

# Effects of a Multicomponent Storytelling Intervention on the Vocabulary Acquisition of German L2 Adolescents With Learning Disabilities and Peer-Relation Difficulties

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*The number of foreign languages spoken in Germany is rising, and as a result German is increasingly being learned as a second language (L2). This is a challenge for many secondary-school students, especially those who have learning disabilities (LD) and behavioral difficulties, which are often accompanied by reduced motivation to learn, in this case to learn a new language. Vocabulary is foundational for language development and literacy. In the current study, a combined storytelling intervention was used to help students build their expressive vocabulary in a short time. Specifically, five secondary-school students learning German as a second language – some of whom also had social-emotional difficulties – took part in a storytelling-based intervention three times a week for six weeks as part of a single-case study. The results indicate the intervention is an effective way to teach vocabulary, with stable data in the target sample. In addition, social validity questionnaires showed positive intervention ratings. Altogether, the storytelling intervention was found to be an advantageous way to support students with different needs in L2 learning.*

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**Keywords:** Second-language acquisition, vocabulary intervention, learning disabilities, behavioral difficulties

## INTRODUCTION

### *Language Learning for Students With Learning and Behavioral Difficulties*

Germany has been a major migration destination for years (Federal Office for Migration and Refugees, 2018) and, as a result, the German school system is faced with the challenging task of teaching German to students for whom German is a second language (GL2) to ensure that they receive an adequate education in their adopted country.

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Many students with inadequate L2 proficiency in the language of instruction struggle in school due to language barriers (Harju-Luukkainen et al., 2020; Hyltenstam & Abrahamsson, 2003; Kristen & Granato, 2007; Long, 1990; Muñoz & Singleton, 2011). To succeed in the German curriculum, it is necessary for these students to rapidly catch up with their native peers. It is, therefore, important to foster second language (L2) skills in order to make all academic content accessible to L2 learners (Buysse et al., 2014; Heckman, 2008).

Many learners feel overwhelmed by the seemingly unmanageable number of new words they have to learn, which may result in lack of motivation to study and eventual abandonment (Karami, 2019). In particular, students with learning disabilities (LD), who have already experienced failure in school, face further challenges in achieving L2 proficiency (Horwitz, 2001). Since LD is often linked with reduced working memory capacity (Garcia & Tyler, 2010), achieving mastery of an L2 is more complicated since language learning is highly related to working memory (Baddeley, 2017; Linck et al., 2014). Such challenges in learning an L2 can be reduced, however, if students receive high-quality resources and scaffolded instructional support (Sparks, 2009, 2016; Sparks & Patton, 2016).

Beyond the challenges related to learning a new language, studies show numerous difficulties related to the emotional and social skills of students with LD (Butler & Silliman, 2008; Schiff & Joshi, 2016) as they often demonstrate impaired social skills (Nowicki et al., 2003) and see themselves as less capable than their nondisabled peers (Gadeyne et al., 2004). Social skills are of enormous importance, especially when it comes to relationships (White et al., 2018), and hurdles in the language of instruction make relating to others more difficult. The results of a meta-analysis conducted by Newcomb et al. (1993) showed that rejected children are often characterized by aggressive behavior with a moderate effect ( $d = 0.64$ ), social withdrawal behavior ( $d = 0.30$ ), weak cognitive abilities ( $d = 0.41$ ), and a lower sociability ( $d = 0.29$ ) all with a small effect. Further, deficits in social skills may result in negative developmental outcomes, such as school failure and dropping out of school (Gresham et al., 2006).

When learning an L2, expanding vocabulary is one of the greatest challenges (Amiryousefi & Ketabi, 2011). But learning vocabulary is of immense importance (Schmitt, 2008) since it facilitates literacy development (Nation, 2001; Stæhr, 2008) and reading comprehension to a large extent (Quinn et al., 2020). Vocabulary knowledge is divided into two: receptive and expressive (Nation, 2001). Receptive vocabulary includes all words that can be understood correctly but cannot be produced actively, whereas expressive vocabulary refers to active usage of words. Moreover, Scammacca et al. (2007) noted that vocabulary instruction belongs to the most important areas for improving reading skills. A review by Kuder (2017) found that vocabulary interventions with

adolescent students with LD led to word knowledge and that even short interventions can be successful. Altogether, Kuder (2017) argued for more research on L2 and students with LD.

