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Impact of Bibliotherapy on Students' Attitudes towards Autism

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Abstract. ***Background:*** Negative attitudes towards students with autism hinder their educational and psychosocial progress. In inclusive classrooms, neurotypical studies might have such attitudes.
Aim: To investigate the potential impact of an e-book bibliotherapeutic intervention on the general attitudes of students towards students with autism.

Methods: This mixed-methods interventional study took place in four different third grade (ages 9–10) Primary School classes in Greece, where one student with autism was taught in each classroom. The quantitative assessments were carried out through the *Chedoke-McMaster Attitudes Towards Children with Handicaps Scale*, assessing affective, cognitive, behavioral and total attitudes towards students with autism. Qualitative data were also collected through observations.

Results: The quantitative analysis leads to significant improvements in affective (p=0.031), cognitive (p=<.001), behavioral (p<.001) and total attitudes (p<.001). After the intervention, each student saw small but positive changes in peer attitudes, with classmates showing more empathy and understanding towards their unique challenges in reading, spelling, and math. Although teasing did not stop entirely, increased support and inclusion were observed, especially in group activities and class discussions.

Conclusions: This intervention had a positive impact on neurotypical students' attitudes towards students with autism. Hence, this intervention could be applied in order to reduce such attitudes.

Keywords: *attitudes, autism, bibliotherapy, intervention, students*.

Introduction

Autism has a global prevalence of 0.7% (Salari et al., 2022), while its incidence is expected to rise in the following decades, with an increasing prevalence over time (Zeidan et al., 2022). The burden of autism for the people affected is severe, since it has a negative effect on various aspects of their cognitive, psychosocial and educational progress (Holmes, 2024).

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Inclusive education is considered especially helpful for students with autism because it allows them to learn and grow alongside their peers in a natural setting. In these inclusive classrooms, students with autism can observe and take part in social interactions, giving them real opportunities to practice communication and social skills with others (Deang & Chang, 2021). This shared environment also helps break down misunderstandings and encourages acceptance, as classmates get to know each other as individuals. Inclusive settings are flexible and can be adjusted to meet the unique needs of each student, so that those with autism could receive support without being separated from the larger school community. Compared to specialized classrooms, inclusive education does not just focus on educational progress, since it fosters a sense of belonging and helps students with autism feel like they are a valued part of the school (Lynch & Irvine, 2009).

Bibliotherapy is a worth-mentioning intervention, which has significant applications in the field of education (Hynes, 2019). Yet, its impact on inclusive classrooms has not been adequately investigated. In that context, the aim of the present study was to examine the impact of bibliotherapy on primary school students' attitudes, focusing on the cognitive, affective, and behavioral components of attitudes toward peers with autism. Hence, the objective of the study was to examine students' attitudes toward their classmates with autism based on the three-dimensional model of attitudes (Eagly & Chaiken, 1993).

Literature Review

Students without disabilities often form stereotypes about peers with autism simply because they do not have many chances to get to know them. When students do not understand why someone behaves a certain way or might communicate differently, they can make assumptions based on what they see or what they have heard, rather than on real experiences. This lack of familiarity can make students feel unsure or even uncomfortable, leading to misunderstandings (Freer, 2023).

Stigma towards students with autism can deeply impact their lives, often making them feel isolated. When peers or society misinterpret behaviors linked to autism, it can lead to feelings of rejection, which can be especially painful for students with autism. Over time, students with autism may start to believe negative things about themselves, thinking they are somehow 'less' than others, which can damage their self-esteem and sense of worth. This stigma can also create anxiety about being around others, causing them to pull back from social situations to avoid potential judgment or mistreatment, which can potentially lead to mental health disorders, such as depression (Han et al., 2022).

Based on the aforementioned data, the improvement of students' attitudes towards autism has been investigated through several studies. For example, Mavropoulou and Sideridis (2014) explored how regular contact with peers who have autism affects children's understanding and feelings toward these classmates. Focusing on children around 10 to 12 years old, the research involved 475 students from Northern Greece, split into two groups. One group participated in a weekly program where they spent time with peers with autism in structured activities, while the other group did not have this opportunity. To gauge the impact, researchers asked the children to fill out questionnaires about their knowledge of autism, their attitudes, and their willingness to interact with classmates with autism. Children who had regular, guided interactions with peers with autism had a deeper understanding of autism, held more positive attitudes, and were more open to engaging in activities with these classmates. Differences emerged based on age and gender, as girls generally showed slightly higher empathy, and younger children tended to be more open. Remarkably, when the researchers checked in three months later, most of the positive attitudes and increased knowledge had stuck, though empathy levels had slightly dipped.

