

Research Article

The effectiveness of POW + C-SPACE strategy provided by parents of children with writing difficulties on story-writing skills

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In this study, the POW + C-SPACE (*Pick my idea-Organize my notes-Write and say more + Characters-Setting-Purpose-Action-Conclusion-Emotions*) strategy developed on the basis of the self-regulated strategy development model (SRSDM) was presented through families to improve the story-writing skills of children with writing difficulties (WD) and its effects were evaluated. The study employed a multiple probe design with probe conditions across subjects, one of the single-subject research models. The study group consisted of three mothers and their children with WD. Mothers were taught the POW + C-SPACE strategy and were asked to present what they learned to their children at home. As a result of the study, it was concluded that when the POW + C-SPACE strategy was presented through parents, it was effective in developing the story-writing skills of children with WD.

Keywords: Self-regulated strategy development; Story-writing skill; Writing difficulty; Specific learning difficulty; Family education; POW + C-SPACE strategy

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1. Introduction

One of the most used and known ways of communication is writing. Communication with writing started with the invention of writing in the history of humanity and continues to take on different forms with technological developments. Writing is a symbol or signs that people use by drawing or writing on any item to convey their feelings and thoughts to others in accordance with a certain language rule (Hamstra & Blote, 1993; Phelps et al., 1985). Writing is a communication tool that an individual uses throughout his life from the primary school period on. In order to use this tool effectively, the individual should understand what he sees, reads, and hears, and make it meaningful in his mind processes (Uygun, 2012).

Writing is a planned process that requires thinking, takes time, and obeys the rules of the language. This skill is not an innate skill, but a skill that can be acquired through direct instruction. Writing skill is acquired in a suitable environment, with practice, care, and effort (Dodd & Carr,

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2003; Power & Hubbard, 1996). However, it is not possible for everybody to learn and exhibit writing skills at the same level, as there are many conditions for learning to write and it requires such complex cognitive skills to use. Children with specific learning difficulties (SLD) experience more difficulties in learning this skill compared to their peers with typical development due to the difficulties they experience (Ergül, 2012; Güzel-Özmen, 2006; Kargın, Güldenoğlu & Ergül, 2017; Öğülmüş, 2018).

The definition of SLD was first presented by Samuel A. Kirk who emphasized the necessity of having a separate place in the education system (Kirk, 1977). SLD has been named and defined in many different ways since it was first introduced. SLD is defined as a neurodevelopmental disorder of biological origin that manifests itself with significant difficulties in the acquisition and use of verbal and nonverbal information processing and/or listening, speaking, reading, writing, reasoning, and/or mathematical skills in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association [APA], 2013). This type of disability can be noticed by classroom teachers during the teaching of literacy skills, usually in primary school-age children, as the individual often experiences limitations in academic fields. Children with SLD have difficulties in basic academic areas such as reading, writing, and mathematics. These challenges make it difficult for them to use their writing skills effectively, even though they are very basic skills. Therefore, children with SLD need special support to effectively demonstrate a basic skill such as writing. This support is mostly provided in schools within the scope of formal education. The support provided in schools for writing skills is not always sufficient by itself. This support should also be carried out by the families of children with SLD at home. However, most families do not have the knowledge, skills, and equipment required to provide this support to their children with SLD. Considering that parents are the first and most effective teachers of their children (Sönmez, 2013), it is very important to educate families. The knowledge, skills, and experiences gained at an early age carry qualities that will form the basis for the future life of the individual (Kanık, 1993; Ryan, 2021). For this reason, family education is necessary for the development of writing and other skills at home. Although there are many types of writing skills, one of the most common of these is the ability to write a story. By writing stories, students express their thoughts, convey their feelings, and develop their imaginations. In this respect, it is important for children with WD to develop their story-writing skills.

Öğülmüş (2018) adapted the POW + C-SPACE strategy for improving the story-writing skills of children with WD and reached the conclusion that the strategy was effective. In the relevant literature, similar studies (e.g., Baker & McCurry, 1984; Brown & Woods, 2015; Cavkaytar, 2007; Cavkaytar & Pollard, 2009; Cosbey & Muldoon, 2017) have been conducted with the parents of the children with intellectual disabilities, children with down syndrome, autism spectrum disorder, and developmental delays, including different skills. However, no study involving a strategy or instruction presented through parents in developing the story-writing skills of children with WD was found. Considering a) the importance of developing the story-writing skills of children with writing difficulties through parents at home and b) the necessity of new family education programs for supporting the writing skills of children with WD was the starting point of this study. Therefore, the purpose of this research was to determine whether the POW + C-SPACE strategy presented through mothers at home was effective in developing the story-writing skills of children with WD or not. For this purpose, answers to the following questions were sought:

1. Are participating mothers able to reliably apply the POW + C-SPACE strategy, taught via the family education program developed for them, to their children with SLD?
2. Is the POW + C-SPACE strategy taught by mothers at home effective in developing the story-writing skills of children with WD?
3. What do mothers (instructors) and children (participants) think about the effectiveness of the strategy used in this study?