### ***Ways to Learn a Second Language***

#### **Incidental and Intentional Vocabulary Instruction**

There are two common ways of teaching words: intentional and incidental. *Intentional learning* involves application of a conscious learning strategy; that is, learners are aware that they are learning vocabulary (Hulstijn, 2001). Intentional learning has been shown to be effective through a number of studies (e.g., Elgort & Nation, 2010; Laufer, 2005; Schmitt, 2008; Yamamoto, 2014). *Incidental learning*, on the other hand, aims to convey the words be learned within a meaningful context (Webb, 2008). Using this strategy, therefore, words are not given direct attention but are acquired within another activity (Hulstijn, 2001; Kweon & Kim, 2008). The advantages of this strategy have also been reported in numerous studies (e.g., Hashemi Shahraki & Kassaian, 2011; Hemmati & Binti Asmawi, 2015).

Since both strategies have been found to have positive effects on learning new vocabulary, a combination of the two would seem even more effective (Kuder, 2017; Marulis & Neuman, 2010). Thus, Karami and Bowles (2019) found that youth foreign language learners outperformed their peers when they received a vocabulary intervention that consisted of both intentional and incidental elements.

#### **Storytelling as Way to Combine Both Strategies**

Storytelling has a positive impact on language learning in general (Moody, 1974). When using storytelling, information is conveyed by having somebody tell a story in an interactive way to the audience (Ellis & Brewster, 2002; Roney, 1996). The method of storytelling can combine aspects of both intentional and incidental vocabulary acquisition. For example, the vocabulary to be learned may be embedded in a story context (incidental learning) and at the same time be directly emphasized by the teller through flashcards showing the words and/or pictures (intentional learning).

The use of flashcards has a long tradition in the field in vocabulary acquisition and have been shown to be highly effective in word learning (e.g., Fraher et al., 2019; Standish et al., 2012). Specifically, using pictures can increase memorizing new words (Abbasian & Ghorbanpour, 2016), and teaching words in a meaningful context while connecting them to students' everyday life facilitates memorization (Joshi, 2005; Leons et al., 2009; Nation, 2015). Further, Meganathan et al. (2019) noted that vocabulary activities in combination with storybook reading were more beneficial than storybook reading alone.

Previous storytelling interventions conducted in mainstream schools with a focus on general language skills and reading comprehension have sug-

gested that storytelling is an effective intervention (e.g., Al-Mansour & Al-Shorman, 2011; Hemmati et al., 2015; Huang, 2006; Kim, 2010). Further, Knaak et al. (2020), Barwasser et al. (2020), Barwasser et al. (2021a, 2021b, 2021c) found that students with and without learning difficulties benefitted greatly from a combined storytelling intervention in German and English as L2.

### **Adding Motivational Components**

In language acquisition, motivation plays a major role (Fontecha & Gallego, 2012; Zheng, 2012). In order to avoid students being demotivated in language learning, and especially vocabulary learning (Dörnyei & Skehan, 2003), it is important to add motivational components to lessons (Cooper et al., 2007). Motivational strategies may be introduced at both an individual and a group level. At the individual level, self-graphing could be the strategy of choice, in which the learning progress of each student is made visible to them (Amato-Zech et al., 2006; Wells et al., 2017) as they fill in their daily results of a task on a graph (Hirsch et al., 2013). Indeed, self-graphing has been shown to have positive effects on general school success (Amato-Zech et al., 2006; Gunter et al., 2003). At the group level, group contingencies (GC) could be introduced to improve on-task behavior and behavior within a group (Bowman-Perrot et al., 2013). Using GC, each member of a group is responsible for the success of a prior defined goal (e.g., performance increase) of the entire group (Little et al., 2015).