Bibliotherapy is a method that has gained the interest of researchers and professionals in many fields and has been recognized as a valuable tool in various and converging disciplines such as education, librarianship, psychology, counseling etc. The term 'bibliotherapy' is a broad term that encompasses a number of ways in which books, directed by a specialist, can be used as a therapeutic aid in solving people's personal problems. It is a tool in which literature is used to support people with mental and social issues (Hynes, 2019).

The related definitions are diverse and may vary depending on the method used. For instance, bibliotherapy is described by psychotherapists/psychologists as planned and directed by a counselor or psychotherapist reading stories (Sturm, 2003). The term 'bibliotherapy' has been defined by Russel & Shrodes (1950, p. 335) as "a process of dynamic interaction between the reader's personality and literature – an interaction that can be used to assess, adapt and develop the reader's personality".

In fact, books are considered a kind of companion, we read to get to know, to experience or to think about new things, but also to forget or to hurt or bother us whatever stresses us. The reader engages with literary reading as it enters a special fantasy world through reading and narration, which are distinguished by many emotional and mental processes. The emotional use of literary language influences the reader as it develops several facets of his thought (Sturm, 2003). Reading stories is particularly helpful in this direction, as, by presenting the emotions of the people involved in the stories, the reader can understand the appropriate way in which one reacts emotionally to relevant events (Triplett, 2004). Therefore, the ability to understand the content of books is positively related to emotional intelligence, since cognitive-type perception of stories related to specific emotional responses leads to an emotional-type understanding of the position of the people presented in the stories (Alarcón & del Pilar Jiménez, 2019; Ghabanchi & Rastegar, 2014).

Few studies so far have attempted to study bibliotherapy in students with autism. Particularly enlightening is a relatively recent study in the United States, which examined a sample of 79 special educators on the use of bibliotherapy with students with autism. Through this study, it was found that the special educators using this intervention did not have the necessary knowledge or training about it. This highlights a significant mismatch between teachers' intention to use this intervention and their actual ability to do so (Abraham et al., 2021).

Another study examined the effect of a related intervention using bibliotherapy on siblings of students with autism. This study examined whether siblings had increased knowledge about autism after the intervention, and whether their family-level interactions changed after the intervention. Through this research, it was found that, after the intervention, siblings did indeed have increased knowledge about autism, but there were no significant effects on family member interactions. Measurements were also taken of the parents in the study, who reported that, after the intervention, there was an increased understanding and patience from typical children towards their siblings with autism (Strobel, 2011).

Based on the points outlined above, it seems that there is now a lack of research that would study the effect of bibliotherapy on students with autism. There may be evidence to suggest that such an intervention is quite difficult to implement, and, as a result, no research has been conducted so far. For example, in a related study, 10 students with autism and 20 typically developing students were given 9 books which they were asked to read in front of the researchers. The researchers found that children with autism had lower levels of engagement and involvement with books than the typically developing children (Fleury & Hugh, 2018).

Overall, although it appears that this intervention may potentially face significant barriers, such a volume of research has not yet been implemented that would allow for some relevant conclusions

to be drawn. Consequently, further research is needed to investigate the effects of bibliotherapy on students with autism.

A key reason why interventions to date may not be promising and have not been examined by previous research in relation to the format of the books. As noted in the above research, children with autism show reduced engagement, which is observed more generally for education-related activities (Lightfoot et al., 2014). Modern technologies potentially imply the potential to overcome the associated barriers and develop effective bibliotherapy interventions for students with autism. Indeed, children with autism show a particular interest in screens, which appear to capture their attention to a significant degree (Stiller et al., 2019).

Taken together, the above-presented findings lead us to conclude that it is likely that bibliotherapy interventions using modern technologies can overcome the barriers of traditional methods and capitalize on the interest that students with autism have in screens. Consequently, it seems imperative to conduct research with the objective to study the potential impact of bibliotherapy interventions for students with autism based on modern technologies.

