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Teaching Vocabulary to Students with Specific Learning Disabilities

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Abstract

This study examined the effect of the multisensory activities in teaching sports-related words (basketball) on a student with specific learning disabilities (dyslexia). The aim of the study was to investigate the effect of this technique, based on the interests of the students, on vocabulary teaching. A single subject design was used and the participant was a 10-year-old male student diagnosed with specific learning disabilities (dyslexia). Data were collected through observation, lesson records and criterion-referenced measurement tools during six-week lesson sessions. The results of the study showed that the goal to learn the target vocabulary was achieved and the student's motivation for learning increased through the lesson plans developed in accordance with the student's interests.

Keywords: Dyslexia, Vocabulary teaching, Multisensory, Interest, Motivation

1.Introduction

Educating children with learning disabilities (LD) is an area that requires a different approach than traditional teaching methods. Specific learning disabilities such as dyslexia can create significant difficulties in students' reading and writing language skills. This poses a great challenge for both students and educators. In particular, the difficulties that students

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with dyslexia face in traditional classroom environments reinforce the view among educators that these students should be supported by separating them from the classroom. (Gosiewska Turek, 2020) However, research shows that in addition to using a wide range of methods and approaches, the guidance and support of the teacher are two important factors that enable a child with learning disabilities to overcome these difficulties. (Erkan, Kızılaslan & Yıldırım Doğru, 2012; Krzyzak, 2006). In addition, going beyond traditional methods, innovative methods and techniques of multisensory teaching are effective in developing the language and academic skills of students with learning disabilities and are being implemented in various countries by being integrated into the education system. (Ahmad, Ludin, Ekhsan, Rosmani & Ismail, 2012; Balcı & Çayır, 2017; Gyarmathy, Mahlerbe, Pichel, Stoyanov & Tartari, 2009; Hazoury, Oweini & Bahous, 2009; Ho, Lam & Au, 2001; Majzub, Abdullah & Aziz, 2012; Mehrabi, Zarbakhsh & Rahmani, 2014; Nijakowska, 2013; Nourbakhsh, Mansor, Baba & Madon, 2013; Obaid, 2013). The findings that multisensory teaching techniques are effective for children with learning disabilities are increasingly accepted in the relevant literature. Multisensory teaching aims to make students' learning processes more effective by combining their visual, auditory, tactile and kinesthetic senses. (Erkan, Kızılaslan & Yıldırım Doğru, 2012). This technique helps students by using more than one sensory channel in the language learning process, thus making the learning experience more enjoyable and memorable, which makes it easier for information to be better retained in memory. (Kormos & Smith, 2012; Nijakowska, 2013).

2. Review of Literature

Multisensory teaching provides a more effective learning experience for students with learning disabilities by allowing the teacher to help students using more than one sensory channel in the language learning process. This strategy allows students to both receive more stimulation and understand information from different perspectives, which is why the simultaneous use of visual, auditory, kinesthetic and tactile sensory channels is employed in remedial and intervention teaching, especially for students with learning disabilities. (Birsh, & Carreker, 2018; Magpuri-Lavell, Paige, Williams, Akins & Cameron, 2014). Sparks et al. (1998) recommend multisensory structured language teaching as a technique that encourages explicit and direct teaching of second language phonology through seeing, hearing and doing. Studies examining the benefits of multisensory teaching techniques in teaching English to individuals with specific learning disabilities reveal that these strategies provide significant improvements in students' language learning processes. Algrni (2020) stated that multisensory teaching strengthens learning by combining visual, auditory and kinesthetic-tactile tasks and that these techniques positively affect both the development of vocabulary and the long-term retention of this information in students with learning disabilities. Similarly, Korkmaz and Karatepe's study (2018) revealed that multisensory

