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# The impact of literary works containing characters with disabilities on students' perception and attitudes towards people with disabilities

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## ABSTRACT

Nowadays, with the emergence of an inclusive approach and the growing prevalence of its practice, social diversity as a value has become a highly focused area in social policy, including education. Reading and processing literary works that include a person with a disability can be an excellent tool in education for students to get to know people with disabilities, who make up a significant section of society. The aim of this study was to investigate the impact of literary works containing characters with disabilities in Hungarian textbooks on students' attitudes towards people with disabilities in a classroom setting. During the intervention, the students in the experimental group worked for 14 weeks with literary works including characters with disabilities in textbooks. The experimental and control groups consisted of two three-grade classes from a primary school in Budapest. Changes in students' attitudes were measured using the CATCH attitude questionnaire, metaphor analysis, and drawing analysis before and after the intervention. The results show that literary works with negative stereotypes have an impact on students' attitudes towards people with disabilities, so their critical analysis is recommended.

## 1. Introduction

Disability is a societal issue affecting a wide range of populations, with people experiencing disabilities accounting for 15% of the world's population (WHO, 2021). Even though social policy over the last fifteen years has increasingly promoted inclusion and participation as a result of the development of civil rights in the second half of the 20th century the social acceptance and participation of people with disabilities is still limited. People with disabilities face daily barriers to participation in education and employment opportunities (Watson & Nolan, 2011), exclusion due to prejudice (WHO, 2021), and lower earnings and living standards (Sourbati, 2012; Pinilla-Roncancio, 2015) than members of mainstream society. The situation is similar for children with disabilities. According to a UNICEF report, children with disabilities are one of the most marginalised and excluded groups in society, and the least able to assert their fundamental rights (UNICEF, 2013). The report also shows that negative discrimination is not inherent in children's disabilities, but rather the result of a lack of understanding and knowledge about their causes and consequences, fear of the unknown differences, and stereotypes about disability (UNICEF, 2013). Similar results can be found in international research on the integration of students with disabilities in schools. The findings highlight that almost half of the students with disabilities attending an integrated institution are lonely and unable to integrate into classes due to a lack of social relationships (McDougall et al., 2004; Schwab, 2015;

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Schiemer, 2017). A major barrier to the social inclusion of people with disabilities is the lack of relevant information on disability in mainstream society (Connor & Bejoian, 2007). Beliefs and misconceptions about disability can be reinforced by (educational) institutions if they are not given sufficient attention and emphasis in the curriculum and so they cannot be clarified (Ware, 2001). One of the manifestations of exclusion that can contribute to a lack of understanding and acceptance of people with disabilities is the absence of representation of people with disabilities in mainstream school settings, curricula, and teaching materials (Favazza et al., 2016). Reading and analysing literary works that include characters with disabilities can serve as an excellent educational tool to help students learn about people with disabilities (Azano et al., 2017; Barrio et al., 2020). There are several studies in the international literature that explore and examine disability-related content in textbooks and analyse its possible effects on students' attitudes towards people with disabilities (Pogorzelska, 2016; Reichenberg, 2017; Gulya & Fehérvári, 2021). However, there is little research that seeks to explore the actual impact of children's literature on students' attitudes towards people with disabilities (Adomat, 2014; Wilkins et al., 2016). The aim of the present study is to investigate the impact of literary texts containing characters with disabilities in Hungarian textbooks on students' attitudes towards people with disabilities in a classroom environment in an experimental setting.

## 2. Textbooks and diversity

With the emergence of the inclusive approach and the increasing spread of its practice, social diversity as a value has become a highly focused area in social policy, including education. During their primary school years, students increasingly notice differences between people and form opinions about others (Jones, 2021). In addition to shaping learners' self-awareness and positive self-image (Chaudri & Teale, 2013), the cultural and social values and messages conveyed by literary works also play a role in challenging students' preconceptions and stereotypes (Koss, 2015) and broadening their cultural perspective (Thein et al., 2007). In this light, it is understandable why it is important to use children's literature in primary school lessons that reflect social diversity, including a stereotype-free portrayal of people with disabilities.

There is a large body of research in the international literature on disability-related content in children's literature. Most of the studies indicate that, although the trend since the 1980s in children's literature has seen the emergence of realistic, stereotype-free representations (Ayala, 1999; Prater, 2003) alongside negative stereotypical representations (Hughes, 2006, Grzelka, 2019), negative stereotypes are still very much present in children's literature today (Beckett et al., 2010; Hodkinson & Park, 2017). Research analysing texts and literary works with disability content that appear in textbooks, and which have been selected specifically for educational purposes, also shows a similar picture. Reviewing these studies, we can see that texts and literary works in textbooks often portray people with disabilities in a negative, prejudiced way (Pogorzelska, 2016; Reichenberg, 2017; Gulya & Fehérvári, 2021). Research also suggests that this representation might have a negative impact on readers' attitudes towards people with disabilities (Deckman et al., 2020).

The use of children's literature about people with disabilities in the classroom has a dual purpose. For students with disabilities, these literary works can play an important role in strengthening their positive self-identity. At the same time, they can provide all learners with a balanced knowledge of people with disabilities and thus have a role in rethinking and reconstructing common stereotypes and misconceptions (Leininger et al., 2010).

## 3. The impact of children's literature on students' attitudes: classroom experiments

There is a paucity of research in the international literature that seeks to explore the actual impact of children's literature on students' attitudes towards people with disabilities in the classroom. Cameron & Rutland (2006) investigated the impact of children's literature about the friendship between disabled and non-disabled people on pupils' attitudes in two British primary schools ( $n = 67$ ). Their results show that reading stories containing characters with disabilities, when not stereotyped, has a positive effect on students' attitudes. In her classroom processing inclusive children's literature, Adomat (2014) described that the primary school students ( $n = 52$ ) she studied had high levels of prejudice and beliefs that influenced their interpretation of literary works but working with inclusive literature helped students to better understand people with disabilities. In contrast, Smith-D'Arezzo & Moore-Thomas (2010) found that classroom exposure to inclusive literary works featuring characters with learning disabilities did not lead to statistically significant positive attitudes towards people with disabilities among students ( $n = 14$ ), however, their results did show a small positive shift. Research by Wilkins et al. (2016) shows that different factors determined students' responses in discussions regarding disabled characters following the processing of literary works. Research by Wilkins et al. (2016) shows that different factors determined students' responses in discussions regarding disabled characters following the processing of literary works. The first two factors (societal messages and academic responses) were based on the students' everyday knowledge. The result of this knowledge was that in many cases students were able to answer questions they were asked about people with disabilities in relation to the literary works in line with social expectations. The other two factors that influenced the quantity and content of students' responses were the teacher's attitude (comments added by the teacher, mindset, and body language), the richness of detail, and the way in which people with disabilities were portrayed in the literary works. Regarding the latter, results suggest that student interest and response intensity increased when the character with a disability was presented in greater detail and when his or her disability was known to the children (Wilkins et al., 2010). The results of some studies also show that students had strong negative attitudes towards people with disabilities prior to the intervention (Smith-D'Arezzo & Moore-Thomas, 2010; Wilkins et al., 2016).

