The New Educational Review

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Differences in Communication Skills among Elementary Students with Mild Intellectual Disabilities after Using Easy-to-Read Texts

DOI: 10.15804/tner.2021.64.2.19

Abstract

The purpose of the study was to analyse differences in speech, language and communication skills between students with mild intellectual disabilities using a narrative text written in easy-to-read text (experimental group), and students with mild intellectual disabilities using a book containing the same content but written in ordinary text (control group). The results indicate that students with mild intellectual disabilities who listen to the easy-to-read text exhibit superior communication skills in individual conversations with the teacher. Significant differences occur in all three measured variables. The research is important contribution in understanding of benefits of easy-to-read texts.

Key words: *easy-to-read, communication, language, methods*

Introduction

The communication skills of students with mild intellectual disabilities are closely related to intellectual function, and so it is known that students with intellectual or mental disabilities are deficient in language development, communication, speech and academic skills related to reading (Foreman, 2009, Dodd, 2013). These students often communicate in a limited way because they have difficulties in understanding language. Relative to their peers whose development may be regarded as typical, they are more likely to exhibit delays in language develop-

ment, articulation, speech fluency and communication (Bos and Tierney, 1984; Wehmeyer and Shoegren, 2016).

The development of communication skills among students with mild intellectual disabilities is regularly delayed so that children start to speak at age three to six or even later. Their expressive language is more affected than their receptive abilities, their expressive vocabulary is limited and relatively simple, and they may only produce two- and three-word sentences after the age of nine. The discrepancy between mental and chronological age can be manifested in diverse ways, depending on the individual's degree of intellectual disability (Horn, 2012; Marrus and Hall, 2017). Speech disorders are related to difficulties in physically reproducing speech, while language disorders include difficulties in understanding and using language as a symbolic means of communication in either written or spoken form. The use of language can be illogical, phonetically impaired, highly concrete and simplistic, and may have a specific rhythm and small vocabulary. It may develop in expected phases, but also with considerable delay and in specific forms (Dodd, 2005; Perovic, 2006).

Easy-to-read texts represent one of the most common strategies used by educators to improve these students' reading comprehension performance, from elementary to adult education (Fajardo et al., 2014, 212). However, the design and selection of adaptations for easy-to-read texts are not the same in every language and are often contingent on the age of the readers as well as the language context. General guidelines from international organisations exist, such as *Guidelines for easy-to-read materials* by the International Federation of Library Associations and Institutions (IFLA, 2010) or *European standards for making information easy to read and to understand* in English (2009). The same guidelines are translated in several EU languages.

Language adaptations enable easier understanding and pronunciation of text. Thus, it is recommended that the concrete naming of objects be used, difficult or new words be explained alongside examples from everyday life, sentences be short versions and positive, and abbreviations, passive voice, synonyms, foreign words, large numbers and other mathematical expressions such as percentages and special symbols be excluded. Form adaptations comprise good structure, information that is easy to understand and follow, clear and highly legible fonts (sans-serif fonts such as Arial and Tahoma) in size 14 with 1.5 spacing between lines, space between paragraphs, left-aligned text, a maximum of six words on one line and avoid excessive text on each page. Where the text includes images (illustrations in our case), they should be concrete, age-appropriate, simple, positioned beside the text to which they relate, visually appealing, and if possible featuring a consistent

style throughout the entire document (Fajardo et al., 2013; Haramija and Batič, 2016; IFLA; 2010).

If the easy-to-read text is prepared according to these standards and is tested with the intended population, it can improve students' engagement in reading and interactions between the text and others (Haramija and Batič, 2016; Karemann et al., 2007; Buell et al., 2020). Easy-to-read texts constitute a method that enables students with intellectual disabilities to independently engage in reading and to understand the reading material. However, we are unable to precisely define which elements or collection of elements in easy-to-read texts facilitate reading comprehension (Karemann et al., 2007).

Research Focus

The purpose of this study is thus to analyse differences in communication skills between students with mild intellectual disabilities using a narrative text (a children's book) written in easy-to-read text, and students with mild intellectual disabilities using a book containing the same content but written in ordinary text. Our research questions are: a) do the students who listen to the easy-to-read text exhibit superior communication skills in individual conversations with the teacher following the reading than do students listening to the ordinary text, and b) which differences in measured variables among these two groups are most significant?