### ***Research Aim of the Present Study***

As the number of non-native-speaking students in German schools increases, so does the linguistic diversity in German schools, and more and more students, specifically students with LD and behavioral challenges, face the challenge of acquiring GL2. To support these students adequately, it is crucial to implement interventions that are as effective and motivating as possible. Despite the growing language diversity in Germany, little attention has been paid to how students with multiple challenges can effectively learn vocabulary in GL2. To fill this gap in the literature, we combined incidental and intentional strategies for vocabulary acquisition into a multicomponent intervention consisting of storytelling, flashcards, and motivational components. The research questions were as follows:

- 1) Does a multicomponent storytelling intervention have positive effects on the vocabulary acquisition of secondary-school students with LD and behavioral difficulties?
- 2) How is the intervention perceived by the participants in terms of social validity?

## METHODS

### *Experimental Design*

To exclude both intermediate events and maturation as alternative explanations, a multiple-baseline procedure across participants was used (see Lane et al., 2017). That is, within an AB design, Phase A represents the baseline and Phase B represents the intervention. Kazdin (2011) recommended the use of at least three baseline points. Accordingly, the present study was comprised of three to a maximum of five baseline sessions. The baseline length was 3-5 sessions and the intervention length 10-12. Further, the intervention started at different times to increase the internal validity compared to a simple AB design. Laura and Tia started with three baselines, Tom and Lira with four, and Lene with five baseline sessions. (The participants' names were changed due to data protection.) Baseline and intervention took place three times a week for about 30 minutes each, with students leaving their regular classes and moving to an empty classroom. Two master's-level students in special needs education served as interventionists and test leaders.

### *Participants and Setting*

The sample was comprised 9 fifth- and seventh-grade students attending a special needs school for LD in North-Rhine-Westfalia, Germany. Consent forms were sent to all parents prior to the beginning of the study. This was a non-random sample since the participants were supposed to demonstrate a combination of GL2 and LD. A two-stage selection procedure was used to select the participants: (a) two teachers (one each in fifth and seventh grade) selected all students in their classes who had GL2 (GL2 not learned before the age of 3); (b) students' linguistic abilities were assessed with the help of a standardized intelligence and development test (*Intelligence and Development Scales*; Grob & Hagmann-von Arx, 2018).

In addition, the German version of the *Strength and Difficulties Questionnaire* (SDQ; Goodman, 1997) was used to obtain assessments from class teachers regarding the strengths and difficulties of their students with regard to behavioral problems and prosocial behavior.

### **Intelligence and Development Scales (IDS-2)**

To assess German vocabulary knowledge, the subtest Language Skills (SF) of the *Intelligence and Development Scales* (IDS-2; Grob & Hagmann-von Arx, 2018) was administered. It is suitable for LD and, therefore, appropriate for the current sample. Expressive and receptive language was tested. A percentile below 15 was considered as low performance.

### **Strength and Difficulties Questionnaire (SDQ)**

To assess problem behavior with peers, the *Strength and Difficulties Questionnaire* (SDQ; Goodman, 1997) was administered. Items are assigned to

five scales, which in turn consist of five characteristics. Items from the following scales were used: emotional problems (EP), behavioral problems (VA), hyperactivity (HYP), behavioral problems with peers (PG), and prosocial behavior (PRO).

The students' classroom teacher and another teacher were asked to assess the items according to the following criteria: *not applicable*, *partially applicable*, or *clearly applicable*. The mean value of both teachers was taken. The German version was checked against the English original, and was considered to be a reliable and useful survey instrument (internal consistency between  $\alpha = .87-.90$ ; Voß & Gebhardt, 2017). Values ranging from 5-10 are considered to indicate remarkable behavior difficulties.

**Vocabulary Pretest**

Furthermore, a non-standardized, researcher-developed word pretest of students' expressive word knowledge was administered to determine which vocabulary words to teach during the intervention. A non-standardized test was chosen, since it allows for more sensitive statements regarding vocabulary growth (National Reading Panel, 2000) when the intervention is based on a pool of specific vocabulary, as opposed to general vocabulary growth. A fixed word pool of 110 words was tested in a single setting divided over two days so as not to overwhelm the children. This vocabulary pool was based on the METACOM symbols, which are often used for children with language difficulties (Kitzinger, 2020) and tested for core vocabulary of the German language. The first day 58 words were tested, the second day, 52 words. The participants were shown pictograms for the selected words on single slides in a PowerPoint presentation, which they had to actively name correctly. A final pool of 30 vocabulary words was selected.