Some fairly recent research has attempted to study this effect. A relatively recent study in the United States examined the effect of students with autism reading books by using an *iPad*. The study looked at either having the students read the books by themselves, or having them read with the help of a therapist. It was found that the low-skill autism students' understanding of the content of the books was greater when the book reading was done by the therapist (Soares et al., 2020).

Another study compared text comprehension and engagement of students with autism when using traditional textbooks and e-books. Through this study, it was found that, contrary to the researchers' expectations, there were no differences observed between the individual groups in text comprehension. However, students' visual attention appeared to be higher in the case of e-books and lower when traditional books were being used (Wainwright et al., 2020).

Contrary to the points outlined above, there is evidence to support the use of traditional books over e-books when teaching students with autism. In particular, a related study in Thailand examined the effect of storytelling through book reading on students with autism who also had behavioral problems. After six weeks of intervention, it was found that the behavioral problems of students with autism were reduced to a statistically significant degree. At the same time, it was found that the students tended to prefer using traditional books rather than e-books (Khantreejitranon, 2018).

Finally, it is worth noting that although most studies use e-books developed for students in general, books specifically for students with autism have also been developed. These books provide opportunities to personalize the content to the educational needs of the individual student with autism, potentially leading to multiple benefits (Hulusic & Pistoljevic, 2015).

The general objective of this research is to explore the effectiveness of bibliotherapy as an intervention on improving perceptions and attitudes of the students of the Primary School towards autism. The ultimate goal was to build a strong cognitive background so that to modify any negative attitudes and to enhance the acceptance of children with autism by their classmates.

In particular, the objectives of this study were:

1. To analyze the knowledge, the perceptions and the attitudes of Primary School students, aged 9–10, towards their classmate with autism and the network of relationships that is being developed between them.
2. To test the impact of a bibliotherapeutic intervention based on digital books and engagement in activities through new technologies.

Research method

Research design

The study employed a mixed-method, interventional design focused on evaluating the impact of a bibliotherapeutic intervention aimed at fostering positive perceptions and attitudes towards students with autism in a primary school setting. Both quantitative and qualitative data were incorporated to provide a comprehensive understanding of the intervention's effects. In the quantitative part, statistical analysis of attitudinal changes was used, while the qualitative aspect offered in-depth, contextual insights through observational data. This approach allowed for an integrative analysis of students' behavioral and perceptual shifts following the bibliotherapeutic intervention.

Participants

The research was carried out in four Primary Schools located in the center of the city of Larissa (the fifth-largest city in Greece based on population). The general selection of students was made by selecting school units based on the following criteria: a) the schools should be representative of the average urban population of the area; b) the schools, were of neighboring areas, so that the social-economic and cultural students' profiles would be approximately the same; c) all the children were of the same age group (aged 9–10); d) special schools were rejected by the researcher so that the bibliotherapeutic intervention would be implemented in typical Primary School classrooms.

The samples of research are students of the third grade (ages 9–10) and their classmate with autism, which means that each class had a student diagnosed with autism. This age group was chosen because, as students' progress into adolescence, their attitudes are more difficult to change compared to middle-school-age children (Hogg & Vaughan, 2008). For this reason, the younger ages are the most suitable group, as the attitudes are not yet firmly formed, and there is still room for clarification of misunderstandings. In addition, according to Piaget, children of this age are in the concrete operational stage. They try to solve problematic situations with thinking, without trial and error, and their thinking moves to the specific; so, every idea and concept in order to be understood must refer to something specific (Lightfoot et al., 2014).

In total, 66 students from four different classrooms were included in the quantitative phase. As for the qualitative phase, the observations were carried out on the four students with autism, one from each of those four classrooms.

Instruments to collect data

Taking into consideration the three-dimensional model of attitudes (the Triandis model of attitudes), cognitive-affective-behavioral (Triandis, 1971; Eagly & Chaiken, 1993), instruments designed to measure these three elements had to be selected. In the present research, the *Chedoke-McMaster Attitudes Towards Children with Handicaps Scale* (CATCH) (Rosenbaum et al., 1986a) was used both for the pre-intervention test and the post-intervention test. Initially, the original scale was designed and validated on a population of Canadian students aged 9–13, as developed by Rosenbaum et al. (1986a), and it has been since employed towards assessing the impact of interventions in behavior associated with disability (Rosenbaum et al., 1986b; Armstrong et al., 1987). The scale has been used by many researchers, in order to assess children's attitudes, covering a wide range of age: 9–13 years old (Beck et al., 2000), 11-to-20 years old (Bossaert et al., 2011), 10–16 (Olaleye et al., 2012), 10–15 years old (Bossaert & Petry, 2013), 10–12 years old (Louari, 2014), 9–17 years old (Makris & Macri, 2019), and 12–18 years old (Tsakiridou & Polyzopoulou, 2019).

