivered by parents and professionals may yield more positive outcomes for children with DS.

In this study, the researcher planned and implemented the speech and language therapies. Following the planning and implementation of the therapies, she kept reflective diaries about her practice. Reflective practice involves processes that help individuals increase their awareness and improve their therapeutic skills. The literature emphasizes that reflective practices are important for enhancing the practices of speech and language therapy students and therapists (Cook et al., 2019; Geller & Foley, 2009a, 2009b). Throughout the implementation process, the researcher developed a critical

perspective on her interventions and continually questioned how to improve her practice. Previous action research studies have also reported improvements in researchers' practices (Akay & Gürgür, 2018; Ertürk-Mustul, 2021; Tozak et al., 2018).

Limitations and Recommendations for Future Research

One limitation of this study is that it was conducted in a single SERC with a small sample consisting of three children with HL and two with DS. Additionally, due to constraints specific to the SERC, speech and language therapy sessions were limited to once per week, which may have affected the intensity and overall impact of the intervention. These limitations should be taken into account when interpreting the findings.

Future research could address these limitations by implementing studies in multiple settings with larger and more diverse samples. Investigating speech and language therapy services delivered within school environments may offer further insights into integrated and inclusive support models. Studies exploring collaboration among professionals (e.g., teachers, speech-language therapists, and special education staff) are also recommended. In addition, research focusing on parental involvement in therapy processes, mentoring and reflective practices for speech-language therapist candidates, and interdisciplinary teamwork could enrich the existing literature and contribute to more effective service delivery for students with special needs.

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Genişletilmiş Türkçe Özet

Dil ve konuşma sorunları bireylerde iletişim güçlüklerine ve aynı zamanda akademik ve sosyal becerilerde zorluklara yol açabilmektedir (Hitchcock vd., 2015). Özel gereksinimli öğrenciler iletişim, dil ve konuşma alanlarında güçlüklerle karşılaşmaktadırlar. Bu güçlüklerin azaltılması ve giderilmesi için özel gereksinimli öğrencilere uygun destek hizmetlerinin sunulması önem taşımaktadır (Allen & Mayo, 2020; Westby, 2021). Özel gereksinimli öğrencilere sunulan dil ve konuşma terapisi; konuşma, dil, iletişim ve yutma bozukluklarının değerlendirilmesi, önlenmesi ve terapisini kapsamaktadır (American Speech-Language-Hearing Association [ASHA], t.y.).

Özel gereksinimli öğrenciler ifadesi özel eğitim, dil ve konuşma terapisi ve diğer destek hizmetlere ihtiyaç duyan farklı grupları kapsamaktadır. İşitme kayıplı (İK) öğrenciler bu grupta yer almaktadır. İK öğrenciler dil ve konuşma becerilerinin ediniminde çeşitli güçlükler yaşayabilmektedir. İK öğrencilerde konuşma sesi bozuklukları, dildeki biçimbirimleri edinme ve kullanmada, dilbilgisi kurallarını kullanmada, sözcük dağarcığının geliştirmede, kullanımbilgisi becerilerinde gecikmeler ortaya çıkabilmektedir (Girgin & Büyükköse, 2015; Goberis vd., 2012; Spencer & Guo, 2013; Zaidman-Zait & Most, 2020).

Down sendromlu (DS) bireyler, dilin birçok bileşeninde yaygın zorluklar sergilemekte; ifadeleri genellikle kısa, basit yapılarla sınırlı kalmakta ve zaman, kişi, çoğul gibi biçimbilimsel ögeleri geç ya da hatalı edinmektedirler. Öğrencilerin kısa ve bazı biçimbilgilsel yapıları kullanmakta yaşadıkları sorunlar, bu alanlara yönelik erken ve bireyselleştirilmiş müdahalelerin gerekliliğini göstermektedir (Katsarou & Andreou, 2022; Kent & Vorperian, 2013; Smith vd.,2017; Witecy & Pence, 2017). Aile katılımının terapötik süreci güçlendirdiği ve ebeveynlerin günlük etkileşimlerde kullanabilecekleri stratejiler edinmelerini sağladığını vurgulanmaktadır (Erim & Seçkin-Yılmaz, 2021; Owens, 2016; Seager vd., 2022). Ayrıca, terapilerin çocuğun bireysel ihtiyaçları ve ailenin katılım düzeyi dikkate alınarak planlanması gerektiği belirtilmektedir (McKean vd., 2012).

Özel gereksinimli öğrencilere dil ve konuşma terapisi destek hizmeti veren dil ve konuşma terapistleri ile gerçekleştirilen araştırmalar, terapistlerin özel gereksinimli öğrencilere yönelik terapileri daha etkili bir şekilde planlayabilmeleri ve gerçekleştirebilmeleri için sürekli mesleki gelişim ve bilgi güncellemelerine ihtiyaç duyduklarını göstermektedir. Dil ve konuşma terapistlerinin özel gereksinimli öğrencilerin terapilerine dair derinlemesine bilgi sahibi olmaları ve güncel yaklaşımları takip etmeleri, bu alanda dil ve konuşma terapistlerine yol gösterecek daha fazla bilimsel araştırma yapılması önem taşınmaktadır (Houston ve Perioge, 2010; Kalaycı, 2019; Page vd., 2018; Savaş & Toğram, 2013). Bu açıdan, okul dışı destek hizmeti sunan özel eğitim ve rehabilitasyon merkezinde (ÖERM) dil ve konuşma terapisi hizmetinin sunum sürecini inceleyen bir araştırmanın bulgularının, uzmanların sundukları hizmetin

niteliğini geliştirmeleri açısından yol gösterici olması bakımından önemli olduğu söylenebilir. Araştırmada bu bakış açısıyla ÖERM'de uzman bir dil ve konuşma terapistinin özel gereksinimli öğrencilere yönelik dil ve konuşma terapisi sunma sürecinin incelenmesi amaçlanmıştır.