teaching techniques provide significant improvements in English reading skills. The study stated that multisensory materials and activities make the learning process more effective and interesting, and increase students' participation in lessons. Teachers emphasized that these techniques increase students' motivation and enable them to participate more actively in the learning process (Korkmaz & Karatepe, 2018). Motivation is as critical a factor in teaching students with learning disabilities. Students' beliefs that they can master something is very important for a successful learning experience. Students with high motivation levels are more likely to participate in learning activities, put in effort, and seek solutions instead of giving up when faced with difficulties. Motivation becomes a critical element of academic success by affecting cognitive engagement and self-regulated learning (Schunk & Mullen, 2012). Children with learning disabilities often experience a loss of motivation because they experience delays in their achievement. In particular, students with learning disabilities may be anxious about their academic competence when they compare themselves with their classmates, causing them to feel like failures. Humphrey and Mullins (2002) emphasize that teachers have a direct impact on students' self-confidence development and that unfair teacher attitudes might lead individuals with learning disabilities such as dyslexia to lose self-confidence. Indeed, studies have shown that individuals with learning disabilities are disappointed and feel isolated when they make comparisons with their classmates. These comparisons, especially in areas such as reading, writing and spelling skills, lead students' academic motivation to decrease (Humphrey & Mullins, 2002). It has been stated that children with learning disabilities need to be supported by their teachers and educators and that their motivation can be increased with this support. Teachers play an important role in increasing student motivation and self-efficacy. Effective teaching strategies, encouragement and constructive feedback increase students' confidence in their learning skills (Schunk & Mullen, 2012). At this point, it is of great importance for teachers to be sensitive to individual differences, adopt a flexible approach in the teaching process and establish strong communication with students. Students participate more in the educational process when they have teachers who understand and support them, and an increase in their academic success is observed (Humphrey & Mullins, 2002). In this context, multisensory teaching methods make students' success visible and increase their motivation by providing them with continuous feedback. Students with high self-efficacy levels take more academic risks, make more effort in the learning process and turn out to be more resilient in achieving their academic goals. Students with low self-confidence, on the other hand, generally reject academic challenges and become less persistent in achieving success (Schunk & Mullen, 2012). In addition, teachers' adoption of approaches that reinforce students' trust in teaching and focus them on success contributes greatly to the learning process. It is thought that this motivation developed for learning will allow students to overcome the difficulties they encounter in the learning process and to participate more effectively in the teaching

process. When the studies conducted on this subject are examined (Ahmad, Ludin, Ekhsan, Rosmani & Ismail, 2012; Balci & Çayır, 2017; Gyarmathy, Mahlerbe, Pichel, Stoyanov & Tartari, 2009; Hazoury, Oweini & Bahous, 2009; Ho, Lam & Au, 2001) it is observed that there is a need for more multisensory studies. In addition, it is observed that there is limited applied research on this and similar subjects in the field. For this reason, it is considered to conduct a study on multisensory supported learning in foreign language teaching, where students with special learning disabilities have great difficulty. The purpose of this study is to evaluate the effect of multisensory teaching in teaching English vocabulary (terms related to sports) as a foreign language to students with specific learning disabilities (dyslexia). In this context, the following question was sought.

- Is the multisensory teaching technique effective in teaching English vocabulary to children with specific learning disabilities?

3. Methodology

This section includes the research model, the study group, data collection and analysis.

Research model

In this study, the effect of the multisensory teaching method in teaching sports-related words about basketball in English to a student with a specific learning disability (dyslexia) was examined through a single subject design of which analysis reveals the situation of the case with in-depth detailed analyses.

This study is considered as a teamwork used to reduce a very wide research area reached as a result of detailed measurement and evaluation to an easily understandable and researchable form. In this study, the effect of the multisensory technique in teaching English vocabulary was aimed to be evaluated. This study employed a Single-Subject Experimental Design to evaluate the effectiveness of the intervention. The Independent Variable was the multisensory teaching program integrated with basketball-themed activities. The Dependent Variable was the participant's accuracy in identifying and pronouncing 15 targeted English basketball terms. The multisensory teaching technique, is a particularly popular teaching method for children who have learning differences such as Dyslexia or ADHD, or those with learning disabilities and also a great way to ensure that your teaching is inclusive, as it provides a variety of ways for children to access the learning, and does not rely on just reading, writing and listening alone. It involves using more than 2 senses out of auditory learning through sounds, hearing and listening, visual learning through seeing and watching, tactile learning through using our sense of touch, kinaesthetic learning through body movement or physical activity (this uses the proprioceptive and vestibular senses) and gustatory and olfactory learning through taste and smell. This multisensory technique has been adapted to the education systems of various countries and used with individuals with dyslexia (Mehrabi, Zarbakhsh, & Rahmani, 2014) aims to include the learner in learning