**Table 1. Descriptive Data for Each Participant in Phase A and Phase B Expressive Vocabulary**

	<i>N_A</i>	<i>N_B</i>	<i>M_A (SD)</i>	<i>M_B(SD)</i>	<i>Max_B</i>
Laura	3	12	0.67(0.58)	16.82(8.72)	27.00
Tia	3	12	3.33(0.58)	19.83(6.82)	29.00
Tom	5	12	7.20(2.49)	23.20(5.98)	30.00
Lira	5	12	1.60(0.55)	14.00(6.13)	22.00
Lene	6	9	1.80(0.45)	15.33(6.68)	25.00

*Note.* Measurements (N), Baseline (A), Intervention (B), *Mean (M)*, *Standard Deviation (SD)*, Maximum value (*Max*).

### **Final Group of Participants**

Based on the results of the inclusion criteria, six students (see Table 1) were found eligible for the study. However, the final number of participants was reduced to five, distributed over three groups due to school absences. All students had a German diagnosis of LD, meaning severe school failure in several subjects with a slightly reduced IQ (70-80).

Laura was 11 years old with Arabic as her first language (L1). On the IDS, she scored a Percentile Rank (PR) of 0.4 for expressive vocabulary and 2 for receptive. Her score on the SDQ was 8. Tia was also 11 years old and had Arabic as her L1. Her results showed a PR of 2 for expressive and 0.4 for receptive on the IDS and a value of 0 on the SDQ. Tom was 12 years old and had Turkish as his L1. He scored a PR of 9 on both expressive and receptive vocabulary on the IDS and a value of 8 on the SDQ. Lira was also 12 and also had Turkish as L1. She reached a PR of 0.1 on expressive and 0 on receptive vocabulary on the IDS and 2 on the SDQ. Finally, Lene was 12 years old and spoke Turkish as L1. She scored a PR 0.1 on expressive and 0.4 on receptive vocabulary on the IDS. Her SDQ results showed a value of 6.

### ***Dependent Variables and Measurement***

As for the pretest, students' expressive knowledge of the 30 training words was tested as number of correct known words expressively after each baseline and intervention session in the form of the same non-standardized, researcher-developed vocabulary test. A PowerPoint presentation with all 30 pictograms, one picture on each slide (not including the written vocabulary – only the picture), analogous to the words was shown. This was the exact same presentation as the pretest, but consisting of the 30 final words that were taught in the intervention. The participants were asked to actively name the words. The order varied each time. The number of correctly named vocabulary served as the dependent variable.

### ***Materials***

The master's-level students created 12 short stories after they had attained an understanding of the children's abilities, likes, and interests. All of the stories revolved around a main character who lived on a foreign planet and was searching for a missing object. The training words were randomly assigned (but evenly distributed) to each story (10 in each) and marked in green. Each training word appeared twice in a story, and students were confronted with each word 6-10 times in total. The individual stories had a font size of 48 printed on 8.3 x 11.7-inch sheets and stapled in a ring binder that was placed in a location that was visible to the students while the story was told. In addition, flashcards (see Figure 1; Barwasser et al., 2021a) were created showing the target word and a matching picture.

As part of the motivation system, each student received a self-graphing sheet to track their learning progress after each measurement. The number of correctly known words were listed on the Y-axis and the sessions on the X-Axis (see Figure 2).

### **Procedure**

#### **Baseline**

During the baseline sessions, the students, divided into the three groups, worked for about 20 minutes on cognitive tasks such as completing a series of symbols or finding out which symbol did not fit into the series shown. After each session, students' expressive knowledge of the 30 selected vocabulary items was assessed individually.