2. Method

2.1. Research Model

This research was designed with a single subject research model. Single-subject studies are quasi-experimental research models that include the interpretation of findings related to a subject (Büyüköztürk et al., 2018; Tekin-İftar, 2018). Single-subject research models are suitable models to be used in cases where a single experiment needs to be examined intensively for a period of time and in studies conducted with individuals with significant differences from others (Büyüköztürk et al., 2018). The multiple probe design with a probe phase between subjects is a research model in which the effectiveness of an independent variable on three subjects is examined. In this model, the behavior, which is the dependent variable, needs to be exhibited by three different people and in the same environment (Tekin-İftar, 2018).

2.1.1. The dependent variable

The dependent variable in this research was the story-writing skill levels of the children with WD who participated in the study. The story-writing skill levels of the children were measured by scoring the stories they wrote in the last lesson of each practice session.

2.1.2. The independent variable

The independent variable in this research was the POW + C-SPACE strategy applied by the parents. The POW + C-SPACE strategy was developed by Harris and his colleagues (2008) on the basis of the SRSDM to help students develop a writing plan by thinking about the details that should be in a story. Öğülmüş (2018) adapted it for use in Turkey. This strategy was implemented through teaching sessions presented to the participating children (as an independent variable) by their mothers. The researcher simplified the POW + C-SPACE strategy so it would be more easily applicable and understandable by the parents.

2.2. Participants

Participants of the study consist of three children with WD and their mothers.

2.2.1. Participating mothers

Three mothers were included in the study. Two of the mothers were enrolled in undergraduate college programs and the other graduated from high school. Two of the mothers were housewives and the other was a teacher. In addition, the socio-economic status of all families was at a similar level. Mothers were included in the study on a voluntary basis. At the beginning of the study, the researcher explained the purpose of the study and how it would be conducted, and the researcher stated that the family education to be provided via online education would be carried out at suitable times for both themselves and the researcher. In addition, the researcher explained that they had to send the results of the instruction via internet channels to the researcher, and that they were required to carry out the instruction on appropriate days and at appropriate times in their own homes. The researcher also informed the mothers that code names would be used for children during the reporting process of the study, and the mothers signed an informed consent form that included information such as that they could leave the study whenever they wanted.

2.2.2. Participating children

Three children with WD participated in the study. All of the children had WD and educational reports issued by the guidance research centers (GRS). Their ages were 10, 11 and 12 years, respectively. All three children continued their education in special education and rehabilitation centers affiliated with the Ministry of National Education (MoNE) throughout the study. The following eligibility criteria were taken into account for the children to be included in the study: (a) being diagnosed with developmental disorders of scholastic skills from any hospital, (b) having an

educational diagnosis of SLD from any GRS, (c) studying at the primary or secondary school level and (e) having WD.

2.3. Environment

Family training sessions within the scope of the study were conducted online through the Zoom Meetings program. After the training sessions, the probe, instruction and maintenance sessions conducted by the mothers were held in their homes. The instruction environment was the home environments where children felt most comfortable and safe, in accordance with their ability to develop their story-writing skills. All mothers applied the strategy with their children at tables suitable for the developmental characteristics of their children. In intervention phase of the strategy, the mother and her child sat side by side. After the instructions, the mothers took photos of the stories written by their children and sent the photos to the researcher via internet channels.

2.4. Materials

Parent training sessions organized individually through online learning with participating mothers were recorded by the researcher through the Zoom Meetings program and sent to the mothers via internet channels. In this context, the video recordings of parent training sessions, sample stories, story rockets, graphic organizers, and instruction notes were used in the study. In the parent education record, there is a simplified version of how to implement the POW + C-SPACE strategy to develop the story-writing skill and how to use the materials the researcher gave to the mothers. The instruction notes containing pointers make mothers remember while performing the instruction and provide tips on how to carry out the instruction. The sample stories consisting of an average of 130-150 words, easy to understand and containing the main components of the story given to the families to use while implementing the strategy.