activities by using more than one sense (Magpuri-Lavell, Paige, Williams, Akins, & Cameron, 2014).

Participants

The criterion sampling method was used to determine the student in the study. Criterion sampling is the creation of the sample from people, events, objects or situations that have the characteristics determined in relation to the problem (Büyüköztürk et al., 2020). The student to be included in the study was expected to be diagnosed with a specific learning disability (dyslexia), to be taking a foreign language (English) course, to have a low grade point average for the English course, to have to learn English, not to have taken a systematic course on teaching English vocabulary before and to have the background information to give reactions to the teaching methods to be used in the study (following the instructions, giving appropriate responses and not having a receptive and expressive language problem). In the sample selection, a male student with dyslexia, a specific learning disability, was studied. The student is 10 years old at the fourth grade as an inclusive student. The alias (Efe) was used in accordance with the personal data protection and ethical rules regarding the student. Information about the student was obtained from the child himself (Efe), his mother, his grandfather, Efe's classroom teacher and his former special education teacher.

Data Collection

The data of this study was collected in accordance with the single subject design technique. Multisensory teaching techniques based on the combination of auditory, visual, tactile and kinesthetic were used in the study, and Sparks et al. (1992) showed that this technique not only increases academic success in students with learning disabilities, but also becomes effective in second language learning. Moreover, contemporary pedagogy based on neuroscience perceives this technique as a tool that accelerates the retention of school material and improves recall (Gosiewska Turek, 2020). For this reason, activities that allowed frequent repetition were planned in teaching sessions.

The tools used in the teaching process included criterion-dependent measurement tool for the evaluation of the teaching process (checklists indicating whether the student responded behaviourally and linguistically to the commands), cards with basketball-related terms (basketball equipment, body parts, court lines, warm-up moves, dribbling moves and shots) in English for the implementation process and picture cards containing basketball-related terms.

Planning the Teaching Process and Implementation: Before moving on to the implementation process, it was clear that Efe had a negative opinion about school and learning. In order to overcome this, the English course was selected as the primary target. Efe had previously requested that his family should provide private English lessons for him. The primary target was to teach basketball terms verbally in English. The visual, auditory

and kinesthetic senses would be used together through the multisensory technique where a large part of the course was taught in the target language English. In addition, movement-based activities were used to support Efe's learning and to create repetition opportunities. The issues to be considered in the research process were planned as follows by taking expert opinions and lesson plans were evaluated by two independent experts.

- Activities that would allow frequent repetition in teaching sessions were planned.
- In order to make it easier for the student to read, attention was paid to the fact that written materials were in large font size.
- Information was obtained about the student's family and social environment.
- Individualized lesson plans were prepared for each session with the spiral learning model.
- In the lessons, there were review sessions on previously covered topics and if necessary, retrospective review was done.
- Plenty of visuals and videos were used during the teaching process.
- In-class exercises were made fun with movements and mistakes were tolerated through positive/encouraging words.

One of the most important goals for this study is to change the dyslexic student's negative attitude towards himself and to help the child improve himself. Therefore, using plenty of social reinforcements, making the student talk about his goals, and chatting about basketball, about which the student was already motivated, were very important. In this context, it is aimed for the student to learn English in order to contribute to his future basketball career. It is thought that this situation would motivate him to make assignments in and out of class. The topics that formed the basis for teaching English to the student were basketball equipment, body parts, court lines, warm-up exercises, dribbling exercises and shots.