ÖERM'de İK ve DS öğrencilere sunulan dil ve konuşma terapisi hizmetinin incelenmesi amacıyla gerçekleştirilen bu çalışma eylem araştırması şeklinde desenlenmiştir. Araştırmacı öncelikle konuyu belirlemiş, ÖERM'de özel gereksinimli öğrencilere yönelik hizmetin nasıl gerçekleştiğine dair saha gözlemleri gerçekleştirmiştir. Eş zamanlı olarak alanyazın taramasına devam etmiştir. Araştırmaya katılan özel gereksinimli öğrencilerin belirlenmesi sonrası öğrencilerin değerlendirmelerini gerçekleştirmiş ve öğrencilere yönelik planlamalar yapmıştır. Geçerlilik komitelerinde verilen kararlar ve bireysel eğitim plan (BEP) amaçları doğrultusunda dil ve konuşma terapisi hizmetini sunmuştur.

Araştırmada verilerin çeşitliliğini sağlamak için farklı veri kaynaklarından yararlanılmıştır. Araştırmacı günlüğü, görüşme, gözlem, doküman incelemesi, video kayıtları ve standart testler kullanılmıştır. Eylem araştırması olarak gerçekleştirilen araştırmada sistematik ve analitik bir yaklaşımla analiz edilmiştir. Veriler toplandıktan sonra eş zamanlı analizler gerçekleştirilmiştir. Elde edilen bulgular ışığında bir sonraki adım planlaması gerçekleştirilmiştir. Sistematik analiz verilerin hızla gözden geçirilmesi, araştırma soruları ile karşılaştırılması ortaya çıkan sonuçların sınanması ve sonraki aşamaların planlanması ve gerçekleştirilmesi şeklinde gerçekleştirilmiştir (Feldman vd., 2018).

Araştırmanın katılımcıları 3 İK öğrenci ve 2 DS öğrenci, onların anneleridir. Ayrıca kurumda gerçekleştirilen BEP toplantılarına kurum koordinatörü ve kurumdaki dil ve konuşma terapisti de katılım göstermişlerdir. Araştırmanın diğer katılımcıları geçerlik komitesi üyeleridir. Araştırmada hazırlık, uygulama, değerlendirme ve izleme olmak üzere dört aşama olduğu bulunmuştur. Hazırlık aşamasında kurumdaki dil ve konuşma terapistinin uygulamaları gözlenerek saha notları tutulmuştur. Araştırmanın uygulama aşamasında öğrencilerin dil ve konuşma becerileri değerlendirilmiş, bu değerlendirmeler sonrasında bireyselleştirilmiş eğitim planları oluşturulmuş ve bu planlar doğrultusunda öğrencilerin terapileri planlanmıştır. Öğrencilere dil ve konuşma terapisi hizmeti sunulmuştur. Değerlendirme ve izleme aşamalarında öğrencilerin dil ve konuşma becerileri değerlendirilmiş ve raporlanmıştır.

İK öğrencilerle sesletim terapileri, DS öğrencilerle dil terapileri gerçekleştirilmiştir. Ali ve Ayşe ile /r/ sesbiriminin doğru üretimi üzerine çalışılmıştır. Öğrenciler terapilerin sonunda /r/ sesbiriminin doğru üretimini gerçekleştirememiştir. Emre ile terapilerde öncelikle /t/ sesbiriminin doğru üretilmesi ve genellemesi üzerine çalışılmış, ardından /tʃ/ sesbirimi üzerine odaklanılmıştır. Emre /t/ sesbirimini cümle düzeyinde genellemiştir, /tʃ/ sesbirimini sözcük içinde tüm pozisyonlarda doğru kullanmaya başlamıştır. Tüm öğrencilerde planlı oyunlar ve söyleşilerle kullanım bilgisi alanı desteklenmiştir. DS öğrencilerle dil becerilerini destekleyecek terapiler gerçekleştirilmiştir. Her iki öğrencinin annesi de terapilerde katılım göstermiştir. Terapilerin öğrencilerin dil gelişimine çeşitli

katkılar sağladığı görülmüştür. Bu katkılardan bazıları şunlardır: Duru iki kelimelik cümle kullanmaya başlamıştır. Feyza neden sorusunu anlayıp cevaplar vermeye başlamıştır.

Araştırmacı tüm süreç boyunca yansıtmalı araştırmacı günlüğü yazmıştır. Geçerlik komitesinde üyelerden uzman görüşü almıştır. Komitelerde gerçekleştirilen terapilerin videoları komite üyeleri tarafından izlenmiş ve dönütler verilmiştir. Uygulama süreci, terapilerin etkililiğini artırmaya yönelik sürekli sorgulamalar ve karşılaşılan sorunlara çözüm getirecek eylemlerin planlanmasıyla yürütülmüştür. Sürecin araştırmacının uygulama becerilerine de katkısı olduğu görülmüştür.

Sonuç olarak ÖERM'de gerçekleştirilen dil ve konuşma terapisi hizmeti sunmaya yönelik bu araştırmanın öğrencilere, özellikle DS öğrencilerin annelerine ve araştırmacıya çeşitli katkıları olmuştur. Dil ve konuşma terapisi uygulamalarında yansıtıcı öz değerlendirmelerin önemli olduğu düşünülmektedir. Özel gereksinimli öğrencilere yönelik destek hizmet sağlayan kurumlarda uzmanlar arasında işbirliği gerçekleştirmeye yönelik olanakların oluşturulması gerekmektedir.

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