2.5. General Process

2.5.1. Experimental process

The training offered to mothers consisted of probe (full probe and daily probe sessions), instruction, and maintenance sessions. All probe sessions conducted within the scope of the experimental process were conducted by the mothers.

2.5.2. Probe sessions

Two types of probe sessions were conducted in the study: (a) Full probe sessions and (b) daily probe sessions.

Full Probe Sessions: The first probe phase of the full probe sessions was carried out by the families before the family training sessions were presented and the instructions that the mothers would implement with their children started. The first probe phase also formed the baseline data. The second, third, and fourth probe phases were carried out by the mothers of the participating children with the researcher's guidance, after meeting the criteria for story-writing skills, until at least three consecutive sessions of stable data were obtained by all three children.

Full probe sessions were conducted by mothers in their home environments with their children. The mothers asked their children to write stories when they were ready. The participating children, on the other hand, wrote stories that they independently composed. Stories written by the participating children were sent to the researcher via the WhatsApp in photos taken by the mothers. The researcher, on the other hand, obtained the probe session data by scoring these stories with the story rubric developed by Öğülmüş (2018).

Daily Probe Sessions: Daily probe sessions were held by the mothers once in every three teaching sessions, at the end of the session. After the mothers applied the POW + C-SPACE strategy with their children, they asked their children to write stories. After the children wrote their stories, the mothers sent the researcher the photos of the stories via WhatsApp. In the daily probe sessions, the

steps followed in the full probe sessions were applied exactly. The behaviors expected from the mothers during the daily probe sessions were the same as in the full probe sessions.

2.5.3. Instructional sessions

Instructional sessions in which the POW + C-SPACE strategy was applied were held in the homes of the participating mothers. The instructional sessions can be divided into (a) family training sessions and (b) instructional sessions in which the POW + C-SPACE strategy was applied.

Parent Education Sessions: The parent education sessions were held online with mothers through the Zoom Meetings program. Each three education sessions lasted 45 minutes. The training sessions were delivered with a clear narration over the visual presentation by projecting a PowerPoint presentation on the screen through the program. In the first session, the materials that mothers would use while implementing the strategy were introduced. In the second session, a sample instruction was demonstrated so the mothers could better understand the story components. The sample instruction included separating the story into its components using graphic organizers over a sample story. In the third session, the mothers were asked to write stories using the main components of the story and feedback was given. All steps of the sessions conducted through online were recorded and shared with the mothers so that they could watch them again whenever they wanted. All parent training sessions were held individually with the mothers. The materials to be used by the mothers during the instruction and the instruction notes prepared for the mothers were also shared with the them.

Teaching Sessions: Teaching sessions were applied by the mothers after the parent training sessions were held. Each mother applied the POW + C-SPACE strategy with her child after carrying out the full probe sessions and receiving the parent training provided by the researcher. The strategy was simplified so that parents could understand and apply it more easily. The strategy consists of three lessons. The first lesson includes explaining the purpose of the strategy, why it is implemented, how it will contribute to the development of story-writing skills, memorizing the components of the story (*Characters-Setting-Purpose-Action-Conclusion-Emotions*), and finding the memorized story components together with the practitioner through a sample story. The second lesson includes finding the story components from a sample story, writing these components in graphic organizers, and evaluating the sample stories that are read and placed in graphic organizers with story rockets. The third and last lesson includes creating a topic pool, selecting a topic from this topic pool, writing the story parts of the selected topic in the graphic editor, writing the story with the notes taken in the graphic editor, and checking the written story, completing the missing components, and evaluating them with story rockets. All these practices were videotaped by the mothers and shared with the researcher via internet channels. Treatment fidelity was calculated by watching the teaching session videos. Teaching sessions were held three days a week and continued at least three times in a row after the criteria were met until stable data were obtained.

2.5.4. Maintenance sessions

Maintenance sessions were held five weeks after the mothers' instructional sessions where the strategy was applied. Mothers asked their children to write stories as in the full probe sessions. Photographs of stories written independently by children were taken by the mothers and shared with the researcher through WhatsApp. Then the researcher scored the shared stories and recorded the data.

2.6. Data Collection

Four different types of data were collected in the study: instruction, maintenance, social validity, and treatment fidelity data. The instruction and maintenance data were collected by scoring the stories the children wrote independently after applying the POW + C-SPACE strategy. These data were obtained by the mothers sharing the story photos with the researcher after the children wrote a story.