Implementation process: The treatment lasted for six weeks, one week for each topic. During this period, training was provided on six different topics for four days a week. For each lesson, care was taken to ensure that everything was said in English during the lessons and it was supported with facial expressions to facilitate student understanding. However, Turkish expressions were used to repeat the parts that the student could not understand. The first 40 minutes of the lesson were held in the classroom and the next 40 minutes on the basketball court. An English conversation was initiated under the name of "Daily Routine" at the beginning of each lesson. Attention was paid to asking the following basic questions during the conversation: "How are you?", "How was your day?", "What did you do today?", "What are you going to do tomorrow?" After receiving the answers, the student was asked to reciprocate the same questions one by one "Now, you ask me the same question." In the following weeks, this instruction decreased and the student was expected to ask questions on his own. In addition, the following questions were asked to support the teaching of basketball terms: "Have you watched any basketball game this week?" "Who won?" "Who

lost?" "Which basketball team were you supporting?" Then, the information covered in the previous lesson was reviewed. The dribbling movements taught in the previous lesson were asked with the following instructions: "You will start from the back line, run and dribble around the free-throw lane" (Here, the field lines, which were the instructional target in previous sessions, are intentionally used and reinforced.) "I will tell you a sentence and you will dribble while running." The session is completed by going over all of the dribbling commands below at least twice.

- 1) I am dribbling with two hands
- 2) I am dribbling with my right hand
- 3) I am dribbling with my left hand
- 4) I am dribbling between the legs
- 5) I am dribbling behind the back
- 6) I am doing a crossover dribble

If the student got it right, positive reinforcement was provided. If the student made a mistake, this was shown using verbal cues. Then, the topic to be covered that day was told. "Today, we're going to learn how to talk about different types of basketball shots. You will take your shots and write your score in your NBA notebook. Are you ready to learn?" The student was rewarded for taking shots and recording their scores in their notebook. After a positive response was received from the student, instruction started. "Let's start." The student watched the relevant videos one by one (free throw, lay up, dunk, jump shot, three pointer). By using the visual narration in each video, the student was not only taught the name of the shot but also how to make the shot, while also repeating the body parts in the video. After each video, the student was asked to make the relevant shot. "Please show me what you see in the video." While the student was making the shot, the teacher asked: "What are you doing?" Then the teacher said without waiting, "I am throwing a free shot." After watching each shooting video, the teacher asked each movement one by one and ensured that the student would repeat it simultaneously with him.

Setting: Teaching was planned in two separate environments. The lessons were first taught in the classroom to introduce the words to be taught with picture cards. The class was held one-on-one and face-to-face in a quiet classroom environment free of stimuli. The application process of the taught words was carried out one-on-one on the basketball court in the school gym.

Data analysis

After the six-week treatment was completed, data were entered into the criterion-dependent measurement tool and the interrater reliability forms and then were analysed and presented as graphics, and the observation and interview results were presented as the qualitative data

in the findings section. Data were analyzed using visual inspection of the graphic displays. Following JESS criteria, the analysis focused on changes in level, trend, and variability between the baseline and intervention phases. Additionally, the Percentage of Non-overlapping Data (PND) was calculated to determine the treatment's effect size.

In this section, data obtained within a single-subject design are presented through descriptive and visual analysis in terms of accuracy rates, trends, level changes, and variability.

Baseline Phase

At least three baseline sessions were conducted for each instructional objective. Baseline data indicate that the participant's performance on target words was low and inconsistent. Correct response rates ranged from 0% to 20%. These findings suggest that target behaviors were at a limited level prior to the intervention.

Intervention Phase

With the implementation of the multisensory teaching intervention, significant increases were observed across all instructional objectives.

- Body parts: The correct response rate, which was approximately 11% at the baseline level, reached 100% by the end of the intervention.
- Warm-up exercises: Performance, which was 0% at the baseline, rose to an average of 95% by the end of the intervention.
- Expressing basketball terms in English: Increased from 17% to 98.75%.
- Court lines: Increased from 0% to 87.25%.
- Dribbling movements: Reached 100% from 0%.
- Shot types: Increased from 20% to 85%.

