

BRIEF REPORT

Reported speech in individuals with Down syndrome: First evidence

Isabel Neitzel

Department of Language and Communication,
Faculty of Rehabilitation Sciences, TU
Dortmund University, Dortmund, Germany

Correspondence

Isabel Neitzel, Department of Language and
Communication, Faculty of Rehabilitation
Sciences, TU Dortmund University, Dortmund,
Germany.

Email: isabel.neitzel@tu-dortmund.de

Abstract

Introduction: Narratives are enriched by taking the perspective of the protagonists, which can be expressed using reported speech. Nevertheless, the use of reported speech is unaddressed internationally among individuals with Down syndrome.

Method: Narratives of 28 children and adolescents with Down syndrome were collected using a non-verbal picture book. Occurrence and forms of reported speech were analysed and compared to typically-developing children (TD; $n = 33$).

Results: Participants from both populations use reported speech in their narratives with a comparable proportion. Nevertheless, differences appear concerning forms of direct speech with persons with Down syndrome using more free direct speech than TD-children.

Discussion: The results suggest that children and adolescents are able to implement the use of reported speech regardless of their syntactic impairments. Concerning the occurring forms of direct speech, the results might point to cognitive impairments that manifest in limited consideration of the interlocutor's knowledge.

KEYWORDS

Down syndrome, language development, narrative, perspective-taking, theory of mind

1 | INTRODUCTION

Narratives play an important role in our everyday communication. In this context, taking the perspective of the characters is essential. This has been shown not only to support story comprehension (Kim, 2015), but also to be a central feature of narratives (Tompkins et al., 2013). Taking the protagonist's perspective is not something that children do from the beginning, but rather, like many aspects of storytelling, develops gradually. There is a link between cognitive development and storytelling, as empathising with others involves, among other abilities, the Theory of Mind (Tompkins et al., 2019).

Linguistically, narrators have a variety of means at their disposal for marking the perspective of protagonists (overview in Van Krieken

et al., 2017). Some of them, for example, metaphorical language or the use of specific verbs such as the so-called mental state verbs (e.g., want and think), have already been addressed extensively in research. Less frequently, there is a focus on the use of (in-)direct speech (e.g., '(Lena says:) I like snow!', 'Lena says that she likes snow'.), although this type of utterances occurs frequently in both oral and written narratives. Different generic terms are used for this linguistic device (overview in Spronck & Nikitina, 2019); in this article, the term reported speech is applied.

Nordqvist (2001a) dated first utterances in direct speech to the age of 2;2 years, whereas indirect speech appeared at 3;0 years in the Swedish-speaking children studied. In this investigation, 4-year-old children were better able to respond to the listeners' prior knowledge

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2023 The Authors. *Journal of Applied Research in Intellectual Disabilities* published by John Wiley & Sons Ltd.

and to linguistically indicate perspective-shifting than 3-year-old participants (full analyses and data of older comparison groups in Neitzel & Penke, 2021b). Results from Li et al. (2022) imply that speakers are more likely to use direct than indirect speech in conversational situations to which they feel socially connected, and that the different forms of reported speech might thus go beyond a mere variation of syntactic possibilities. Spronck and Nikitina (2019) even propose to categorise reported speech as a syntactic domain of its own.

The (linguistic) change of perspective represents an aspect of narrative ability which might be limited in persons with language disorders. This could be especially true for individuals with Down syndrome, who show language impairments and mild to moderate cognitive impairments (Grieco et al., 2015). Deficits in narrative performance are repeatedly described in the literature for this group of individuals (overview in Segal & Pesco, 2015; for German: Neitzel, 2023), however, individuals with Down syndrome also frequently show limitations in Theory of Mind, for example, with regard to recognising that other individuals are subject of a false assumption (False Belief; cf. Neitzel & Penke, 2021a).