Social validity data were collected via the social validity data collection form created by the researcher. The form includes open-ended questions about the work done. The questions were sent to the mothers via Google Forms and the social validity findings were determined by receiving the answers on the same platform. There are no questions in the form that would enable the parents' identities to be recognized. Treatment fidelity data were collected only in teaching sessions. The data were obtained by watching the video recordings taken by the mothers while applying the POW + C-SPACE strategy.

2.7. Data Analysis

In order to obtain instruction and maintenance data, the stories written by participants were scored through the story-writing rubric and graphically analyzed. The analysis of the social validity data was conducted by descriptively analyzing the responses collected from the mothers with a semi-structured social validity form. For the analysis of the treatment fidelity data, the formula "observed researcher behavior/planned researcher behavior X 100" was used (Tekin-İftar & Kırcaali-İftar, 2013).

3. Results

3.1. Treatment Fidelity Findings Regarding Mothers' Use of the POW + C-SPACE Strategy

In order to determine to what extent mothers reliably applied the POW + C-SPACE strategy with their children, treatment fidelity data were collected and analyzed. For this purpose, the researcher watched the video recordings of the teaching sessions held by the mothers during the instruction sessions. While Mert's mother applied the POW + C-SPACE strategy with 100% fidelity, Efe's mother applied it with 83.68% fidelity, and Onur's mother applied the strategy with 88.46% fidelity.

3.2. Findings Regarding the Effectiveness of the POW + C-SPACE Strategy on Story-Writing Skills of Children with WD

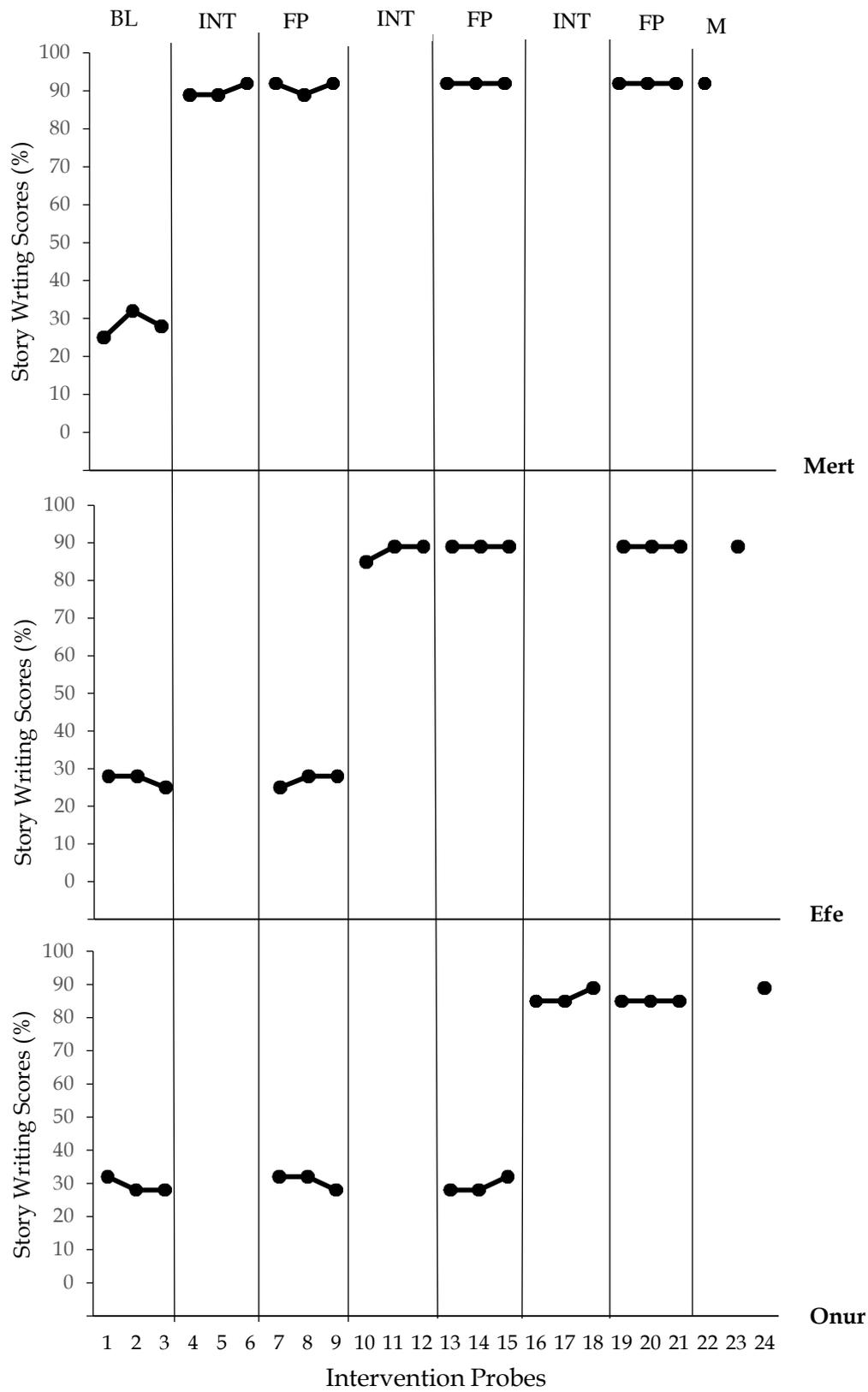
The graphic display of the data related to the development of the story-writing skills of the children with WD whose mothers used the POW + C-SPACE strategy is shown in Figure 1. The line graph in Figure 1 indicates the children's story-writing skill levels on the vertical axis and the number of sessions held on the horizontal axis. The data obtained as a result of the instructions were examined in three different stages as probe sessions, instruction and maintenance.