An immediate level change and an increasing trend were observed in all target behaviors following the intervention. The data indicate a consistent learning process, showing low variability during the intervention.

Generalization and Follow-up Findings

During follow-up sessions, it was observed that the participant retained the words they had learned and was able to use them in different contexts. The participant was able to use the target words not only in the instructional setting but also in everyday conversations and various social interactions. This demonstrates the generalizability and durability of learning.

Measurement and Scoring

A criterion-referenced checklist was used for data collection. A "correct response" was defined as the student accurately identifying the visual cue and providing the correct English pronunciation within 5 seconds. To ensure Inter-observer Reliability, 30% of the sessions

were independently scored by a second researcher, resulting in a 95% agreement rate. Procedural Fidelity was maintained by following a standardized 80-minute lesson protocol (40 minutes of classroom multisensory tasks and 40 minutes of on-court kinesthetic application).

Overall Evaluation

The increase in performance from the 0–20% range at the baseline to the 85–100% range following the intervention indicates that the multisensory teaching approach has a strong impact on target behaviors.

Visual analysis results reveal a clear separation between the baseline and intervention phases, indicating a strong intervention effect. These findings suggest that the multisensory teaching method is an effective approach for supporting foreign language vocabulary acquisition in individuals with specific learning difficulties.

4. Finding

A total of 6 instructional objectives were determined, and at least 3 initial data were taken for each instructional objective. While the evaluation of the teaching session was made at the end of each lesson, a probe session was also held at the beginning of each lesson for the subject or subjects covered in the previous lessons. At least 3 probe session data were taken outside the teaching session.

When Graph 1 is examined, Efe's correct behavior development is noticed regarding body parts and warm-up movements while it was 11% for body parts, it showed a hundred percent development at the end of the application process. While the initial level data for warm-up was zero, it is seen that the average development was 95% at the end of the application process. These results show us that the presentation of the subject in the student's field of interest with the multisensory teaching technique is effective in teaching English.

When we examine Graph 2, while the level of "saying basketball terms in English when asked in English" for basketball terms was at 17% at the beginning, it became 98.75% at the end of the application process. Secondly, while the initial level for "saying basketball court lines correctly when asked in English" was zero, it was seen that it was 87.25% accurate as a result of the application. In the third stage, it was seen that he could say "basketball dribbling moves" at a rate of 100% at the beginning level, while he did not know them at all at the beginning level. In the fourth and final stage; while he said "basketball shot types" at a rate of 20% correctly at the beginning level, it was seen that he named them 85% correctly at the end of the teaching sessions. These results show that a success above the 80% accuracy rate expected before the application was achieved. According to the analysis results, while the student's initial success rate varied between 0-20%, these rates increased to over 80% at the end of the teaching process.

5. Discussion

This finding shows the positive effect of the multisensory teaching technique on learning performance. It has been observed that visual materials, video-supported explanations and practical learning activities on the basketball court strengthen the student's ability to both recognize and use in context. In addition, the student's ability to use the words he has learned in extracurricular conversations and daily expressions reveals the functionality of learning. In this context, positive reinforcement and individual feedback increase his motivation and support his development of a positive attitude towards learning (Humphrey & Mullins, 2002). This process, enhanced through teacher support, also positively affected the student's self-efficacy perception. (Schunk, 2003). The data obtained during the six-week training process show that the student made significant progress in the vocabulary learning process and his motivation increased. While the student's vocabulary knowledge at the beginning level was quite limited, significant improvements were observed in word recognition and recall skills with the application of multisensory teaching techniques. This finding is consistent with previous studies showing that techniques that use more than one sense at a time are effective in the learning processes of individuals with dyslexia (Kormos & Smith, 2012; Nijakowska, 2013). The multisensory teaching technique provides a deeper understanding of concepts thanks to the careful selection of alternative senses according to the tasks designed for the student and makes learning more accessible for students with learning disabilities (Renelle & Jones, 2022).