#### **Intervention Sessions**

In each session, the intervention consisted of two phases – a pre-listening and a while-listening phase. During the pre-listening phase (1), the masters-level students discussed the 10 words of the previous and the current story for about 5 minutes using flashcards showing the word and a corresponding pictogram. Thus, a total of 20 cards were discussed per session. First, the students were asked whether they knew and could name the word that matched the picture. The term was then briefly defined and linked to the students' everyday life (e.g., “Who of you has ever eaten a *salad*?”). Afterwards, the students were asked to repeat the word out loud in chorus.

Next, during the storytelling (while-listening phase) (2), the master's-level students told a self-written story interactively (e.g., using different voices, gestures, facial expressions) while the participants listened. Whenever a training word appeared in the story, the narrative was stopped, and the corresponding flashcard was presented. The students were asked if they recognized the word and to repeat the word aloud. The second phase lasted 15 minutes.

As part of the integrated motivation system, from the first intervention session onwards students were allowed to record their learning progress on a graph for the number of correctly known words after each measurement. Points were awarded for maintaining the scores from the previous time (1 point) and for improvement (2 points). The points were then thrown as marbles into a group jar as a type of group contingency procedure. Thus, all members of the group collected marbles together to receive a reward when a certain marble goal was reached.



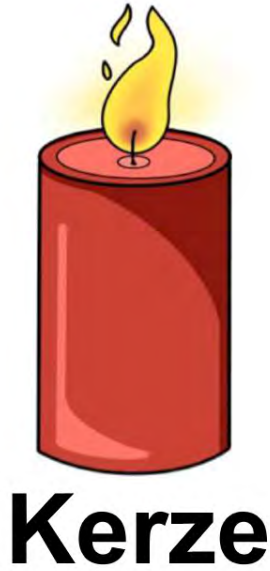


Figure 1. Example of a Flash Card for the German Word for Candle

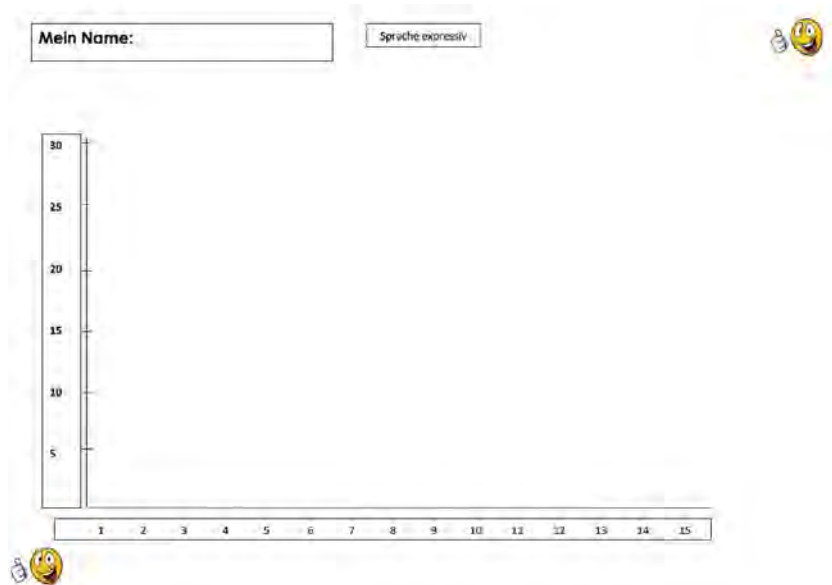


Figure 2. Motivational Self-Graphing Sheet

### ***Treatment Integrity***

Treatment integrity serves to assess that an intervention is carried out in the same way across groups and thus ensure the effectiveness of the intervention (Sanetti & Kratochwill, 2009). In the current study, a checklist consisting of 6 scales and a total of 22 items was used as part of assessing treatment integrity: Scale 1 “external circumstances,” Scale 2 “planning,” Scale 3 “material,” Scale 4 “course of support,” Scale 5 “diagnostics and feedback,” and Scale 6 “dealing with student behavior.” The options “yes” and “no” were given for Scales 1-5, and Scale 6 was rated from 0 (“absolutely not applicable”) to 4 (“completely applicable”). The treatment integrity checklist was filled out by the interventionists themselves each session; in addition, one third of the interventions were checked by an external person. Overall, there was an interrater reliability of 100% both between the individual sessions and the external advisor and the interventionists.