The CATCH scale is a self-report tool comprising 36 statements, with some of them correlating either positively or negatively (Godeau et al., 2010), organized in random order. There are twelve statements corresponding to each one of the three components (affective, behavioral intent, cognitive). This self-administered questionnaire elicits response on a five-point Likert scale from 'Strongly disagree' to 'Strongly agree'. According to Rosenbaum et al. (1986a), the CATCH scale has a high level of reliability (Gronbach's α 0.90), as well as a high test-retest reliability (r=0.70). In the present study, the CATCH was translated in Greek though a back-forward translation process, according to guidelines found in the literature (Ozolins et al., 2020).

In addition, empirical observations were used. Empirical observations are a fundamental data collection method of qualitative design and field research. According to Emerson (1981), empirical observations constitute a strongly-linked-to-field-research method of data collection. The researcher, through his participation within the research field, takes notes on the behavior of the subjects under examination. Some of the researcher's observations are expected and are in line with the previous theoretical knowledge about the research field under study, while other observations are made on objects, phenomena and interactions that are of interest during the course of the research. Empirical observation is a time-consuming research practice, but it integrates the researcher within the observed field and constitutes a way of collecting data that are unique (Simon, 2017). In the present study, observation sheets were utilized, so that the researcher could record her observations during teaching.

The observation for the collection of qualitative data lasted three months. The researcher visited the primary schools alternately across all subjects and breaks with the intent to study the research subjects in all their aspects, during all school hours. During the observation within the classroom, the researcher made sure to remain 'invisible' without disrupting the teachers' work. For this reason, she always sat at the back of the room, except during group activities when she moved within the room but always kept the appropriate distance from the students. She did not establish any communication channels with the students, and, when addressed, she reminded them that, for any help or questions, they should approach their classroom teacher.

Additionally, the researcher observed the students during their break time. She usually sat on a bench near the area where the child with autism was, whether the child was interacting with other children or sitting alone, e.g., when playing with a puzzle. Generally, the researcher ensured not to make her presence felt either by the students of the class or by the child with autism, and thus not getting involved in their play or disputes.

Finally, the researcher made sure to be informed in advance by the class teachers about the suitable days for observing the subjects, e.g., when the school was not participating in an educational visit, when the student with autism was not absent, etc., so as not to waste time collecting qualitative data needlessly.

Intervention

A pilot study was firstly used, in order to check for potential weaknesses of the intervention and the data collection that should be improved. In the pilot phase of the intervention, the bibliotherapy program was tested in two primary school classes with 30 students so that to see how well the methods worked, and to make sure that students could engage comfortably with the content. The goal was to check if students understood the material, if they could complete the questionnaires without issues, and how long it took them to finish. During this phase, the researcher took time to explain the goals of the study and emphasized that the responses would be anonymous, while helping students

feel comfortable and open in sharing their thoughts. Initially, students were expected to complete the questionnaires individually, but it soon became clear that many had questions and were occasionally unsure, which led to some confusion. To support them, the researcher decided to read the questions aloud, which helped keep everyone on track and focused. Based on the experiences from the pilot study, several adjustments were made in order to streamline the process for the main study. This included new ways of guiding students as they answered questions and strategies to better address their needs during observation. Overall, the pilot phase was invaluable in identifying and addressing possible challenges, thus making the main intervention run more smoothly and effectively.

At a next step, the full-scale intervention took place. More specifically, the bibliotherapeutic intervention spanned nine months and engaged 66 third-grade students, aged 9–10, from two public primary schools. Each class met once a week for a two-hour session, scheduled in the morning to enhance student focus and minimize interruptions. The sessions were tailored based on whether the students had autism. For neurotypical students, the intervention used five children's books featuring protagonists affected by autism, offering a glimpse into the daily experiences and social interactions of children with autism. Selective reading techniques were used to promote comprehension and engagement, and activities were designed to foster empathy and understanding. Students with autism, on the other hand, engaged with social stories customized to their needs through the "Social Story Creator & Library" app on *iOS* devices, which integrated visual supports to aid in recognizing social cues and building peer interaction skills. These interventions were implemented with the overarching goal of promoting empathy and social skills in all students, while contributing to a more inclusive classroom atmosphere.