Methodology of Research

Sample of Research

The participants comprised 10 students (four girls and six boys) from an elementary special education school in a 5th grade class and 10 years of age. Students were divided into experimental (EG) and control group (CG), each of which included five students (two girls and three boys). All students had been diagnosed with a mild intellectual disability and language-speech disability at the beginning of their elementary education. None of the students had been diagnosed with an additional disability such as Down syndrome, autism or attention-deficit hyperactivity disorder (ADHD). Given that all of the students attended the same special education elementary school in Slovenia, they received an equivalent education during the school year.

Instrument

The instrument was designed for the purpose of the study. We based our instrument on several other instruments, which included variables pertaining to

communication skills: the ECPE Speaking Rating Scale, which measures speech production, collaboration in communication situations and understanding (Michigan Language Assessment, 2014); the ICAO Language Proficiency Rating Scale, which measures pronunciation, sentence structure, vocabulary, speech fluency and communication interactions (The ICAO Holistic Descriptors & Language Proficiency Rating Scale, 2015); the NCA Conversational Skills Rating Scale (Spitzberg and Adams, 1995), which measures speech and language; and the PCSD Conversational Effectiveness Profile, which measures social interactions, social communication and social emotional interactions (Conversational effectiveness profile, 2018).

The variables in our scale were designed to measure three dimensions: a) speech, b) language and c) communication. The variables were assessed on a five-item Likert scale, according to which: 1) the skill was never expressed by the student during the conversation; 2) the skill was rarely expressed; 3) the skill was sometimes expressed; 4) the skill was very often expressed; 5) the skill was always expressed. We named it the Speech, Language and Communication Skills (SLCS) Scale (Volčanjk, 2018, 36). The speech dimension includes five variables (α=.79). The language dimension includes four variables (α =.91). The communication dimension includes five variables (α=.77).

Data collection and Analysis

Data were collected following four reading sessions with the experimental and control groups. The four reading sessions were undertaken in a 14-day period. The experimental group used the book in easy-to-read text and the control group used the book with the same content in ordinary text. The content of the book explores differences among children and is appropriate to the age of the students in the study. The book by N. Volčanjk (2017) is entitled *I + You + Him = Us. Why bullying?* and includes seven chapters. None of the students had read the text before the study. The author (who was also the teacher in this study) had already adapted the book from ordinary text into easy-to-read text following her professional training in this subject and tested the latter with the students during the reading sessions.

The teacher read the book to both groups and following each reading conducted an individual conversation (interview) with each student about the story. During each interview, the teacher collected data using the SLCS scale. Each student was assessed four times, after each reading session. The teacher also assessed children's understanding of the content of each chapter according to the scale; although these data are not presented in this paper, they did complement the results on the SLCS scale.

In order to analyse differences between the experimental and control groups, we used the t-test for independent samples based on the average result of each student on the SLCS scale.

Results of Research

In this section we present the results of the t-test for speech, language, and communication skills of students in the experimental and control groups.

Table 1. Differences between experimental and control groups regarding speech

Variables - speech	Group			Levene test		t-test	
		M	SD	F	P	t	P
Student speaks about the text independently and fluently.	EG	3.40	0.23	4.05	0.08	2.63 *(8)*	0.030
	CG	2.76	0.07				
Student pronounces new words from the text fluently.	EG	3.75	0.19	0.16	0.70	7.36 *(8)*	0.000
	CG	1.70	0.20				
Student easily responds to questions related to the text.	EG	4.05	0.12	1.56	0.25	5.46 *(8)*	0.001
	CG	2.70	0.22				
Speech skills of the students indicate that he/she understands the text.	EG	4.35	0.19	2.33	0.17	5.91 *(8)*	0.000
	CG	2.15	0.32				
Student speaks about the text in a way that is understandable to the teacher.	EG	3.35	0.17	0.36	0.57	1.61 *(8)*	0.147
	CG	3.00	0.14				

Note: EG – experimental group, CG – control group

The results of the Levene test reveal that the assumption of homogeneity of variances was met. Statistically significant differences between groups can be seen in fluent and independent speech ($t(8) = 2.63$; $p = 0.03$), fluent pronunciation of new words from the text ($t(8) = 7.36$; $p < 0.000$), students' responses to questions from the text ($t(8) = 5.46$; $p = 0.001$), and in speech skills, indicating that the students understood the text ($t(8) = 5.91$; $p < 0.000$).