## 4. Materials and method

### 4.1. Aim of the research

The aim of our research was to investigate the impact of literary works featuring characters with disabilities in Hungarian primary school textbooks on primary school students in a classroom setting.

The study was conducted along the following research questions:

- What attitude scores do Hungarian students have towards people with disabilities, measured by the CATCH attitude scale compared to Hungarian and international results measured earlier?
- Is there a correlation between the gender of the students and the measured attitude scores?
- Is there a correlation between the student's attitude score and the student's closer relationship (friends, family) with a person with a disability?
- Does the portrayal of disabled characters in children's literature in primary school textbooks influence students' attitudes towards people with disabilities?

### 4.2. Research design

Our study is quasi-experimental research, its sample – the control and the experimental group consisted of students in the same grade (third grade) of a primary school in Budapest, thus reducing the presence of variables that confound comparisons (Freer, 2021) and following the suggestion of Cohen et al. (2007) that in comparative experimental research it is important to sample from a population whose elements are as similar as possible. The intervention was carried out between February and June 2022. Prior to the experiment, in consultation with the class teacher, and considering the age-specificity of the children, we selected literary works and extracts from primary school textbooks and also from the curriculum-related compulsory and recommended children's literature that contained a person with a disability. The pupils in the experimental group worked on the literary works with their teacher in reading classes once a week for 14 weeks, both online and in class. In the classroom, the participants first read together the actual literary work and then analysed it according to a general set of criteria, based on their book. During the intervention, the teacher did not refer directly to the disability-related content or express an opinion on the topic. Previous research has shown that in Hungarian textbooks most of the literary works portrayed people with disabilities in stereotypical ways, often including negative stereotypes (Gulya & Fehérvári, 2021). One of the researchers was present during the experimental classes but did not intervene, only observed. There was no intervention among the students of the control group, they were introduced to the third-grade school curriculum according to the daily routine. The attitudes of both groups were measured before (January 2021) and after (June 2021) the intervention using the Chedoke-McMaster Attitudes Towards Children with Handicaps (CATCH) questionnaire, as well as metaphor and drawing analysis to get a more accurate picture of students' attitudes towards people with disabilities and changes in these attitudes.

### 4.3. Sample

Our research sample included 61 pupils aged between eight and ten years. The demographic characteristics of the participants are summarised in Table 1. The experimental group consisted of 33 pupils, while the control group consisted of 28 pupils. We chose to focus on 8-10-year-old students because international research on a similar topic (Cameron & Rutland, 2006, Adomat, 2014) has mostly focused on this age group. The main consideration in selecting the experimental group was that the class teacher was open to the experiment and committed to working with her class once a week on literary works that appeared in elementary school textbooks and included characters with disabilities.

### 4.4. Ethical considerations

Before the experiment started, we explained to the students how the research would work and what their tasks would be. Parental consent was required for student participation. The students' participation in the research was voluntary, and they were assured that they could opt-out at any time if they no longer wished to take part in the experiment. We have received research ethics approval for

**Table 1**  
Sample demographics.

Demographic variables	Frequency	Percent
Female	30 (E: 15; C: 15)	49%
Male	31 (E: 18; C: 13)	51%
Age		
8 years old	19 (E:7; C:12)	31%
9 years old	34 (E:21; C:13)	56%
10 years old	8 (E:5; C:3)	13%

Note: Percentages rounded to equal 100. C—Control Group; E— Experimental Group.

the experiment. Since we assumed a negative intervention (the portrayal of disability in literary works containing persons with disabilities in textbooks is heavily influenced by negative stereotypes), from September 2022, the class teacher repeatedly worked with the students on the literary works they already knew, drawing attention to the stereotypical portrayal of characters with disabilities and encouraging them to think critically.

#### 4.5. Method and measurement tools

In the study, we conducted a questionnaire survey, metaphor analysis, and drawing analysis to track the change in students' attitudes toward people with disabilities. The questionnaire survey was based on the Chedoke-McMaster Attitudes Towards Children with Handicaps (CATCH) questionnaire translated into Hungarian by Pongrácz (2017), as it has been found to be one of the most widely used (Macmillan et al., 2014; Armstrong et al., 2017; Freer, 2021) and reliable instruments in previous studies (Vignes et al., 2009), and it has also been found to be appropriate for the age group (Rosenbaum et al., 1986). The questionnaire consists of three 12-item subscales and measures the cognitive, affective, and behavioural components of students' attitudes according to the three-component theory of attitude (Triandis, 1971). We have adapted the language of the questions to the research, using terms of equity and changing the word child to person, because this age group no longer considers themselves children (Armstrong et al., 2016). Students indicated on a five-point Likert scale how much they agree or disagree with each statement. Based on the average of the scores of the responses, we also calculated a total attitude score, as well as cognitive, affective, and behavioural attitudes along each component of the attitude. Attitude scores can vary between 0 and 40 points, with a higher score indicating a more positive attitude. The Cronbach's alpha of our study sample was  $\alpha = 0.838$  for the full CATCH scale,  $\alpha = 0.669$  for the cognitive subscale,  $\alpha = 0.719$  for the affective subscale, and  $\alpha = 0.669$  for the behavioural subscale, thus the questionnaire was also found to be reliable for measuring attitudinal scores in our sample.

The data collection for the metaphor research was also carried out through a questionnaire survey. We chose sentence completion as one of the techniques using elicitation (Barton, 2015) because this technique has been used in several cases to explore social attitudes and opinions on specific school topics (Borgatti, 1999; Vámos, 2001; Barton & McCully, 2010; Sinemma, 2010). In our study, the students had to complete the sentence 'A person with a disability is like ...' with their own words.

Drawing analysis was chosen because 8–10-year-olds often express themselves more easily with drawing than verbally (Barton, 2015). In the analysis, drawings can be interpreted in the same way as metaphors (Bagnoli, 2009) that help to express students' opinions on a particular topic (Waldron & Pike, 2006). Literature shows that drawings were used on various topics to explore student attitudes. Barraza, (1999) examined children's opinions about the environment, while Kendrick & McKay (2004) research topic was literacy. The literature also provides examples of drawing analysis of students' attitudes towards people with disabilities. Georgiadi et al. (2012) analysed drawings of 9–10 year old pupils to see if there were differences in the attitudes of pupils from different schools (inclusive and non-inclusive settings) towards people with disabilities. Eleftheriou et al. (2012) used a sociosemiotic approach to investigate drawings of disabled people by 10-year-old school students.