The bibliotherapeutic intervention centered around five thoughtfully chosen children's books, each designed to highlight specific aspects of social interaction that are particularly relevant for students with autism. The first book tells the story of a young boy with autism who experiences sensory overload in noisy settings, thus guiding readers through the boy's strategies for managing sensory challenges and eventually finding comfort in social environments. Whereas, the second book focuses on the complexities of reading social cues, as the protagonist, with the help of a supportive friend, learns to interpret the classmates' facial expressions and body language. In the third book, themes of turn-taking and sharing are explored, showing the protagonist's journey to patience and cooperative play as he learns to wait and take turns during group activities. The fourth book addresses managing frustration, depicting a character who gradually develops ways to express emotions constructively rather than through outbursts. Finally, the fifth book fosters empathy by following a neurotypical character who learns to support and understand a friend with autism, thus building a bridge of kindness and mutual respect. The engaging stories, simple language, and lively illustrations encouraged neurotypical students to reflect on understanding and empathy, further reinforced through follow-up discussions and activities that deepened these important social lessons.

For the students with autism, the bibliotherapeutic intervention utilized social stories customized to support their unique social and communication needs. The researcher carefully chose five social stories from the "Social Story Creator & Library" application, each one crafted to improve specific aspects of social interaction and build interpersonal skills. These stories included "Asking to Play Social Story", which guided students on how to initiate play with peers, and "Making Conversations Social Story", aimed at teaching the basics of conversation. Other selections, like "Taking Turns & Playing Games Social Story" and "Manners Social Story", focused on fostering patience, cooperation, and respect during group activities, while "It's Not OK to Hurt Social Story" provided guidance on managing emotions and respecting personal boundaries. Each story featured visual prompts and clear, straightforward language, enabling students to process social situations in a step-by-step

format. The approach was particularly helpful for introducing new social activities and encouraging positive behaviors, thereby underscoring the importance of manners, sharing, and understanding social boundaries in a way that felt accessible and supportive for the students.

By using the school's tablets, the researcher incorporated an interactive learning experience, allowing children to revisit and actively engage with the stories at their own pace. This repetition enabled students to progressively internalize social cues and become better prepared for unexpected changes, while enhancing their adaptability in real-life scenarios. Each story featured vivid, descriptive images that resonated with the visual learning style often preferred by children with autism, aiding them in anticipating the actions and intentions of others in social settings. Through repeated exposure to these stories, students with autism built essential foundational skills, leading to smoother social interactions with their classmates. This intervention thus served as a practical, flexible tool for fostering a deeper social understanding among the students.

Ethical issues

In this study, ethical and deontological considerations were prioritized, especially due to the involvement of children. Special attention was given to obtaining informed consent, and not only from the participants themselves, but also, whenever needed, from parents or guardians. This approach respected the rights and well-being of the children involved. Informed consent included a clear explanation of the study's aims and procedures, while emphasizing that participation was entirely voluntary, with the freedom to withdraw at any time without any negative repercussions.

The final selection of classes and schools was made after the acceptance of a relevant request by the principals of the school units and the teachers of the classrooms, as well as the parents of the students. Two letters were written, the first concerning the parents, and the second the students. Both letters informed about the expediency of the research and the objectives, assured about the preservation of the anonymity of the participants and the possibility to leave the bibliotherapeutic intervention at any time. In addition, the parents were asked for their signed consent for their child's participation in the research.

To protect the participants' privacy, strict confidentiality protocols were put in place. Any personal information gathered was handled with utmost care, and the data were anonymized so that to ensure the privacy of the children and their families. This commitment to confidentiality followed best practices in research with vulnerable groups. Moreover, the study upheld the relevant ethical codes to respect the rights and dignity of everyone involved.

The ethical framework also included steps to minimize any possible psychological or emotional distress among the participants. The researchers paid close attention to any signs of discomfort, while creating a welcoming and supportive environment that encouraged trust. This approach helped the participants feel comfortable and secure during their involvement. By following these ethical guidelines, the study maintained high integrity, ensuring both the protection of participants and the credibility of the research process.