Results regarding the mean differences indicate that the greatest differences between groups were in speech skills, intimating that students understood the text (EG M = 4.25; SD = 0.19; CG M = 2.15; SD = 0.32), and in the fluent pronunciation

of new words from the text (EG M = 3.75; SD = 0.19; CG M = 1.70; SD = 0.20). We can thus conclude that easy-to-read text is able to support improvements in the cognitive domain (understanding of the text) and in speech disorders, e.g. fluent pronunciation.

Table 2. Differences between experimental and control groups regarding language

Variables - language	Group			Levene test		t-test	
		M	SD	F	P	t	P
Student uses vocabulary from the text during the conversation.	EG	3.75	0.81	0.79	0.40	6.27 *(8)*	0.000
	CG	1.30	0.33				
Student uses appropriate word order in his/her sentences.	EG	3.33	0.30	14.95	0.05	2.48 *(4)*	0.068
	CG	3.00	0.00				
Student understands the words we use in conversation.	EG	4.00	0.59	0.87	0.38	7.95 *(8)*	0.000
	CG	1.70	0.27				
Student is able to explain the meaning of new words from the text.	EG	3.95	0.82	4.10	0.08	7.86 *(8)*	0.000
	CG	1.05	0.11				

The results of the Levene test indicate that the assumption of homogeneity of variances was met. Statistically significant differences between groups can be seen in the use of vocabulary from the text during the conversation with the teacher ($t(8) = 6.27$; $p < 0.000$), in students' understanding of the words used in conversation ($t(8) = 7.95$; $p < 0.000$) and in students' abilities to explain the meaning of new words from the text ($t(8) = 7.86$; $p < 0.000$). Regarding students' appropriate use of word order in sentences, statistically significant differences did not occur; however the results indicate a tendency for students in the EG to express superior levels of this skill (M = 3.33; SD = 0.30) than students in the CG (M = 3.00; SD = 0.00).

The largest differences between the EG and CG were in the use of vocabulary from the text during the conversation (EG M = 3.75; SD = 0.81; CG M = 1.30; SD = 0.33) and in students' ability to explain the meaning of new words from the text (EG M = 3.95; SD = 0.82; CG M = 1.05; SD = 0.11). We can conclude that students who read the easy-to-read form of the text use vocabulary from the text more often and are more capable of explaining the meaning of new words from the text than students reading the text in ordinary form, even though the text in ordinary form is appropriate for their age.

Table 3. Differences between experimental and control groups regarding communication

Variables – communication	Group			Levene test		t-test	
		M	SD	F	P	t	P
Student is motivated to communicate about the text.	EG	3.75	0.25	0.06	0.81	2.36 *(8)*	0.046
	CG	3.35	0.29				
Student collaborates in conversation with the teacher about the text.	EG	3.70	0.65	2.96	0.12	2.33 *(8)*	0.048
	CG	3.00	0.18				
Student discusses the text with the teacher.	EG	3.05	0.62	4.57	0.07	5.36 *(8)*	0.001
	CG	1.50	0.18				
Student communicates about the text convincingly.	EG	4.30	0.33	1.76	0.22	7.40 *(8)*	0.000
	CG	2.05	0.60				
Student expresses disagreement with the teacher about the question x in the text.	EG	4.00	0.97	12.00	0.09	3.91 *(8)*	0.004
	CG	2.25	0.25				

The results of the Levene test indicate that the assumption of homogeneity of variances was met in all variables. Statistically significant differences between the groups were identified in students' motivation to communicate about the text ($t(8) = 2.36$; $p = 0.046$), in students' discussions with the teacher ($t(8) = 5.36$; $p = 0.001$), in students' convincing levels of communication about the text ($t(8) = 7.40$; $p < 0.000$) and in students' abilities to express disagreement with the teacher regarding some questions in the text ($t(8) = 3.91$; $p = 0.004$). The teacher used some questions in order to provoke students to disagree, which occurred only when students understood the content and the story. Such disagreements occurred less often in the CG than in the EG.