Although linguistic perspective-taking skills constitute a significant aspect of narrative ability, they have hardly been addressed for individuals with Down syndrome. There is some research on the use of mental state verbs in speakers with Down syndrome (including Channell, 2020; Neitzel & Penke, 2021b). Moreover, Neitzel (2022) was able to show that cognitive perspective-taking abilities (in this case Theory of Mind) cannot necessarily be inferred from linguistic perspective-taking performances in a narrative. Due to the limited scope of this brief report, the reader is referred here to Neitzel and Penke (2021b) for general considerations on perspective taking and language impairments in people with Down syndrome. An open question is, however, what means of linguistic perspective-shifting are available to people with Down syndrome in the first place and how can they be adequately investigated.

This brief report provides insight into ongoing research on perspective-taking in narratives of children and adolescents with Down syndrome. Although reported speech is mentioned as a criterion for advanced narrative performance, for example, in the Narrative Scoring Scheme (NSS; Heilmann et al., 2010), which can be used to score narratives through a point system, no research is currently available on the use of reported speech in narratives addressing this population. Due to the described limitations in narrative ability and (non-verbal) perspective-shifting in the form of Theory of Mind, it seems interesting to address this research gap. This brief report intends to conduct an explorative analysis of the occurrence of reported speech in narrative samples of children and adolescents with Down syndrome and to provide a comparison to individuals with typical language development.

2 | METHODS

2.1 | Participants

This brief report presents the results of 28 children and adolescents with Down syndrome (15 f., 13 m.) who were investigated on several

dates as part of a larger research project on narrative abilities. They were aged 10 to 20;01 years (mean age: 14;05 years; in yy:mm). All participants grew up as monolingual German speakers and were recruited for study participation through professional media, social media, and parent support groups. The study received a positive ethical vote from the Medical Faculty of the University of Cologne (No. of approval 18-121). Comparison data was used from a CHILDES-corpus by Berman and Slobin (1994) including the narrative transcripts of typically-developing (TD) 3-, 5- and 9-year-old children. Nonverbal mental age was used as a measure of cognition in the current study. Mental age was calculated based on assessments using the Reasoning scale of the SON-R 2 ½-7 (Tellegen et al., 2007), which includes three subtests: categories, analogies, and situations. The characteristics of the participants are presented in Table 1. Since the mean mental age over the group with Down syndrome was 5;03 years, the 5-year-old TD-children serve as a (mental) age equivalent control group. A younger control group – 3-year-old children, since reported speech should occur at this age at the earliest (Nordqvist, 2001a, 2001b) – and an older control group (9-year-old children) were included in the analyses.

2.2 | Narrative measures

The analyses presented here on the use of reported speech were conducted on the basis of the so-called Frog Story (non-verbal picture book ‘Frog, where are you?’; Mayer, 2003), a material consisting of 24 black and white pictures frequently used internationally to elicit narratives (cf. methodological discussion in Stirling et al., 2014). The book was initially flipped through once with no language input with the experimenter. Then, the child was asked to tell the story with picture support. No help was given here, only nonspecific queries were asked (e.g., ‘What is happening?’; procedure based on Reilly et al., 2004). The Frog Story transcripts were also used to calculate the mean utterance length (MLU) in words, which is common in German. Table 1 shows the values of MLU for all participants. However, high values in the group with Down syndrome do not necessarily indicate advanced sentence formation skills in this target group, but rather reflect a morpho-syntactic impairment with a lot of sentence entanglements, as Neitzel and Penke (2021b) were able to show for the present sample. The participants in the present sample showed strengths in vocabulary and language comprehension in a comprehensive battery of language tests, whereas they showed predominantly impaired performance in the production of complex syntax (results in Neitzel & Penke, 2022). The full narrative transcripts of the included participants are freely available through the CHILDES-database (<https://chilides.talkbank.org/access/Frogs/German-Neitzel.html>).