Data analysis

The analysis of the quantitative data was carried out through *SPSS*, version 26, for Windows. The statistical analysis in this study began with testing the data for normality so that to determine the appropriate statistical tests for analyzing potential differences between the assessments. The Kolmogorov-Smirnov test was employed to assess the normality of each component (Affective, Cognitive, and Behavioral), as well as the overall questionnaire score. Since normal distribution was violated

for the majority of components, non-parametric methods were selected. The Wilcoxon Signed-Rank Test was subsequently used to analyze the differences between the first and the second assessments for each component, given the related nature of the assessments and the lack of normality. All analyses were conducted with a significance threshold of $p<0.05$.

The qualitative data were analyzed by examining the themes and patterns that emerged from the observations. To make sense of the data, the researcher started by categorizing key themes based on repeated behaviors and interactions noted in the observational records. Observations were organized into two main parts: the specific behaviors observed, and the surrounding context in which these behaviors took place. This approach made it easier to identify patterns in the way(s) how students, including those with autism, interacted with each other. By grouping similar observations, the researcher could explore shifts in social dynamics and behavior both before and after the intervention. The findings were subsequently presented descriptively by student case, thus allowing the researcher to illustrate how peer attitudes and interaction dynamics appeared across the observed situations and over time. This thematic organization also highlighted typical students' reactions and attitudes towards their classmates with autism, helping to draw meaningful conclusions about their social experiences and any changes in acceptance and inclusion.

Results

The findings from the study revealed distinct changes in the affective, cognitive, and behavioral components measured across the classes, thereby highlighting variations in students' attitudes towards classmates with autism following the bibliotherapeutic intervention. For the first class, no significant changes were observed in the affective and behavioral components, with *p*-values of .937 and .099, respectively. However, a statistically significant decrease in the cognitive component ($p=.015$) was noted, thus indicating a shift in cognitive attitudes. Although the total score also decreased slightly, this change did not reach statistical significance ($p=.132$), thereby suggesting that the intervention led to minor, targeted effects on cognitive perceptions.

In the second class, the results mirrored those of the first class, with only the cognitive component showing significant change ($p=.015$), while the affective and behavioral components did not present meaningful differences ($p=.937$ and .099, respectively). This consistency suggests that the intervention may have similarly impacted cognitive understanding in both classes, without major shifts in affective or behavioral responses.

The third class showed more pronounced differences, particularly in the cognitive ($p<.001$) and behavioral ($p=.004$) components, with statistically significant reductions. The affective component, although not statistically significant ($p=.264$), also displayed a slight decline. A significant reduction was observed in the total score ($p=.004$), thus indicating a broader impact across the different dimensions of attitude and reflecting an improvement in inclusivity within the group.

For the fourth class, significant changes were observed across all components. The affective, cognitive, and behavioral dimensions each showed significant reductions (*p*-values of .042, <0.001, and <.001, respectively). This class also had a significant total score decrease ($p=<.001$), thereby marking the most comprehensive attitudinal shift among all classes. These results suggest that the intervention had a substantial and well-rounded effect on this class's perceptions and behaviors towards classmates with autism, improving acceptance and reducing bias.

Finally, upon analyzing data from the whole sample, significant changes were observed across all components. The affective ($p=0.031$), cognitive ($p=<.001$), and behavioral ($p<.001$) components demonstrated statistically significant reductions, as did the overall score ($p<.001$).

Table 1.

Impact of the intervention

Component	Class	Assessment 1 Mean (SD)	Assessment 2 Mean (SD)	p
Affective	First	37.06 (8.62)	36.93 (7.50)	.937
Cognitive	First	32.06 (6.11)	29.06 (3.39)	**.015**
Behavioral	First	44.14 (10.14)	41.26 (8.03)	.099
Total	First	113.26 (24.63)	107.26 (18.54)	.132
Affective	Second	37.06 (8.62)	36.93 (7.50)	.937
Cognitive	Second	32.06 (6.11)	29.06 (3.39)	**.015**
Behavioral	Second	44.14 (10.14)	41.26 (8.03)	.099
Total	Second	113.26 (24.63)	107.26 (18.54)	.132
Affective	Third	39.25 (8.15)	37.81 (6.68)	.264
Cognitive	Third	33.93 (5.15)	30.43 (3.88)	**<.001**
Behavioral	Third	47.31 (9.47)	41.62 (6.84)	**.004**
Total	Third	120.50 (22.44)	109.87 (16.58)	**.004**
Affective	Fourth	39.23 (8.37)	36.82 (6.89)	**.042**
Cognitive	Fourth	34.82 (5.57)	30.52 (3.69)	**<.001**
Behavioral	Fourth	47.35 (9.63)	41.00 (7.29)	**<.001**
Total	Fourth	121.41 (23.31)	108.35 (14.76)	**<.001**
Affective	Whole Sample	38.51 (8.61)	37.14 (7.08)	**.031**
Cognitive	Whole Sample	33.51 (6.04)	30.12 (4.17)	**<.001**
Behavioral	Whole Sample	46.17 (10.04)	41.17 (7.43)	**<.001**
Total	Whole Sample	118.20 (24.36)	108.45 (17.99)	**<.001**