Figure 1 shows the progress in the participant children's story-writing skill levels as their mothers applied the POW + C-SPACE strategy. As can be seen in the graphic, Mert, Efe, and Onur met the performance criterion in their story-writing skills in three sessions. Maintenance data were collected five weeks after all participants met the criteria in the intervention phases and reached stable data levels in three consecutive sessions. The maintenance data show that, after five weeks, all three participants maintained their story-writing skills at the same level.

3.3. Findings Regarding Social Validity

In order to obtain the social validity findings of the study, the participant mothers and their children were administered the "POW + C-SPACE Strategy Parent Education Social Validity Form." The form consists of two parts. In the first part, there are five open-ended questions that participating mothers answered. In the second part of the form, there are three questions that participant children answered. In order for the children to answer easily, the questions were prepared in multiple-choice format. The data obtained after the form was applied were analyzed with content analysis.

Figure 1
The Story-Writing Scores of the Participants



Examination of the responses of participating mothers to open-ended questions regarding their thoughts about the family-centered POW + C-SPACE strategy revealed that two mothers answered that the POW + C-SPACE strategy was beneficial for the parents of children with WD and that this program should be applied to more families; the other mother replied that it was very nice to apply this strategy at home.

To the question regarding the positive and negative aspects (if any) of the POW + C-SPACE strategy, one mother answered that the strategy was particularly useful in teaching the basic elements of a story to her child in order to use these elements while writing a story. Similarly, the other two mothers answered that the story elements were a very useful strategy in terms of making the child noticed what they wrote.

To the question of whether they had difficulties while applying the POW + C-SPACE strategy during the study, and what they did to overcome these difficulties, two mothers answered that they had difficulty in memorizing the components of the story, but they overcame the difficulty as they did it again and saw the items through the sample story. One mother answered that her child filled the story components chart with short statements but then they enriched the statements by brainstorming together.

To the question of how they felt while implementing the strategy, the aspects of the strategy (if any) they liked or disliked, and their different experiences (if any), one mother answered, "I saw that my child had no difficulty in finding a story topic anymore while creating a pool of topics and using this pool of stories." Another mother replied, "Schematic organizers made it very easy for us to compose a new story; in fact, my son could not establish the connection between these elements; this was very nice for us," and yet another mother said, "My son saw that it was no longer difficult to write stories with this strategy and now he wants to write stories every day. This makes me very happy." It was observed that all mothers gave a positive response to the question, "Would you recommend the POW + C-SPACE strategy to families with children with SLD?" When the participants were asked how they found this strategy, two of them stated that it was different and the other said that it was fun. When the participants were asked whether they would like to try the same instruction again or not, all of them gave positive answers. Finally, when the children were asked whether they would recommend this strategy to their friends or not, all of them gave positive answers.

4. Discussion, Conclusion, and Suggestions

This study investigated whether the POW + C-SPACE strategy taught by mothers at home was effective in developing the story-writing skills of children with WD or not. One of the most important reasons for using the POW + C-SPACE strategy developed on the basis of SRSDM is that this strategy is thought to be capable of supporting children with WD to overcome the limitations they experience in their writing processes (Öğülmüş & Melekoğlu, 2021).