2.3 | Data analysis

With regard to the forms of reported speech, three different types were distinguished in the present analyses, following Nordqvist (2001a, 2001b):

TABLE 1 Participant characteristics and mean mental age across the groups with Down syndrome (DS) and typical development (TD), aged 3, 5 or 9 years (taken from Berman & Slobin, 1994).

in y;mm	Group DS (n = 28)	Group TD3 (n = 12)	Group TD5 (n = 11)	Group TD9 (n = 10)
Chronological age				
Mean (SD)	14;05 (2;06)	3;08 (0;02)	5;04 (0;04)	9;06 (0;05)
Range	10;00–20;01	3;03–3;11	5;00–5;11	9;00–9;11
Mental age (SON-R 2 ½–7)				
Mean (SD)	5.03 (1.02)	–	–	–
Range	3.05–8;00			
MLU (in words)				
Mean (SD)	7.00 (2.94)	4.98 (0.51)	5.34 (0.61)	6.31 (0.51)
Range	1.57–13.28	3.78–5.77	3.78–6.07	5.59–7.23

Note: Nonverbal mental age was not available for TD-children.

TABLE 2 Number/proportion of utterances in total and including reported speech across individuals with Down syndrome and typical development (TD).

Mean (SD)	Typical development (n = 12)			
	Group DS (n = 19)	Group TD3 (n = 3)	Group TD5 (n = 4)	Group TD9 (n = 5)
Range				
(a) Number of utterances in Frog narratives (total)	83.26 (35.17)	60.67 (20.79)	70.25 (12.42)	81.00 (54.99)
	45–171	37–76	59–81	44–175
(b) % Utterances incl. reported speech	0.06 (0.05)	0.05 (0.03)	0.04 (0.02)	0.06 (0.03)
	0.02–0.20	0.03–0.08	0.02–0.07	0.04–0.11
		0.05 (0.02)		
		0.02–0.11		
Group comparison for (b) DS versus TD (Mann–Whitney- U)	n.s.			

- (1). Free direct speech; e.g., ‘*max schhhht* ich seh mal da schhhht – ich seh mal da hinten nach*’. – ‘max schhhht* i’ll check schhhht – i’ll check back there’ (child P17) (*quiet sound).
- (2). Framed direct speech; e.g., ‘*de biene sagt: warum so laut bel-len?*’ – ‘the bee says: why barking so loud?’ (P12).
- (3). Indirect speech; e.g., ‘*das kind sagt der hund soll leise sein*’ – ‘the child says the dog should be quiet’. (P15).

The mentioned forms (1)–(3) represent different syntactic structures, whereby the speech content could be presented variably in each case. The example of embedded direct speech (2) could also have been presented using free direct speech (1) – ‘Why bark so loudly?’ – or indirect speech (3) – ‘The bees ask why the dog barks so loudly’. Thus, it is a syntactic variation, which, however, provides insights into the morpho-syntactic abilities of the children and adolescents studied. At the same time, findings from the literature suggest that syntactic contexts are not chosen completely arbitrarily (cf. Li et al., 2022). Since a single utterance with speech content could also be considered a chance hit or some kind of imitation, a criterion of \geq two utterances including reported speech was the inclusion criterion for the subsequent analyses. All analyses were computed using SPSS 29.0 (IBM Corp, 2022).

3 | RESULTS

3.1 | Occurrence of reported speech in narratives

In a first step, it was analysed how many children of the different groups used reported speech when the criterion of \geq two utterances including reported speech in the narratives was applied. This was true for 67% of individuals with Down syndrome (19/28), 25% of 3-year-old children (3/12), 36% of 5-year-old children (4/11) and 50% of 9-year-old children (5/10). These participants ($n = 31$) were included in the following analyses. The sub-group of 19 individuals with Down syndrome had a mean mental age of 5;5 years (SD 1;4 years, range 3;5–8;00 years). Table 2 displays the number of total utterances in the Frog story narrative per group as well as the proportion of utterances in the narrative samples of individuals with Down syndrome and TD. Remarkably, the overall proportions are constant across age groups in TD-children and comparable to the proportion shown by individuals with Down syndrome. A non-parametric group comparison (Mann–Whitney- U -test) between the two groups with Down syndrome and the TD-population yielded no significant difference.