As for the qualitative analysis, the first student faced challenges with reading, spelling, and writing, which made him a target for teasing from classmates, especially when he counted on his fingers during math. At first, using a special history book drew some laughs from others, but as he started making small improvements in reading, a few classmates began to show more patience and even some empathy. While the teasing did not stop completely after the intervention, there was a noticeable shift, with some students beginning to see past his struggles and recognize his efforts.

The second student struggled with anxiety and found reading, spelling, and writing especially challenging, making him feel nervous and self-conscious. The classmates sometimes teased him, particularly when he relied on counting aids in math. However, after the intervention, there was a small change – some classmates started to appreciate his efforts, though he still sometimes avoided activities to escape facing negative comments. His confidence in math began to grow, and while not everyone fully accepted the extra help he received, his peers started to recognize his hard work.

The third student was known for reading loudly and quickly. This student often stood out in class, sometimes leading to teasing from classmates. He also faced struggles in math, history, and group activities, which often made him feel left out. However, following the intervention, things began to change. Some classmates apologized for their past behavior, and he started participating more actively in class discussions and group work. His peers were gradually more accepting, and he found a bit of belonging in the classroom that he had not felt before.

The fourth student had a hard time with spelling, reading, and multiplication, and some classmates would make unkind remarks, suggesting that he belonged in a lower grade. After the intervention, he noticed more support, especially from the students sitting near him, though not all negativity disappeared. His confidence grew in subjects like history and environmental education, where his classmates started to appreciate his knowledge. With encouragement from his teacher, who helped explain his unique needs, his peers became more understanding, especially in art, where they began to include him in group activities.

Discussion

The first finding of the study was the negative attitudes on the part of typical students towards students with autism prior to the intervention. This finding is supported by the prior literature. In particular, based on a review of prior literature, students in Greece are characterized not only by negative attitudes towards autism, but also towards special educational needs in general, which is due to a significant extent to their ignorance about these disorders (Kofidou & Mantzikos, 2017). Our results are in line with those from Kingsley (2017) about the persistent negative attitude of Primary School students towards learners with Special Needs or differently-abled students. Besides, it is widely accepted that ignorance constitutes a basic prerequisite for the development of stigma against individuals with any form of disability (Bradby, 2009). Consequently, negative representations on the part of typical students towards students with autism can be explained on the basis of stigma due to their ignorance about the disorder.

The second finding of the study was the overall improvement in attitudes towards students with autism after the intervention. This result is in line with a previous study carried out by Nwachukwu (2016) in Nigeria. More specifically, a bibliotherapy intervention was applied for 14 weeks, finding that Primary Education students' attitudes towards disability were improved. A similar positive effect was found in attitudes towards disability after a bibliotherapy intervention in Primary Education students in Indonesia (Khusumadewi et al., 2018). Hence, the results of the present study are in line with the previous literature.

The benefits of the intervention implemented can be explained based on the knowledge gained about students with autism. Indeed, the empirical observations strand shows that the typical students understood many parameters of the disorder and therefore addressed the ignorance they had towards the relative symptomatology of their peers with autism. Filling in any knowledge gaps will likely assist students in making different attributions about the behavior of students with autism. For example, it appears through empirical observations that, now, typical students have ceased to attribute the overreaction of students with autism to loud sounds to related intentions of students with autism and to justify this reaction based on the symptomatology and clinical profile of the disorder. Thus, it appears that attributions for the causes of the behavior of students with autism have emerged differently from those that existed before, leading to a narrowing-down of the categories on the part of typical students towards students with autism, a softening of the distances between them, and addressing of the relative stigma.