During our data collection, students made a drawing based on a simple instruction 'Draw what the term *person with a disability* means to you'. The drawings were made by the students as part of their regular drawing class. In the instructions given to them by their art teacher, the "intervention" in the literature class was not mentioned, nor was an observer present in the class. We organised it this way because we wanted to create a natural environment for them and to avoid the possibility that the children might think that the aim was to draw stories from the literature class.

The questionnaire was subjected to statistical analysis. The metaphors and drawings collected through questionnaires were examined by inductive content analysis (Mayring, 2014) using double coding. Methodological triangulation made it possible to explore students' attitudes and views about people with disabilities in more detail and to counterbalance or eliminate any socially expected or teacher-suggested terms (Wilkins et al., 2010).

## 5. Results

### 5.1. Student attitude change measured by the CATCH questionnaire

#### 5.1.1. Descriptive statistics

Individual test total scores were derived by adding the total score, dividing by the number of items, and multiplying by 10, for a maximum of 40 points. A high score represents a more positive attitude (Rosenbaum et al., 1985). Pre-test scores for the experimental group ( $n = 33$ ) ranged from 15.83 to 33.89, and the mean of the scores was 23.23. The lowest post-test score of the experimental group was 11.94, the highest was 31.66. The mean post-test score in the experimental group was 20.52. In the control group ( $n = 28$ ) the pre-test scores ranged from 14.44 to 29.44, and the mean score was 23.35 while the scores of the post-test were between 14.16 and 33.61, with a mean score of 23.57.

#### 5.1.2. Inferential statistics

We conducted a  $2 \times 2$  repeated measure ANOVA to analyse the differences between the mean scores. The results of this analysis showed a statistically significant difference in scores between pre-test and post-test of the experimental group,  $F = 70.037$ ,  $p < 0.05$ , while the difference in scores between pre-test and post-test of the control group was not significant,  $F = 0.063$ ,  $p > 0.05$ . Regarding the effect of the intervention, the global CATCH scores of the experimental group decreased statistically significantly ( $p = 0.000$ ), and the mean difference between the post-test and pre-test scores was  $-2.736$ . The scores in the control group (without any intervention)

increased a little, but not statistically significantly ( $p = 0.802$ ), the mean difference between the post-test and pre-test scores was 0.089, (see Fig. 1).

Dimensional CATCH scores were also analysed. The cognitive dimension of the experimental group had a statistically significant change ( $p = 0.024$ ) with a mean difference of -2.348, while this dimension of the control group increased, although not significantly ( $p = 0.903$ ) with a mean difference of 0.119 (Fig. 1).

Both the experimental and control group’s affective CATCH scores decreased from pre-test to post-test data collection. The experimental group’s affective CATCH scores had a statistically significant change ( $p = 0.000$ ) with a mean difference of -4.773. Of the three dimensions, we found the largest reduction in scores in this component. There is a small, statistically non-significant ( $p = 0.915$ ) increase in the affective dimension CATCH scores of the control group with a mean difference of 0.119 (Fig. 2).

Finally, the conative dimensional CATCH scores were examined. There was no statistically significant change in the conative scores in either the experimental group or the control group. The experimental group’s conative CATCH scores had a statistically non-significant decreasing ( $p = 0.077$ ) with a mean difference of -1.263. We also found some statistically non-significant ( $p = 0.346$ ) increase in the conative dimension CATCH scores of the control group with a mean difference of 0.655 (Fig. 2).

5.1.3. Meaningful change in attitude scores of the experimental group: analysing the change in some questions of the attitude questionnaire

Examining the scores of the three dimensions of attitude, the results show that significant changes were measured in the affective and cognitive dimensions of the student’s attitude in the experimental group. In the analysis, we examined the scores of the questions individually, because we wanted to see in which specific cases there was a change within each dimension. This is because the results show that there were questions in all dimensions whose scores did not change after the intervention. However, we did find some questions where there was a significant change in scores (see Table 2). We wanted to find out whether these changes could be related to the characters with disabilities in the literary works studied in the experiment, and to the perceptions of disability conveyed by the literary works. Eleven questions showed a significant change, of which five were related to the affective dimension of attitude, five to the cognitive dimension, and one to the conative dimension. For the affective component, the results of the outcome measure show that a higher proportion of students find people with disabilities intimidating, are less likely to be friends with them and are less likely to want a person with a disability to live next door to them. Changes in the scores of affective statements also indicate that students in the experimental group feel sorry for people with disabilities and are frustrated when a person with a disability is near them. The changes in the scores of the statements related to the cognitive dimension show that the students in the experimental group agreed less with the statement ‘People with disabilities are as happy as I am’ in the post-test measure, but agreed more with the statement that people with disabilities do not have much joy in their lives, feel sorry for themselves, are often sad and need a lot of attention and help from their environment. As for the change related to the conative dimension, compared to the pre-test measure, fewer people would like to invite a person with a disability to their birthday party.

5.1.4. Determinant factors

Statistically significant differences in students’ CATCH scores based upon determinant factors were also examined. To test determinant factors, independent t-tests with the pre-test measures were conducted, since at this point none of the students had been introduced to the intervention (Freer, 2021).

The first determinant factor tested for was gender. In the sample there were 31 boys and 30 girls. The result of the independent samples t-test  $t(61) = -1.144, p = 0.257$  shows that there was no statistically significant difference between the CATCH attitude scores of the total sample of boys ( $M=22.74; SD=4.62$ ) and girls ( $M=23.87; SD=2.92$ ) participating in the study. Examining the scores of the subscales based on the three dimensions of attitude, it can be concluded that there is no statistically significant difference between boys’ and girls’ attitude scores in the three different components – affective ( $t(61) = -2.265; p = 0.45,$ ) cognitive ( $t(61) = -0.240; p = 0.816$ ) and conative ( $t(61) = -1.468; p = 0.170$ ).

The next determinant factor examined was whether there was a statistically significant difference in the CATCH attitude scores of

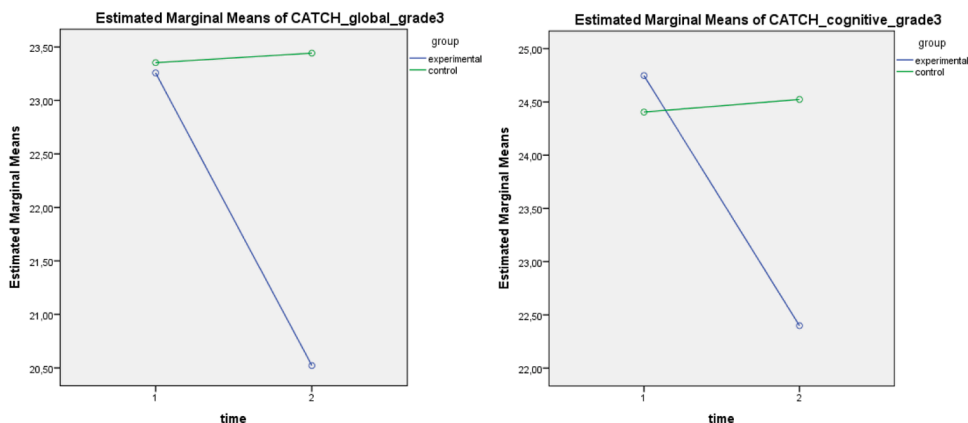


Fig. 1. Profile plot for the global and cognitive CATCH scores.