TABLE 3 Forms of reported speech occurring across individuals with Down syndrome and typical development (TD).

Mean (SD)	Typical development			
	Group DS (n = 19)	Group TD3 (n = 3)	Group TD5 (n = 4)	Group TD9 (n = 5)
Range				
% Utterances incl. free direct speech	0.29 (0.32) 0.00–0.91	0.00 (–) –	0.04 (0.08) 0.00–0.17	0.07 (0.10) 0.00–0.22
% Utterances incl. framed direct speech	0.45 (0.31) 0.00–1.00	0.78 (0.19) 0.67–1.00	0.79 (0.25) 0.50–1.00	0.61 (0.38) 0.00–1.00
% Utterances incl. indirect speech	0.26 (0.30) 0.00–1.00	0.22 (0.19) 0.00–0.33	0.17 (0.24) 0.00–0.50	0.32 (0.43) 0.00–1.00

3.2 | Forms of reported speech in narratives

Although the content of an utterance might be similar, reported speech can be syntactically realised using different structures. This is especially interesting concerning individuals with Down syndrome who often show impairments in morpho-syntax. Therefore, a relationship between the forms of reported speech and possible syntactic impairments in participants with Down syndrome should be considered. Productive results of these individuals were compared to the performance of TD-children. Table 3 shows a detailed analysis of the forms of reported speech occurring in the narrative samples. It is noticeable that all groups with TD produced only very little free direct speech, but that the amount slightly increased with rising age. In the participants with Down syndrome, free direct speech accounted for almost a third of the utterances with speech content. The proportion of embedded direct speech is highest within all groups, but the distinct difference between the means of the participants with Down syndrome (0.45) and the TD-groups is striking (0.61–0.79). The discrepancy appears to result from the higher proportion of free direct speech in the participants with Down syndrome. Indirect speech also occurred in all groups with a proportion between 0.17 and 0.32 on average. It should be noted that due to the small groups of TD-children whose results were included in the analyses, no statistical comparisons are possible at this point.

4 | DISCUSSION

This brief report provides insight into preliminary analyses of the use of reported speech by individuals with Down syndrome. Performance was compared with TD-children at the ages of 3, 5, and 9. Of particular interest was the group of 5-year-olds, which corresponded to the mean mental age of the present group with Down syndrome. The results show that the proportion of utterances containing reported speech did not differ between the participants with Down syndrome and those with TD. This suggests that this stylistic device of linguistic perspective-shifting is certainly available to people with Down syndrome and can be used independently of possible language impairments. The current study thus provides the first results on this perspective-shifting-measure in

individuals with Down syndrome and underlines the findings on other perspective-shifting-measures (e.g., the use of mental state verbs, Neitzel & Penke, 2021b), which could rather be considered a strength of individuals with Down syndrome.

Differences in the use of reported speech do not show up in the present study with regard to the amount of utterances containing speech content, but with regard to the forms of reported speech that are produced (see examples (1)–(3) in the method section). While the proportions of produced utterances with indirect speech were more or less consistent, although the current sample of participants with Down syndrome largely showed difficulties in producing complex sentences (Neitzel & Penke, 2021b), there were clear differences for the forms of direct speech. Although embedded direct speech was the most frequent form of produced reported speech in participants with Down syndrome and those with TD, the proportion was significantly higher for the TD-children. This difference appeared to result from the fact that the individuals with Down syndrome produced significantly more free direct speech. In direct comparison with the TD-groups, and knowing that the children and adolescents with Down syndrome studied also showed syntactic and cognitive impairments, it seems possible that the many utterances in free direct speech are an expression of (language) impairment in the participants. One possible explanation would be that the individuals refrained in many situations from connecting the direct speech with another sentence, that is, *embedding* it (e.g., ‘The boy says: I’m looking for my frog!’), due a morpho-syntactic deficit. However, this explanation does not seem completely conclusive, since the missing (*embedding*) sentence is a simple main clause, which would have to contain only subject and verb, whereas the same participants were able to produce indirect speech in their narratives, which presupposes a subordinate clause. For the investigated group of participants with Down syndrome, it might be plausible that the individuals did not take into account the listener’s knowledge when producing the narratives (Does the interlocutor know, who is talking in the story right now?). It would have to be examined whether this is a common pattern among individuals with Down syndrome or other cognitive impairments that this reference to the interlocutor is not given and whether these cases might be associated with a low Theory of Mind ability. On the other hand, it would have to be examined within the narratives whether in the respective cases of direct speech there would have been an