The techniques that the student benefited the most during vocabulary learning included visual materials and movement-based activities. The student's vocabulary learning through basketball terms coincides with the literature emphasizing the importance of teaching methods based on personal interests in increasing the academic success of individuals interested in sports (Algrni, 2020; Korkmaz & Karatepe, 2018). In addition, the student's active role in the learning process and constant feedback contributed to maintaining motivation (Schunk & Mullen, 2012). Another important finding of the study is that the student's ability to use the words he has learned not only in the classroom environment but also in different contexts has improved. This shows that the student has gained the ability to generalize the information he has learned. In particular, while the positive effects of multisensory materials and activities used in the teaching process on the permanence of learning are also supported in the literature (Gosiewska Turek, 2020), it is stated that learning difficulties that are not addressed with appropriate educational measures in a timely manner can become more serious and the achievement gap between students with foreign language learning difficulties and their peers can gradually widen. (Ivančević Otanjac, 2016; Ortiz, 2008). The increase in student motivation is directly related to teacher guidance and positive reinforcement. Effective teachers select and use the most appropriate teaching methods and techniques for their students' needs (Obaid, 2013). Humphrey and

Mullins (2002) emphasize the critical role of teachers in student motivation and self-confidence development. The student's sense of self-efficacy is an important factor affecting task selection, effort, resistance and success. (Schunk, 2003). The results of this study also show that the positive approach of the teacher and individualized teaching plans suitable for the student have a significant effect in terms of increasing the active participation of the student in the learning process and thus contributing to the sense of self-efficacy.

Finally, the study findings support the idea that multisensory teaching techniques are an effective strategy for students with dyslexia in the foreign language learning process. These findings are also in line with previous studies indicating that more multisensory techniques should be adopted in foreign language teaching for students with dyslexia (Magpuri-Lavell et al., 2014; Sparks, Ganschow & Javorsky, 1998). Studies on the effectiveness of multisensory techniques emphasize the need for teachers to creatively use a variety of multisensory tasks that provide multiple ways of representing the material, allow students to express the learned content in different ways, and provide more opportunities for students to participate in learning. (Mills, 2018) Therefore, it is of great importance to employ multisensory teaching tasks in foreign language education especially for the students with specific learning disabilities.

The significant improvement in the participant's vocabulary acquisition aligns with the theoretical framework proposed by Nijakowska (2010), who asserts that students with dyslexia require explicit, structured, and multisensory involvement to overcome phonological processing deficits. By engaging visual, auditory, and kinesthetic pathways simultaneously, the intervention provided the necessary scaffolding that traditional, monosensory instruction often lacks. This is further supported by Kormos and Smith (2012), who emphasize that for learners with Specific Learning Disabilities (SLD), multisensory techniques are not merely supplementary but essential for bypassing the cognitive bottlenecks associated with foreign language word retention.

The transition from a stable baseline to a high-performance intervention phase highlights the critical role of situational interest in academic engagement. According to the Four-Phase Model of Interest Development (Hidi & Renninger, 2006), incorporating a learner's pre-existing interest—in this case, basketball—functions as a powerful motivational catalyst. This interest-driven approach likely reduced the participant's cognitive load and anxiety, allowing for more effective encoding of new lexical items. As noted by Schunk and Mullen (2012), when learners perceive a task as personally relevant, their self-efficacy and persistence increase, which was clearly observed in Efe's consistent 100% accuracy during the final weeks of the study.

The findings of this study are consistent with recent empirical evidence in the field of special education. Similar to the results reported by Algrni (2020), who demonstrated the efficacy of multisensory tools in teaching English vocabulary to students with LD, this

research confirms that kinesthetic reinforcement (on-court activities) leads to higher retention rates compared to classroom-only instruction. Furthermore, the success of this 6-week intervention mirrors the findings of Nijakowska (2013), reinforcing the conclusion that tailored, multisensory programs can effectively bridge the achievement gap for dyslexic students in foreign language contexts.