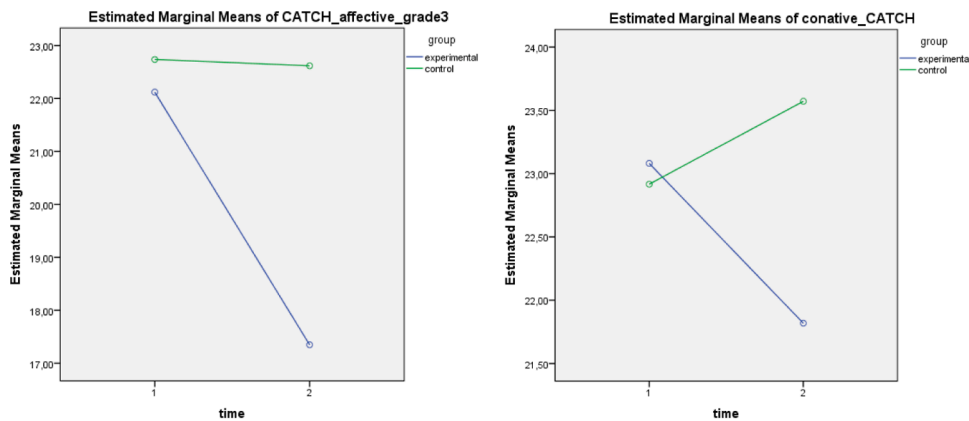


Fig. 2. Profile plot for the affective and the conative CATCH scores.

**Table 2**  
Means and ranges of global and dimensional CATCH scores.

Measurement	Whole sample		Experimental group		Control group	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Global CATCH	M= 23.3 R=19.45	M=22.04 R=21.67	M=23.25 R= 18.06	M=20.52 R=19.67	M=23.35 R= 15.00	M=23.57 R= 19.45
Cognitive dimension	M=24.57 R=22.73	M=23.45 R=21.28	M= 24.74 R= 22.73	M=22.39 R= 21.28	M=24.40 R=18.57	M=24,52 R=20.00
Affective dimension	M=22.42 R=14.60	M=19.97 R=21.93	M=22.12 R=13.25	M=17.34 R=17.27	M=22.73 R=14.28	M=22.61 R=12.41
Conative dimension	M=22.99 R=10.00	M=22.69 R=16.52	M=23.08 R=5.76	M=21.81 R=8.19	M=22.91 R=10.00	M=23.57 R=12.86

students who have a friend or family member with a disability compared to the attitude scores of students who do not.

Eight respondents stated that they have a friend with a disability and four respondents stated that they have a person with a disability in their family. From these 12 students, a sub-sample was created and compared with another sub-sample of 49 students who did not have a friend or family member with a disability. The results of the independent samples t-test show that the attitude scores of the group of students with a friend or family member with a disability (M=28.1; SD=2.96) and the group of students without a friend with a disability (M=22.12; SD=3.12) are statistically significantly different ( $t(12)=5.994; p = 0.00$ ), and the group of students with a friend or family member with a disability has higher attitudes scores. Thus, the results of our research show that the gender of the respondents does not influence, while the close relationship with a person with a disability has a positive effect on the students' attitudes towards people with disabilities. In the case of the experimental group, we also investigated whether students with a family member or friend with a disability also showed a negative change in attitude as a result of the intervention, and how much this change was relative to the rest of the group. Using two-sample t-tests with matched samples, we found that the intervention resulted in a statistically significant, negative change in attitudes for both subsamples (students with friends or family members with disabilities:  $t=2.805; p = 0.026$ ; students without friends or family members with disabilities:  $t = 9.824; p = 0.000$ ). These results suggest that among the students in the study, students with a friend or family member with a disability have higher attitudinal scores, however, the negative impact of the intervention on attitudinal scores is also evident in these students.

Interaction effects were also calculated in order to show the role of the combined effect of the independent variables (gender, disability acquaintance, group) on attitude change. Regarding the independent variables, the results of the statistical analysis show no interaction effect. Attitudinal changes in the experimental group were found to be induced only by the intervention.

### 5.2. Analysis of students' metaphors about people with disabilities

During the questionnaire data collection, students were asked to complete an already started sentence focusing on their opinion of people with disabilities. In addition to completing the sentence, students were also asked to explain why they had used the phrase. The analysis compared the responses of the experimental (n = 33) and control (n = 28) groups on the pre-test measure, and also examined the responses of both groups related to the pre-test and post-test measures.

#### 5.2.1. Comparison of the pre-test measurement metaphors between experimental and control groups

Examining the metaphors of the pre-test measure, we find that the students in the experimental group named the target domain using only person metaphors, while 71% of the respondents (n = 20) in the control group created person metaphors for the target domain, 14.4% (n = 4) created object metaphors and 14.5% (n = 4) created animal metaphors for the term disabled person. For both



groups, the terms provided by students could be put into two main categories. In the first category, there are those expressions that refer to the respondent's view that their disability does not make people with disabilities different, that they are the same as us, or that they are like a person of typical development. In the experimental group 36% ( $n = 12$ ) of the respondents and in the control group 11% ( $n = 3$ ) had this view of people with disabilities.

The other main category was made up of terms that refer to differences between disabled people and non-disabled people. Sixty-four percent of the experimental group ( $n = 21$ ) and 89% of the control group ( $n = 25$ ) created such metaphors for the concept of people with disabilities. Among the metaphors expressing difference, there were well-differentiated source domains that suggested that respondents think of people with disabilities as different to some extent, but still feel close to them and see some similarities with them. This dichotomy is illustrated by the phrases "they're just like us..." and "they're just like other people, but...". Thirty-three percent (11 people) of the respondents in the experimental group and 7% (2 people) in the control group gave this kind of answer. Source domains that emphasise the difference of people with disabilities often describe them as injured or sick people, crippled, or unable to do anything. The metaphors referring to difference can be categorised into different meaning groups for both groups (Fig. 3).