understanding on the part of the listener as to who was speaking. It is interesting to note in this context that 12- and 15-year-old adolescents, who were used by Nordqvist (2001b) as comparison groups and also told the Frog Story, hardly attributed reported speech to animals, but (almost) exclusively let the human protagonist (boy) speak. Accordingly, it would also be conceivable that the children with Down syndrome assumed that the (human) speaker would be clear from the context. In contrast to the high number of utterances in free direct speech in the participants with Down syndrome, the 12- and 15-year-old participants in the Nordqvist study (Nordqvist 2001b) – who are chronologically more comparable to the present sample than the mentally comparable 5-year-old children – showed minimal (12-year-old) or no (15-year-old) utterances in free direct speech. This again suggests that the high number of free direct speech utterances in the participants with Down syndrome might indicate impaired use. However, since the 9-year-old children in Nordqvist's (Nordqvist 2001b) study expressed the highest proportion of their reported speech utterances (about 70%) in free direct speech, it is possible that this could be a pure developmental delay rather than a syndrome-specific pattern. This aspect allows for a more detailed analysis.

5 | CONCLUSION AND FUTURE RESEARCH

The use of reported speech can enrich a narrative and make it more interesting and easier to understand for listeners. At the same time, it can be considered as a sign of advanced narrative development and could be related to a deeper understanding of the characters' view. This brief report presents preliminary results of a first evaluation of the use of reported speech in individuals with Down syndrome compared to children with typical development. This reveals further research gaps that make it desirable to examine a link between linguistic, cognitive, and narrative deficits in individuals with Down syndrome, from which clinical implications could possibly be derived.

ACKNOWLEDGEMENTS

I would like to thank all participants and their families. A further thank goes to Jana Hapcke and Sarah Schuchardt for supporting the analyses. A final thank goes to Anna-Lena Scherger for collegial support concerning funding issues for this article. Open Access funding enabled and organized by Projekt DEAL.

FUNDING INFORMATION

No funding was used for this project.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The transcripts that support the findings of this study are openly available in CHILDES database at <https://childes.talkbank.org/access/Frogs/German-Neitzel.html>, reference number doi:10.21415/3E XH-BX55.