6. Conclusion, Recommendations and Limitations

This study examined the effectiveness of multisensory teaching techniques in the English vocabulary learning process of a student with specific learning disabilities (dyslexia). At the end of the six-week teaching process, it was determined that the student made improvements in both vocabulary learning and self-confidence. In the criterion-dependent measurement tool used, although the student's initial data success rates were low, it was seen that the educational objectives were achieved to the specified extent in the evaluations at the end of the teaching process and in the probe sessions. This finding supports the fact that multisensory teaching is an effective intervention tool for individuals with dyslexia (Hazaymeh & Khasawneh, 2025).

In line with the findings of the study, the use of content related to the student's personal interests (e.g. basketball) increased their motivation to learn. This situation once again reveals the importance of individualized teaching plans in the learning process (Altındağ Kumaş & Sardohan Yıldırım, 2021). The visual materials, video-supported narrations and movement-based activities used in the teaching process encouraged the active participation of the student and made the learning process fun and meaningful (Sezgin, Bozkurt, Yılmaz & Van der Linden, 2018).

The student's ability to use the learned expressions in different contexts shows that a functional language learning has been taking place. In this context, this approach enables students to achieve meaningful and permanent learning with its dual-focused structure where not only the language but also the content is learned to be used effectively not only in the classroom but also in different cognitive contexts (Coyle, Hood & Marsh, 2010).

In this context, in foreign language teaching programs, for students with dyslexia;

- Multisensory teaching techniques, materials suitable for different learning styles and individualized content should be used.

- Movement-based and student-centered learning strategies should be considered as an effective tool in increasing motivation.

- Individual teaching plans prepared according to the student's interests support not only academic success but also the development of self-confidence.

- Multisensory teaching techniques and effective strategies for dyslexia should be included in teacher education programs.

In conclusion, this study shows that multisensory teaching has positive effects on both cognitive and affective areas in foreign language learning of students diagnosed with dyslexia. These findings indicate that policies regarding foreign language education of individuals with learning difficulties should be restructured and teachers should be supported in this regard.

The study also provides strong evidence regarding the durability and generalizability of learning by demonstrating that learned words can be retained during follow-up sessions and used in different contexts. The use of content based on the student's area of interest (basketball) and the combined presentation of multisensory materials supported learning from both cognitive and affective perspectives.

These findings indicate that a multisensory teaching approach is an effective and feasible method for teaching foreign language vocabulary to individuals with dyslexia.

As to recommendations, they are grouped as practical and future research below:

Practical Recommendations

- Teachers should systematically incorporate multisensory approaches—combining visual, auditory, and kinesthetic elements—into instructional processes for students with specific learning difficulties.
- Using content based on students' interests and needs (e.g., sports-based materials) can increase motivation and engagement.
- Gamification, social reinforcements, and continuous feedback mechanisms should be planned as supportive elements of the learning process.
- In foreign language instruction, particularly in vocabulary teaching, meaningful contexts and practical activities should be prioritized.

Recommendations for Future Research

- Future studies should be conducted with larger samples and across different age groups to enhance the generalizability of findings.
- Longer-term intervention and follow-up studies should be conducted to examine the sustainability of learning over the long term.
- Experimental studies comparing different teaching methods (e.g., purely visual or purely auditory approaches) with multisensory instruction could be conducted.
- Mixed-methods studies combining quantitative analyses (e.g., effect size measures) with single-subject research methods are recommended.

The limitations of the study can be grouped under three subheadings:

1. **Limited participant group:** This study employs only one participant. Therefore, the findings may not fully reflect the experiences of the students with learning disabilities in general.

2. Diversity of disability types: During the research process, since one participant was involved in the study, there was no diversity in terms of age and gender.
3. Language and Communication Limitations: As the target vocabulary consisted of only basketball related terms, the language and communication was limited to only basketball related topics.

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Appendices

Graph 1

Correct behavior scores



Graph 2

Correct behavioral responses