Phrases that identify people with disabilities by their disability (functional defects, deficits, or other differences in appearance and behaviour) are talkative. Terms in the category of *functional disability* usually refer to a sensory or locomotor dysfunction (*not seeing or hearing well, eyes, ears, or legs not working*). The metaphors of *lack* indicate some kind of absence of limbs (*no hands or feet, wingless bird*) or a general deficit (*something is missing*), but in many cases, the explanation given for the metaphors suggests that the respondent was thinking of a functional difference. In the case of terms describing the difference in *other external features*, the source concepts clearly refer to the difference in the appearance of the person (*blue apple, a person with a different appearance, an orange among bananas, an odd one out*). These metaphors, and the explanations attached to them, identify people with disabilities primarily with their physical or sensory disabilities mainly based on external, visible features. These metaphors do not qualify or criticize, but simply show that respondents most often encountered people with disabilities in this context. The negative stereotypical views of respondents are reflected in terms that describe people with disabilities as vulnerable, needy, pitiable, seriously ill, or helpless (*an orphan, a poor person, a disabled person in a wheelchair who can do nothing*).

### 5.2.2. Comparing the pre-test and post-test metaphors of the control group students

The metaphors of the control group students ( $n = 28$ ) can be divided into two major conceptual groups in terms of the results of the input and output measurements. Comparing the pre-test and post-test data of the metaphor analysis there was some variation in the results of the conceptual groups, however, no significant new conceptual groups or groups with different meanings appeared in the post-test measurement. The first broad conceptual group, in which respondents think of people with disabilities as themselves or as ordinary people, comprised 11% ( $n = 3$ ) of the control group's expressions in the pre-test measure and 14% ( $n = 4$ ) in the post-test measure. The other main group of concepts, which included terms emphasising the differences of persons with disabilities can be divided into several subgroups. In the pre-test measurement, 61% of respondents ( $n = 17$ ) and in the post-test measurement 68% of respondents ( $n = 18$ ) created a person-related metaphor. Fourteen percent ( $n = 4$ ) of the expressions created during the pre-test measurement and 7% ( $n = 2$ ) of the metaphors written during the post-test measurement can be classified as subject concepts. In the control group, 14% ( $n = 4$ ) of the metaphors for the target concept in the pre-test measurement and 7% ( $n = 2$ ) of the metaphors in the post-test measurement were categorised as animal concepts. Among the terms of the output measure, one person described people with disabilities as a concept (*a never-ending disease*).

Examining the meanings of the metaphors it can also be concluded that there are minor differences in the number of metaphors in each group, but no significant difference appears in terms of meaning (Fig. 4). Among the meaning categories of the metaphors for the

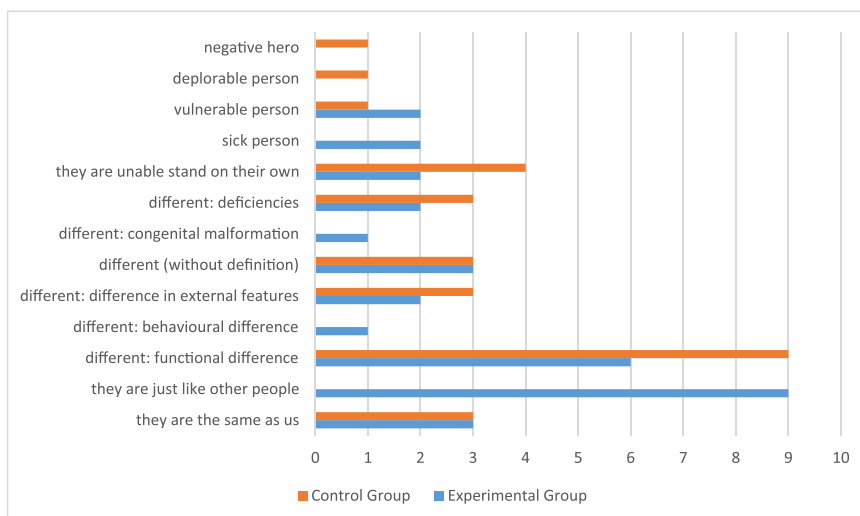


Fig. 3. Distribution of meanings of metaphors related to people with disabilities (pre-test measurement).

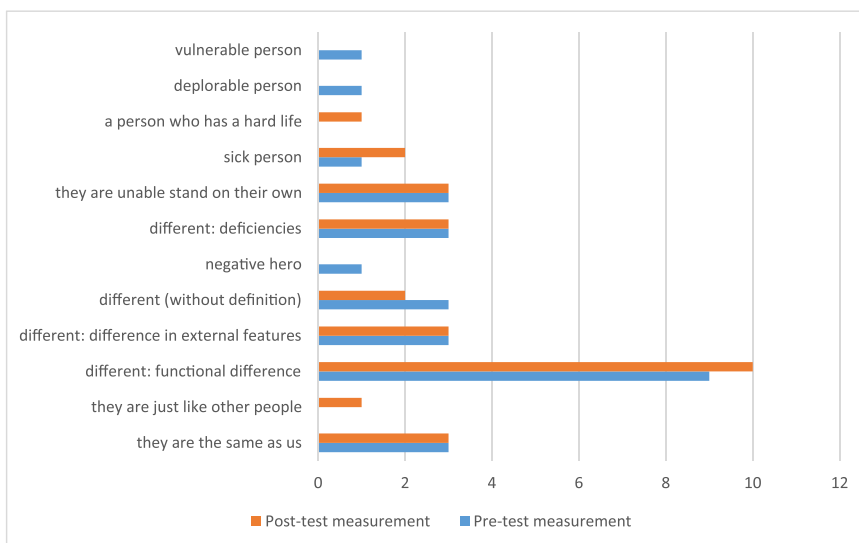


Fig. 4. Distribution of meanings of metaphors about people with disabilities by respondents in the control group.

target concept, the most prominent are those emphasizing functional difference, being different in external features, lack, and needing help.

5.2.3. Comparing the pre-test and post-test metaphors of the students in the experimental group

In the previous analysis, we have seen that the pre-test metaphors of the experimental group can be grouped into two main conceptual categories. One of the categories is when respondents do not see people with disabilities as different from themselves or an average person in society (33%,  $n = 11$ ), and the other main conceptual category is when people with disabilities are seen as different for various reasons (67%  $n = 22$ ). The most striking change in the metaphors included in the post-test measure is the absence of a metaphor in the first large conceptual group, i.e., the change in the perceptions of students who previously perceived people with disabilities as similar to themselves or to an average member of society (Fig. 5). There have also been changes in the metaphors that point to differences in the target domain. In the analysis of the post-test measurement, no metaphors were found in which students perceived people with disabilities as being different from themselves, but at the same time close to them. That is, after the intervention, the respondents no longer coined phrases such as “being like us, but...” or “being like an ordinary person, but...”. There has been an increase in the number of expressions that suggest that respondents think of people with disabilities as other people ( $n = 6$ ), injured ( $n = 11$ ) or sick ( $n = 7$ ).