Children with WD fall short of meeting the academic expectations of the formal education program in most of the time (Baydık, 2011; Tseng & Cermak, 1993). Therefore, the more the writing skills are supported in different environments, the more positive reflections will be on the academic success of the child with SLD. For this reason, three mothers of children with WD were taught to apply the POW + C-SPACE strategy with their children. As children spend more time with their families than teachers or other school staff (Smith et al., 2006) it is very important for children with WD to be supported by their families beyond the education hours provided within the scope of formal education. Spending some of the time they share with their families at home on learning will make significant contributions to their academic life especially developing their writing skills.

As a result of the evaluation of the maintenance data obtained from this study, it is clear that findings are similar with other studies (e.g., Albertson & Billingsley, 1997; Asmara, 2016; Chenard, 2014; Delano, 2007; Sperger, 2010; Staal, 2002; Uygun, 2012). Also, based on the findings of the treatment fidelity, this study found effective as in other studies developed on the basis of SRSDM

(e.g., Almadani, 2013; Demircan, 2014; Meyers, 2015; Rumsey & Ballard, 1985; Rogers & Graham, 2008; Sperger, 2010). In addition to these, this study's findings have parallel effective results with other studies applied to families of children with different types of disabilities (e.g., Baker & McCurry, 1984; Brown & Woods, 2015; Cosbey & Muldoon, 2017; Douglas et al., 2018; McCathren, 2010). However, it is observed in these studies that focus is on generally non-academic skills such as teaching self-care skills for visually impaired children (Çakmak, 2011), self-care and daily life skills for children with autism spectrum disorder (Cavkaytar & Pollard, 2009), self-care and home skills for children with intellectual disabilities (Cavkaytar, 2007) and verbal communication skills (Kargın, 2004) to children with hearing impairment. On the other hand, there is a limited number of studies focusing especially on the families of children with SLD aiming to improve their academic skills through education provided by the families at home. In this context, these all make the current research different from the others from the point of improving the academic skills of children with WD through the instruction offered by their parents at home.

Participation of family members in services provided to individuals with special needs of all age groups is important (Stephenson & Dowrick, 2000). Because most of the services provided to individuals with special needs last a lifetime and the people who are with them mostly in this process are usually family members. Therefore, it is important for these children to be supported by the family members at home in order to overcome the difficulties faced by the children with WD. Since academic skills are at the top of the areas where children with WD have difficulties, the support that families can provide in this direction is also important. According to the findings obtained from the social validity data, families seem to be interested, willing and successful in this regard. Participating mothers stated that they found the POW + C-SPACE strategy applied to their children with WD very useful, they were satisfied with the intervention, and recommended it to other families with children with WD.

This study is the first to ensure the intervention of a strategy based on the SRSDM by families. The findings of this research once again demonstrate that the POW + C-SPACE strategy is practical, effective, easily applicable, and functional; the findings also demonstrate that the strategy can be applied not only in environments that are structured by experts but also in semi-structured environments managed by parents. In the relevant literature, it is seen that similar studies of families with children with WD are quite limited. In this context, it can be said that the current study will clearly contribute to the relevant literature. This study will shed light on the topic for researchers, educators, and families by pioneering studies involving teaching other strategies based on the SRSDM to families and increasing different studies that support families with children with WD. Besides the mentioned strengths of the research, there are some limitations. One of the limitations of this research is to focus only on story writing skills among other writing skills. Another limitation of the research is that although the family education sessions were planned face-to-face when the research was first designed, they were carried out online through the Zoom Meetings program due to the Covid-19 pandemic, which had negative effects on the world. It is recommended that the findings obtained from the study be evaluated by considering these limitations. Following are some suggestions for researchers, teachers and families in line with the results obtained.

For researchers;

- The effectiveness of the family education program developed on the basis of the POW + C-SPACE strategy can be offered to children with WD through other family members except mothers (e.g., father, sibling, and caregiver).
- In inclusive classrooms, education on the POW + C-SPACE strategy can be given to classroom teachers, and the effectiveness of this strategy on the story-writing skills of children with SLD can be examined.
- The effectiveness of the POW + C-SPACE strategy can be taught to parents with children at different levels of education.

- The effectiveness of the POW + C-SPACE strategy can be compared with different story-writing skill strategies.

For teachers and families;

- Teachers and families can implement SRSDM-based strategies in a coordinated manner together.
- Establishing effective cooperation between teachers and parents in the intervention processes of such strategies will directly contribute to the children's (with WD) learning outcomes.
- POW + C-SPACE and similar strategies can be both used by teachers in the classroom and by parents at home for the children with WD.

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