REFERENCES

- Berman, R., & Slobin, D. I. (1994). In collaboration with Ayhan Aksu, Michael Bamberg, Virginia Marchman, Tanya Renner, Eugenia Sebastian, and Christiane von Sutterheim). *Different ways of relating events in narrative: A crosslinguistic study*. Erlbaum Associates.
- Channell, M. M. (2020). Cross-sectional trajectories of mental state language development in children with Down syndrome. *American Journal of Speech-Language Pathology*, 29(2), 760–775.
- Grieco, J., Pulsifer, M., Seligsohn, K., Skotko, B., & Schwartz, A. (2015). Down syndrome. Cognitive and behavioral functioning across the lifespan. *American Journal of Medical Genetics. Part C, Seminars in medical Genetics*, 169(2), 135–149.
- Heilmann, J., Miller, J. F., Nockerts, A., & Dunaway, C. (2010). Properties of the narrative scoring scheme using narrative retells in young school-age children. *American Journal of Speech-Language Pathology*, 19, 154–166.
- IBM Corp. Released. (2022). *IBM SPSS statistics for windows, version 29.0*. IBM Corp.
- Kim, Y.-S. (2015). Language and cognitive predictors of text comprehension: Evidence from multivariate analysis. *Child Development*, 86, 128–144.
- Li, J., Dijkstra, K., & Zwaan, R. A. (2022). The use of direct and indirect speech across psychological distance. *Memory & Cognition*, 50(8), 1816–1825.
- Mayer, M. (2003). *Frog, where are you? (a boy, a dog, and a frog)*. Dial books.
- Neitzel, I. (2022). Zwischen Verständnis und Anwendung: Manifestation eines False Belief-Verständnisses in Erzählungen von Kindern und Jugendlichen mit Down-Syndrom, Spektrum Patholinguistik Band 15. In S. Tan, S. Düring, A. Wilde, H. Wunderlich, & T. Fritzsche (Eds.), *Schwerpunktthema: Interdisziplinär behandeln—Multiprofessionelle Zusammenarbeit in der Sprachtherapie*. Universitätsverlag Potsdam. <https://doi.org/10.25932/publishup-55820>
- Neitzel, I. (2023). Narrative abilities in individuals with Down syndrome: Single case-profiles. *Frontiers in Psychology*, 14, 1116567. <https://doi.org/10.3389/fpsyg.2023.1116567>
- Neitzel, I., & Penke, M. (2021a). Theory of mind in children and adolescents with Down syndrome. *Research in Developmental Disabilities*, 113, 103945. <https://doi.org/10.1016/j.ridd.2021.103945>
- Neitzel, I., & Penke, M. (2021b). Mental state verb production as a measure of perspective taking in narrations of individuals with Down syndrome. *Frontiers in Communication*, 6, 629757. <https://doi.org/10.3389/fcomm.2021.629757>
- Neitzel, I., & Penke, M. (2022). Narrative abilities and influencing factors in children and adolescents with Down syndrome. *Logos*, 30(1), 14–24.
- Nordqvist, Å. (2001a). The use of direct and indirect speech by 1- to 4-year-olds. *Psychology of Language and Communication*, 5(1), 57–66.
- Nordqvist, Å. (2001b). Speech about speech: A developmental study on form and function of direct and indirect speech. Doct. Diss. Gothenburg monographs in linguistics 19. Department of Linguistics, University of Gothenburg.
- Reilly, J., Losh, M., Bellugi, U., & Wulfek, B. (2004). “Frog, where are you?” Narratives in children with specific language impairment, early focal brain injury, and Williams syndrome. *Brain and Language*, 88(2), 229–247.
- Segal, A., & Pesco, D. (2015). Narrative skills of youth with Down syndrome: A comprehensive literature review. *Journal of Developmental and Physical Disabilities*, 27, 721–743.
- Spronck, S., & Nikitina, T. (2019). Reported speech forms a dedicated syntactic domain. *Linguistic Typology*, 23(1), 119–159.
- Stirling, L., Douglas, S., Leekam, S., & Carey, L. (2014). The use of narrative in studying communication in autism spectrum disorders. *Communication in Autism*, 11, 169–216.
- Tellegen, P. J., Laros, J. A., & Petermann, F. (2007). SON-R 2 ½-7. Hogrefe.
- Tompkins, V., Farrar, M., & Montgomery, D. (2019). Speaking your mind: Language and narrative in young children's theory of mind

- development. *Advances in Child Development and Behavior*, 56, 109–140.
- Tompkins, V., Guo, Y., & Justice, L. M. (2013). Inference generation, story comprehension, and language skills in the preschool years. *Reading and Writing*, 26, 403–429.
- Van Krieken, K., Hoeken, H., & Sanders, J. (2017). Evoking and measuring identification with narrative characters—a linguistic cues framework. *Frontiers in Psychology*, 8, 1190. <https://doi.org/10.3389/fpsyg.2017.01190>

How to cite this article: Neitzel, I. (2024). Reported speech in individuals with Down syndrome: First evidence. *Journal of Applied Research in Intellectual Disabilities*, 37(1), e13163. <https://doi.org/10.1111/jar.13163>