New concepts such as *a lonely warrior, a pitiful man, a lazy man, and an angry man*, but also metaphors for animals (*lame tiger, one-*

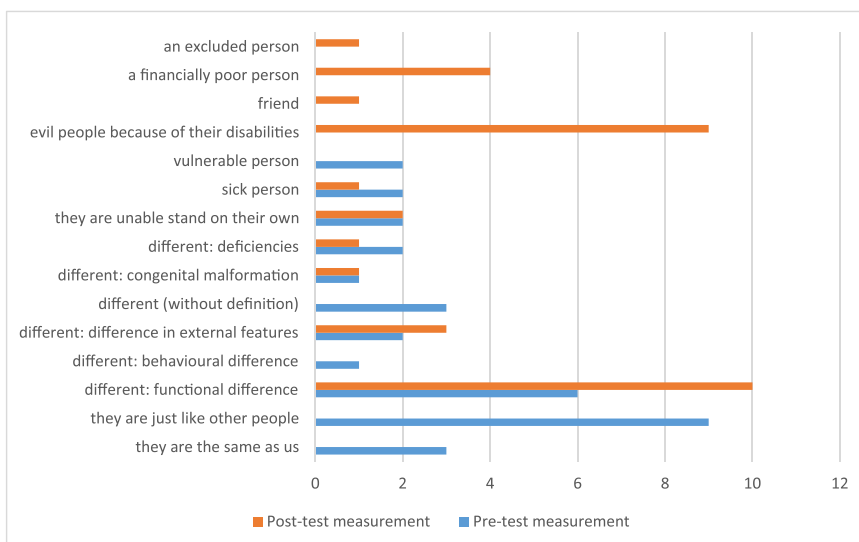


Fig. 5. Distribution of meanings of metaphors about people with disabilities by respondents in the experimental group.



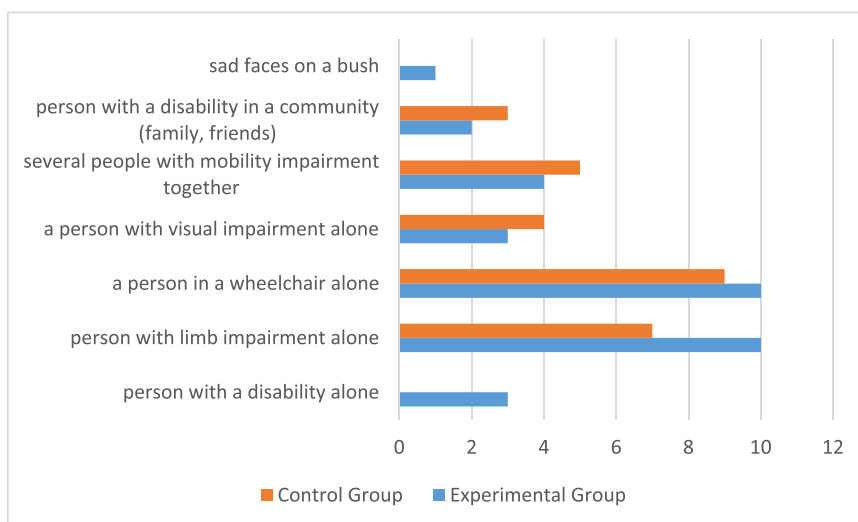


Fig. 6. Code groups of pre-test measurement drawings.

*eyed rat*) and objects (*three-legged chair*) were introduced. Respondents' metaphors and their explanations have been grouped into different categories of meaning. Examining the meaning groups, one of the most dominant changes is the appearance of a group containing the terms for a malicious, evil person because of his disability ( $n = 5$ ), who is jealous of others ( $n = 1$ ), hurts others ( $n = 1$ ), impatient ( $n = 1$ ) and dislikes the one who is not disabled ( $n = 1$ ) (Fig. 4). Another new category is a poor person with a disability who wears untidy, ragged clothes ( $n = 4$ ), and is excluded from society ( $n = 1$ ). Among the terms, otherness due to the functional difference of a person with a disability ( $n = 10$ ) and difference in external features ( $n = 3$ ) gets more emphasized.

### 5.3. Analysis of students' drawings of people with disabilities

For both measurements, students in the control and experimental groups were asked to draw a person with a disability. No other instructions were given.

The drawings were analysed by content analysis using the methodology of grounded theory (Glaser & Strauss, 1967). We did not have a priori coding system; the different code categories were developed during the analysis. In the analysis, we first compared the pre-test measurement drawings of the control and experimental groups, and then the pre-test/post-test drawings of the control and the experimental group were compared so that any changes could be detected in the students' concept of people with disabilities.

#### 5.3.1. Pre-test measurement drawings of pupils in the experimental and control groups

The results of the analysis show that in the case of the experimental and the control group, except for four drawings, most of the drawings can be classified into similar categories. These categories are: (1) *a person with a limb deficiency alone*, (2) *a person in a wheelchair alone*, (3) *a person with a disability alone*, (4) *several persons with physical disabilities together*, and (5) *a person with a disability in a community*. In addition to the five categories mentioned above, the drawings made by the pupils in the experimental group during the input measurement can be classified into two more categories ((6) *a person with intellectual disability alone*, (7) *sad faces on a bush*). Within the five common categories, there is no significant difference between the quantitative distribution of drawings produced by the experimental and control groups (see Fig. 6).

#### 5.3.2. Comparison of drawings of the control group during the pre-test and post-test measurement

Analysing the students' drawings, it can be concluded that the drawings made by the students in the control group can be classified into almost the same five categories (person with limb impairment alone, wheelchair alone, blind alone, multiple disabilities together, and disabled person in community) in terms of the results of the pre-test and post-test measurement. The difference in the results between the two measurements is that a new category had to be created because of one of the drawings in the post-test measurement (*person with intellectual disability alone*) and there were numerical differences within the aforementioned categories (see Fig. 7).

#### 5.3.3. Comparison of drawings of the experimental group during the pre-test and post-test measurement

Pre-intervention drawings were classified into seven categories (see Fig. 8). Thirty percent of the drawings ( $n = 10$ ) depict a person in a wheelchair who is alone, and another 30% ( $n = 10$ ) of the pictures show a person with limb impairment alone. There are also drawings of a blind person alone ( $n = 3$ , 9% of the drawings), and there is a person with an intellectual disability without companions