The greatest differences between the EG and CG were identified regarding students' convincing communication about the text (EG M = 4.30; SD = 0.33; CG M = 2.05; SD = 0.60) and in students' expression of disagreement with specific questions asked by the teacher as a deliberate means of provoking disagreement and assessing understanding of the story (EG M = 4.00; SD = 0.97; CG M = 2.25; SD = 0.25). We can conclude that the students in the EG were more engaged in meaningful communication because their understanding was more effectively facilitated by the use of easy-to-read text.

Discussion

Regarding differences in speech, we observed that students in the EG spoke about the text more independently and fluently than students in the CG; their responses were full of content and meaningful, with more words and longer sentences. The students in the EG also used new words from the text more often and with superior pronunciation, they used the words spontaneously, and their responses were more accurate, complex and grammatically correct. In contrast, the students in the CG used shorter sentences and fewer words and required more encouragement and additional questions. They almost never used new words from the text in their speech, unless specifically asked by the teacher. Students in the CG needed more breaks between the answers, regularly stumbled and if they were unsure of the answer would become quiet and fail to respond. Their difficulties in understanding the text were obvious, even if they did not explicitly say so.

Discrepancies in the language dimension indicated that the students in the EG used vocabulary from the text more often. They succeeded in learning and applying new words, such as 'magnifying glass', 'telescope', 'violence' and 'to be adopted'. In contrast, students in the CG rarely used vocabulary from the text, often mistook the word 'telescope' for 'binoculars', were unable to remember new vocabulary, and tended to require a greater number of additional questions and hints. The correct ordering of words in sentences was fairly equal between the groups, although sentences by students in the EG were longer and more complex. The EG group easily understood the meaning of the story and the meaning of new words. They often explained the meaning of words with examples from the text, whereas students in the CG consistently failed in this regard.

Differences in communication indicated that students in the EG were far more motivated to talk about the text and the story. They would eagerly ask for their turn to be interviewed by the teacher; students in the CG did not express the same levels of motivation. Students in the EG were very eager to talk about the text and discuss the story with the teacher, their discussions were longer, their sentences were well-structured, and they expressed their own opinions and disagreements. The differences between the groups were very clear in the questions that were deliberately asked by the teacher to provoke disagreement (one or two such questions were asked in each interview). Students in the EG recognised that the teacher's statement was incorrect and that the story differed from that proposed. They consequently expressed their disagreement, although they did encounter some difficulties in this regard. Students in the CG failed to recognise these questions at

all and tended to simply agree with the teacher's statements, even where they were illogical or incorrectly interpreted.

With these results we can confirm that students with mild mental disability who listen to the easy-to-read text exhibit superior communication skills in individual conversations with the teacher following the reading than do students listening to the ordinary text. Most significant differences occur in all three measured variables (speech, language and communication). Regarding speech, the largest differences between groups were in fluent pronunciation and understanding of the text. Regarding language, the largest differences between the EG and CG were in the use of vocabulary from the text during the conversation and in students' ability to explain the meaning of new words from the text. Regarding communication, the greatest differences between the EG and CG were identified in students' convincing communication about the text and in students' expression of disagreement with specific questions asked by the teacher as a deliberate means of provoking disagreement and assessing understanding of the story.

Conclusions

We can conclude that comprehension of the students in EG was better than in CG at a) literal level, which refers to comprehension of the actual meaning of single propositions and b) inferential level, which refers to integration between text segments or between text segments and prior knowledge (Kintsch, 1988). Thus easy-to-read text can improve the process of understanding the literal and implicit ideas from the text and is able to support improvements in the cognitive domain (understanding of the text). Although we couldn't find studies including easy-to-read narrative text on population of elementary students with mild intellectual disability, similar results are reported in the study of Karreman et al. (2007) in testing comprehension levels of individuals with intellectual disability after reading two different versions of the website; one adapted in easy-to-read and the other non-adapted. They found that literal and inferential comprehension of the individuals with mental disability were higher in the adapted version of the text, so we can conclude that easy-to-read text can improve understanding and language skills of the individuals with intellectual disability and thus should be promoted and used as often as possible by teachers, other professionals and parents.

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