### ***Social Validity***

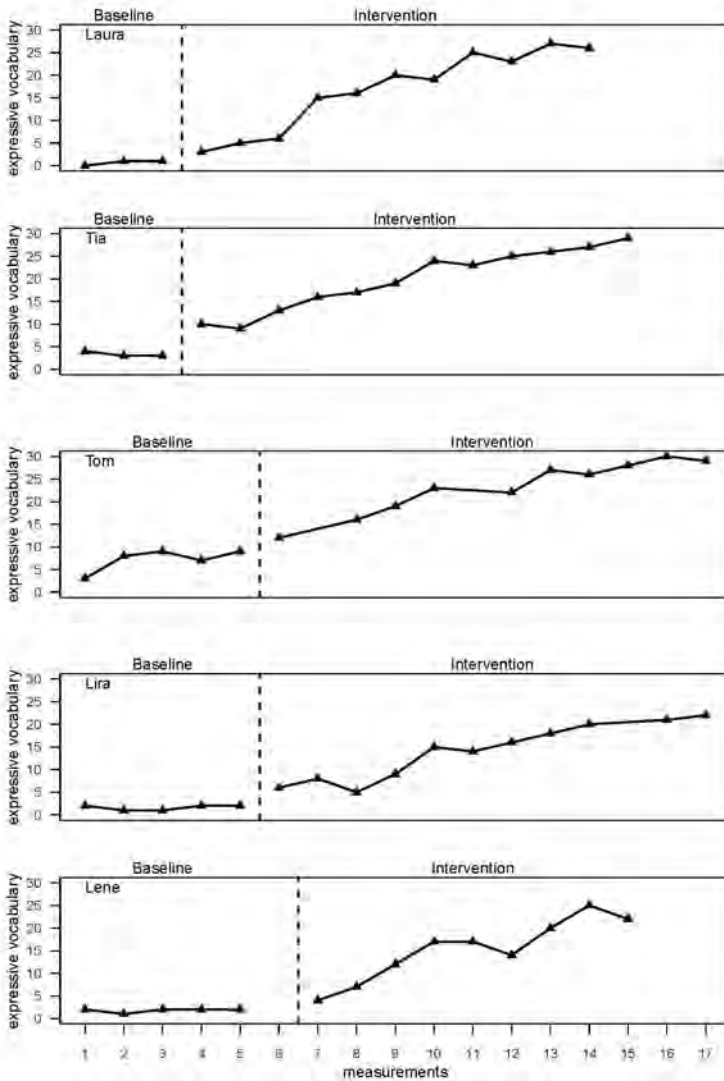
The social validity of the intervention was assessed by having the participants evaluate it after the intervention phase. The student questionnaire consisted of eight items that were to be scored on a 5-point Likert scale ranging from 0 (“does not apply at all”) to 4 (“applies completely”). Item 1: Storytelling helped me to recognize words correctly; Item 2: I think storytelling also helps other students with difficulties in vocabulary; Item 3: I have understood the sense of storytelling; Item 4: I now feel safer with German words; Item 5: I have learned a lot during storytelling; Item 6: I enjoyed coming to storytelling; Item 7: I enjoyed storytelling; Item 8: I would participate again. To avoid any bias that might have occurred if the master’s students had helped them complete it, the class teacher filled out the questionnaire with the children. In addition, the items were read aloud and explained if needed.

## **RESULTS**

### ***Expressive Vocabulary***

For analysis, the SCAN package for R by Wilbert (2020) was used. The visual analysis showed a continuous increase in vocabulary in Phase B across all students. All baselines may be described as very stable in purely visual terms. Only Tom showed a slight positive trend tendency. Unfortunately, a few measuring points were missing at the end of the intervention for Laura, Tia, and Lene.