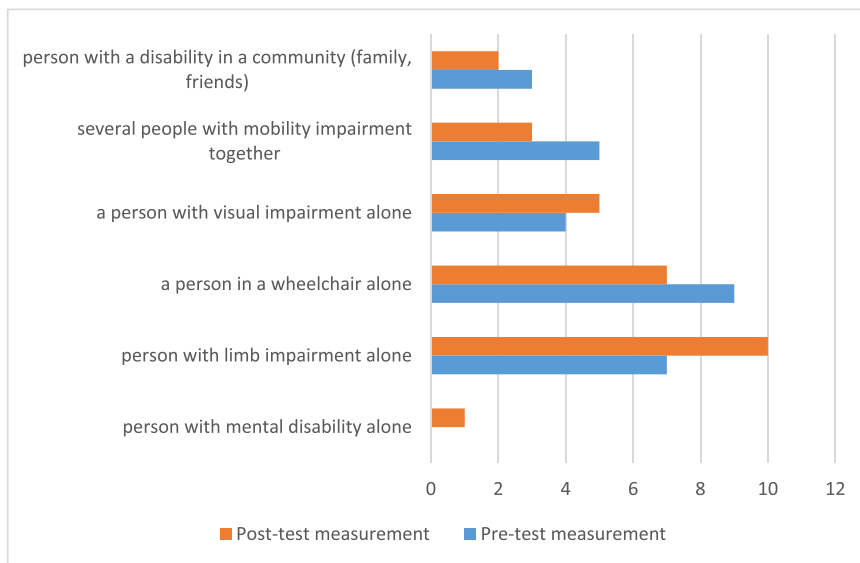


Fig. 7. Code groups of drawings of a person with a disability by the students in the control group.

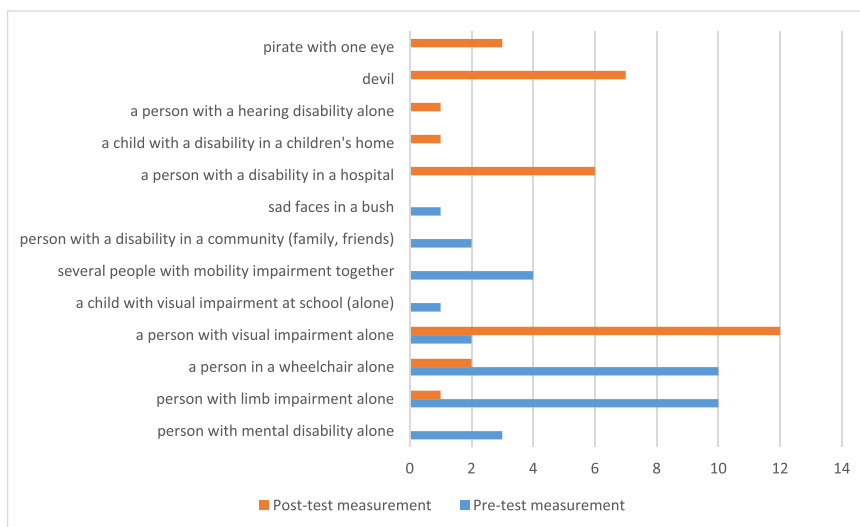


Fig. 8. Code groups of drawings of a person with a disability by the students in the experimental group.

in 9% of the drawings ( $n = 3$ ). 18% ( $n = 6$ ) of the drawings contain a person with a disability in the community, four of them in the company of other people with disabilities, and only two in the company of a non-disabled person, family, or friends.

As for the analysis of the drawings made during the post-intervention measurement it cleared out, that from the above-mentioned 7 categories we could apply only three (See Fig. 8). 36% of the drawings ( $n = 12$ ) depict a lone blind person in a black dress or cloak (see: Appendix picture 1 and 2). Only two of the drawings show a person in a wheelchair, and we found a person with a limb in one drawing. These disabled people are all depicted alone in the drawings. We have found drawings that do not depict a person with a disability alone. In these drawings ( $n = 6$ ), several people with disabilities appear together in the hospital or are surrounded by nurses and doctors (see: Appendix picture 4 and 5). With the exception of the above-mentioned hospital-themed drawings, we did not find any representations in the drawings that show a person with a disability in the company of other persons with a disability or a majority of persons in everyday activities. The analysis identified five additional code categories that were not included in the analysis codes of the pre-intervention measurement of drawings. In 21% of the drawings ( $n = 7$ ), there was a red, horned figure resembling a devil (see: Appendix picture 6 and 7), very reminiscent of a character (Hétszűnyű Kapanyányimonyók) from a Hungarian legend (The Son of the White Mare). Eighteen percent of students ( $n = 6$ ) drew the disabled person as a patient in a hospital. Of the remaining drawings, three drawings depicted a one-eyed rat, one drawing depicted a disabled child in a children's home, and one drawing depicted a lone deaf person.

**Table 3**  
CATCH questions with substantial changes in comparing the input and output scores of the experimental group.

Question	Scores	
	Experimental group Pre-test	Post-test
Q12: I feel sorry for people with disabilities. (affective -)	13.33	4.85
Q14: People with disabilities want lots of attention from adults. (cognitive -)	11.21	9.30
Q15: I would invite a person with a disability to my birthday party. (conative +)	21.5	16.9
Q16: I would be afraid of people with disabilities. (affective -)	25.45	13.94
Q19: I would like having people with disabilities live next door to me (affective+)	20.00	13.94
Q20: People with disabilities feel sorry for themselves. (cognitive -)	22.42	17.27
Q21: I would be happy to have a person with disabilities as a special friend. (affective +)	21.51	16.67
Q23: People with disabilities are as happy as I am. (cognitive+)	26.66	21.21
Q30: People with disabilities don't have much fun. (cognitive -)	30.90	23.33
Q32: Being near someone who has a disability scares me. (affective -)	26.6	13.94
Q36: People with disabilities are often sad. (cognitive-)	30.30	23.34

## 6. Discussion

The results of the questionnaire data, the metaphor analysis, and the drawing analysis clearly show that literary works that include characters with disabilities in the classroom have an impact on students' views and attitudes towards people with disabilities.

The results of the questionnaire measurement show that the average CATCH attitude score of the Hungarian students participating in the study is 23.3 points, which is in a similar range as the Hungarian data measured by Pongrácz (2017) in 2017 ( $n = 87$ ;  $M = 23.09$ ;  $n = 211$ ;  $M = 22.21$ ) and Krausz in 2020 ( $n = 99$ ;  $M = 23.77$ ). In international comparisons, this range corresponds to the lower end of the average scores described in studies using the CATCH questionnaire (Rosenbaum et al., 1986; Vignes et al., 2009; Blackmann, 2016). There was no significant difference between the mean CATCH values of the experimental group ( $M = 23.23$ ) and the control group ( $M = 23.35$ ) before the intervention.

The results of the CATCH questionnaire outcome measure show that there was no statistically significant change in total attitude scores for the control group, but there were statistically significant changes in both total CATCH attitude scores and the cognitive and affective components for the experimental group (see: Table 1). Analysis of the scores of each question of the attitude questionnaire revealed that one of the most intensive changes was in the group of questions that explore students' fears about people with disabilities (see: Table 3). The attitudinal scores for this group of questions on the pre-intervention and post-intervention measurements show that during the pre-test ( $M = 26.02$ ) the students found people with disabilities less frightening than during the post-test measurement ( $M = 13.94$ ). A decrease in attitude scores may also indicate alienation from the people with disabilities in questions where students expressed that they would prefer to have a person with a disability living next door or that they did not want a friend with a disability (see: Table 3).

The results of the metaphor analysis part of the research also show a similar trend. Distancing from people with disabilities is shown by the fact that in the results of the post-intervention measurement, the terms that indicate that students think people with disabilities are similar to themselves have disappeared. A dominant group ( $n = 9$ ) of metaphors, describing people with disabilities as evil appears in the post-intervention measure, among the meaning groups of the experimental group students' expressions of people with disabilities. In addition, in the drawings made during the post-intervention measurement, the characters with disabilities who were evil, harmful characters in the literary stories can be well identified. Several drawings ( $n = 12$ ) represent a black-clad, frightening, unfriendly blind person, reminiscent of Pew, the blind character from Stevenson's *Treasure Island* (see: Appendix, picture 1 and 2). The drawings of the post-intervention measure also include a one-eyed character ( $n = 3$ ) (see: Appendix picture 3) probably inspired by the Jumurdzsák of Géza Gárdonyi's novel *The Stars of Eger*, or one-eyed Morti of Judit Berg's novel *Rumini*. Another depiction with an evil connotation in the students' post-intervention drawings is the little red 'devil' ( $n = 7$ , 21%), who looks like Hétszűnyű Kapanyányimonyók in the Hungarian folk tale *The Son of the White Mare* (see: Appendix picture 6 and 7). The connection was made even clearer by the fact that in many cases the students even wrote the name of the character on their drawings. These drawings show that Hétszűnyű Kapanyányimonyók, a small, malicious, evil creature in the story, had such an impact on the students that they identified him with their image of a person with a disability. And the term lame tiger ( $n = 1$ ) presumably refers to Shere Kan from Kipling's novel *The Jungle Book*. According to Almerico (2014), the characters in literary works have almost as strong an impact on the reader as the people they meet in real life, the people they actually know. Quayson (2007) adds that characters with disabilities in children's literature who are portrayed as frightening and have negative personality traits evoke negative emotions in readers, and thus children tend to dislike them. Negative, stereotyped portrayals of disability in children's literature can contribute significantly to children's general fear of people with disabilities. Wall & Crevecoeur (1991) highlight that this type of representation can also have a negative impact on readers' attitudes toward people with disabilities. The disability characters presented in the stories discussed in this study included fearful, evil characters, so the increase in students' fear and the emergence of evil metaphors with meanings for people with disabilities may be one possible piece of evidence that stories with these types of disability characters have a negative impact on

**Table 4**  
Relationship between closer personal contact with a person with a disability and measured mean attitude scores.

Nature of the relationship	Average attitude score	Number
having a friend with a disability	28.22	8
having a brother/sister with a disability	26.25	2
having a grandmother with a disability	27.38	2

students' attitudes towards people with disabilities. The characters in the readings also can be matched with the appearance of (materially) poor terms in the post-intervention measures. One of the characters (the Little Limper) in Ferenc Móra's novel *Kincskereső kisködmön* (*The treasure-seeking little jacket*), or the Rose-Beetle Man in Gerald Durrell's novel *My Family and Other Animals* are characters from poor backgrounds.

The appearance of the hospital in children's drawings reflects the medical approach to disability when people interpret disability as a disease. In many cases, this also implies a belief that a person with a disability cannot cope with life on their own. The representation of the children's home as a living environment in the pupils' drawings at the time of the outcome measure shows exclusion and isolation. The drawings of the students often depict disabled people in hospitals and children's homes as sad and lonely. Some questions in the attitude questionnaire, which refer to the mood and happiness of people with disabilities and their need for help from other adults in many cases, showed significant changes in the post-intervention measure (Table 3.) The metaphor analysis expressions also contain images with such meanings (people with disabilities are like sick, outsider, need a lot of help), although there is no significant difference between the results of the pre-and post-intervention measures on this topic (Fig. 5). In these cases, stereotypical representations of disability in literary works may reinforce pre-existing stereotypes. Several studies show that children of primary age have negative attitudes towards people with disabilities (Smith-D'Arezzo & Moore-Thomas, 2010; Adomat, 2014, Blackmann, 2016; Wilkins et al., 2016). This attitude may also be reinforced by literary works that portray people with disabilities in stereotypical ways (Table 4).

## 7. Limitations of the research study

Our research results should be interpreted in light of several limitations. First, our study was limited to a relatively small sample ( $n = 61$ ), so it does not allow for more general conclusions. Secondly, as the experimental group was selected on the basis that their teacher was open to the experiment, we could not completely eliminate the self-selection bias. Thirdly, the research results can be interpreted primarily in the Hungarian context, as it used literary works found in Hungarian textbooks, although it is assumed that similar literary works with negative stereotypes may have a similar effect on students living in other countries. Finally, the processing of literary works with characters with disabilities collected from textbooks was a very intensive process for the students over a period of 14 weeks. Since children normally read this amount of literature with disabled characters over a 6-8-year period, the effect may not be as intense as it was during the 14 weeks of the experiment. However, our observations confirm the long-term impact of individual work on students. During sessions in the following school year (2021/2022), in which the same works were presented, but with a critical focus on representations of disability, the students remembered the disabled characters very clearly, even though almost a year had passed between reading the story and critically presenting it.

## 8. Conclusion

The aim of our research was to raise awareness among textbook writers and teachers regarding the impact of stereotypical portrayals of disabled characters on students' attitudes towards people with disabilities. The findings reveal that the majority of characters with disabilities in Hungarian textbooks are portrayed in a stereotypical way, and this portrayal has a negative effect on students' attitudes towards people with disabilities. Further research is needed that includes the processing of selected literary works in a way that draws students' attention to stereotypical representations in each case, helps students to recognize and possibly reform their previous views of people with disabilities, and teaches them to interpret these representations through the filter of critical thinking. Our hypothesis is that the negative impact shown in our research can be significantly reduced by processing literary works in the way described above. Thus, the solution is not primarily to remove these literary works from literature textbooks but to draw attention to their meaningful, critical interpretation, including the representation of the characters with disabilities.

Appendix

Picture 1.



Picture 2.



Picture 3.

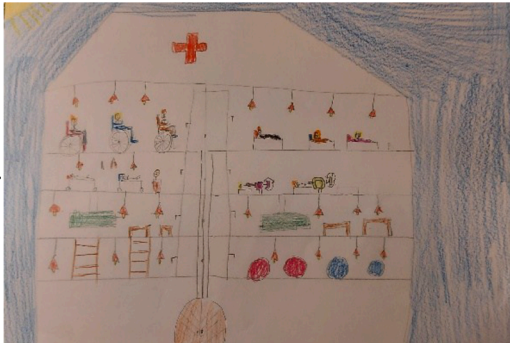




Picture 4.



Picture 5.



Picture 6.







Picture 7.

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