To support the visual analysis, descriptive data were also examined (see Table 2). As illustrated, there was a significant increase in mean values from Phase A to Phase B across all participants. Tom reached the maximum 30 vocabulary words; with 29 words, Tia achieved almost the maximum; Laura reached 27; Lene, 25; and Lira, 22. For the mean baseline difference (MBLD; O’Brien & Repp, 1990), Laura showed a percentage increase of 1,582%, Tia, 495%, Tom, 222%, Lira, 1,300%, and Lene, 752%.



**Figure 3. Expressive Vocabulary Scores for the Four Participants**

In the next step (see Table 3), two non-overlapping effect sizes were calculated: The Non-Overlap of All Pairs (NAP) and Percentage of Data Points Exceeding the Median (PEM) (Parker et al., 2011). In addition, the weighted Tau-U ( $A \text{ vs. } B + \text{trend}B - \text{trend}A$ ) was used, which can additionally monitor for possible baseline trends. For all participants the non-overlap measurements were 100.00, meaning the maximum effect size value. With regard to the NAP,

significance could be assumed across all children ( $p < .01$ ). The Tau-U values showed the following results: Tom (0.62,  $p < .01$ ), Lene (0.69,  $p < .001$ ), Lira (0.75,  $p < .001$ ), and Laura (0.76,  $p < .001$ ) displayed a large change. However, Tia showed a very large change (0.95,  $p < .001$ ). Further, a piecewise regression analysis on Level 2 was calculated (see Table 4). No significant trend was found in Phase A. However, a significant level effect emerged from Phase A to Phase B ( $p < .05$ ), along with a statistically significant slope effect from Phase A to Phase B ( $p < .001$ ), with an average increase of 1.718 vocabulary words per intervention session.

**Table 2. *Overlap Indices for Number of Known Expressive Vocabulary***

Participant	NAP	$p$	PEM	PND	Tau-U	$p$
Laura	100.00	<.01	100.00	100.00	0.76	<.001
Tia	100.00	<.01	100.00	100.00	0.95	<.001
Tom	100.00	<.01	100.00	100.00	0.62	<.01
Lira	100.00	<.01	100.00	100.00	0.75	<.001
Lene	100.00	<.01	100.00	100.00	0.69	<.001

Note. NAP = Non-Overlap of All Pairs; PEM = Percentage of Data Points Exceeding the Median; PND = Percentage of Non-Overlapping Data.

**Table 3. *Regression Model Number of Expressive Vocabulary (Level 2 Analysis)***

	$B$	$SE$	$t$	$p$
Intercept	2.591	1.430	1.812	.07
Trend	0.201	0.330	0.610	.54
Level	2.580	1.037	2.488	<.05
Slope	1.718	0.340	5.047	<.001

### ***Social Validity***

The results of the social validity questionnaires showed that all students gave almost all items the highest possible score. Only Tia gave Item 1 (Storytelling helped me to recognize words correctly) a value of 3 (“applies”). Lene gave Items 4-6 (Item 4: I now feel safer with German words; Item 5: I have learned a lot during storytelling; Item 6: I enjoyed coming to storytelling) a value of 3.

**Table 4. Social Validity Results of Participants**

	Laura	Tia	Tom	Lira	Lene
Item 1	4	3	4	4	4
Item 2	4	4	4	4	4
Item 3	4	4	4	4	4
Item 4	4	4	4	4	3
Item 5	4	4	4	4	3
Item 6	4	4	4	4	3
Item 7	4	4	4	4	4
Item 8	4	4	4	4	3

*Note. Item 1:* Storytelling helped me to recognize words correctly; *Item 2:* I think storytelling also helps other students with difficulties in vocabulary; *Item 3:* I have understood the sense of storytelling; *Item 4:* I now feel safer with German words; *Item 5:* I have learned a lot during storytelling; *Item 6:* I enjoyed coming to storytelling; *Item 7:* I enjoyed storytelling; *Item 8:* I would participate again.

## **DISCUSSION**

### ***Main Findings***

Effective and evidence-based teaching methods are particularly important for students who, due to their educational background and learning needs, have exceptional difficulties in benefiting from standard school-based learning. Previous research has shown that students with L2, LD and social-emotional problems are clearly disadvantaged in terms of academic success (e.g., Domitrovich et al., 2017; Harju-Luukkainen et al., 2020; Horowitz et al., 2017; Kristen & Granato, 2007; Pullen et al., 2017). It was, therefore, deemed important to investigate which interventions can effectively help these students to overcome their vocabulary challenges, a central competence for further academic learning (Schmitt, 2008). The current study examined the extent to which a multifaceted storytelling intervention was an effective method of fostering the vocabulary

acquisition of students with GL2 and LD, who partly have peer-relation difficulties.

The results indicate that the intervention was highly effective for all students, regardless of their L1 and whether or not they had peer-relation problems. In addition to the results of the overlap indices, almost all students demonstrated a continuous increase in expressive vocabulary from the first intervention on and scored at least 22 of the 30 possible answers correctly. Thus, the results confirm the effectiveness of the multicomponent storytelling intervention for students with German and English as L2 (Knaak et al., 2020, Barwasser et al., 2021a, 2021b). In addition, the findings suggest that this intervention is an effective and inexpensive way to improve expressive vocabulary among students who face multiple barriers of learning. Furthermore, the results of the social validity questionnaires showed an enormously high acceptance on the part of students, who perceived the storytelling as very positive and effective.

To meet the diverse needs of students in their everyday school life, which is often characterized by a lack of time and personnel resources, it is important to identify effective interventions that take into account not only academic learning but also students' social and emotional challenges. These conditions were clearly met by the intervention in the current study, which, in addition to training expressive vocabulary, included both motivational components and allowed implementation in small groups. Further, the storytelling and flashcard method used can easily be adapted to different topics and age groups.

### ***Limitations and Implications for Practice***

The promising results of this study must nevertheless be viewed with the following limitations in mind. Due to the small sample size and the constrained number of vocabulary words taught, the results lack generalizability. For reasons related to school organization, the study had a relatively high drop-out rate, making it impossible to collect follow-up data. Thus, the results have only limited external validity, and no predictions about the long-term effects can be provided. As such, the results must be seen as a piece of the puzzle about the effectiveness of storytelling. Further elaboration in future studies is needed to determine the effects of direct instruction through flashcards and storytelling itself in isolation. Further, to explore whether the intervention can be used effectively with students with multiple challenges, studies using different research groups should also be conducted. For example, future research should consider not only the extent to which vocabulary is acquired and can be produced in a given test situation, but also whether students are able to correctly apply the acquired vocabulary in everyday situations. Furthermore, it might be of interest to examine how the intervention affects students' learning and what positive effects the group contingencies system have on peer relations. For further evidence, it would be important to examine the individual components of the intervention

(storytelling, flashcards, motivational components) in a differentiated manner with an eye to their effectiveness. With regard to peer-related problems, it must be noted that, for economic reasons, these were only identified by means of the SDQ's teacher report form (Goodman, 1997). Due to its reliability, especially when looking at individual subscales, this can only be regarded as screening (Essau et al., 2012). Thus, in future studies it would be interesting to identify the social difficulties of students in a more differentiated manner and define developmental goals, the progression of which could be assessed during the intervention. Also, regarding the L1s and the relationship between L1 and L2, it would be interesting to measure literacy in students' L1 since it has been argued that the L1 influences L2 vocabulary (Sparks et al., 2008).

The storytelling intervention can be adapted to most individual students and any vocabulary can be promoted with the help of the intervention. Likewise, stories can be custom-written or existing stories can be rewritten. Moreover, depending on the students, the two phases of the intervention can be extended or shortened as desired. Especially in the context of LD and behavioral difficulties, it is important to consider individual student needs. The results of the present study demonstrated that all students could memorize vocabulary in a very short time.

### **Conclusion**

In conclusion, our results confirm the effectiveness of a multifaceted storytelling intervention to promote the expressive vocabulary of students with LD and peer-related problems who have German as L2. Thus, the method is an effective and resource-efficient intervention for students who face multiple barriers of learning, and this single-case study fills a small part of the gap in research on secondary-school students with LD and L2.

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