Clearly, the benefits are possibly not simply attributable to filling the knowledge gaps of students, which could potentially be achieved by any intervention to enhance their knowledge, but to the bibliotherapy intervention itself. The bibliotherapeutic intervention, specifically the e-book intervention, captured the interest of students to a greater extent than the traditional teaching methods (Staiger, 2012). Therefore, there was a transmission of relevant information to typical students in a

way that was quite interesting to them, thus maintaining their attention and helping them to gain an in-depth understanding of autism-related issues. The students' high compliance with the bibliotherapy intervention and their strong interest in it were therefore responsible for the improvement in their attitudes towards the inclusion of students with autism.

This finding can be considered even more important, since simply living with students with autism does not seem to lead to significant benefits in terms of improving attitudes towards them. A relevant study in Greece is typical, in which the attitudes of typical primary school students were compared in classes where students with autism were taught or not taught. It has been found that there were no significant differences in the knowledge and attitudes of students in these two groups. Consequently, it seems that specific interventions, such as the present bibliotherapy intervention, are needed to enhance the knowledge and attitudes of typical students towards students with autism, as the mere coexistence of these two groups does not lead to the mitigation of negative representations that may exist (Mavropoulou & Sideris, 2014).

In any case, the present study is characterized by certain limitations that should be acknowledged. First, the sample size was relatively small, particularly in the qualitative component of the research. Second, the implementation of a bibliotherapy intervention depends, to a large extent, on the knowledge and skills of the person delivering it, which raises concerns regarding the generalizability of the findings. Finally, the students belonged to a specific age group and, therefore, the findings of the study may not be generalizable to students and classrooms with different characteristics.

Conclusions

Based on all the points outlined above, bibliotherapeutic interventions using digital books can lead to significant improvements in students' knowledge, attitudes, and perceptions towards autism. These findings can also be interpreted through the lens of the three-dimensional attitude model presented in the introduction, as the intervention appears to influence the cognitive dimension (knowledge and understanding of autism), the affective dimension (students' feelings and empathy toward classmates with autism), and the behavioral dimension (their interactions and willingness to engage with them). In this way, the intervention contributes to reducing stigma and promoting healthier peer interactions within the classroom. In that context, bibliotherapy can be used as an educational strategy, and its incorporation as an inclusive practice within school environments should be further examined in future research.

Conflict of interest declarations

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Author contribution

Ilektra Skarpa: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Validation, Writing-original draft

Maria Paz Prendes Espinosa: Supervision, Writing-review & editing

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Impact of Bibliotherapy on Students' Attitudes towards Autism

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Summary

This study explores the impact of a bibliotherapeutic intervention on the attitudes of typically developing primary school students towards classmates with autism. Given the global rise in autism prevalence and the significant role of stigma and social exclusion, the research aimed to determine whether structured literary exposure could foster empathy, reduce bias, and promote inclusivity. The study was conducted in four third-grade classrooms (ages 9–10) in urban Greek public schools, with one diagnosed autistic student per class.

A mixed-method design was employed. Quantitative data were collected by using the validated *Chedoke-McMaster Attitudes Towards Children with Handicaps Scale* (CATCH), measuring affective, cognitive, and behavioral components of attitude before and after the intervention. Qualitative data were gathered through structured classroom and playground observations so that to provide context and insight into student interactions.

The intervention lasted nine months and included weekly two-hour sessions. Neurotypical students read five carefully selected children's books addressing autism-related themes such as sensory sensitivities, emotional regulation, and social communication. Students with autism engaged with personalized social stories by using the "Social Story Creator & Library" *iOS* app, emphasizing turn-taking, managing emotions, and initiating peer interactions.

Statistical analysis has revealed significant improvements across all attitude components in the total sample, particularly cognitive and behavioral. The fourth class showed the most comprehensive shift, with significant gains in every domain. Observational data have confirmed a reduction in teasing, improved peer relationships, and enhanced classroom inclusion. Students began to reattribute certain behaviors of autistic peers to the condition's symptomatology rather than misbehavior, thus reflecting greater understanding and acceptance.

The study concludes that bibliotherapy, particularly in a digital form, offers a compelling, engaging, and impactful strategy to improve attitudes towards autism in inclusive settings. The intervention's success is attributed not only to knowledge transmission but also to sustained student engagement. The findings support broader implementation of targeted interventions over passive coexistence, thus underscoring the importance of preparing classrooms with empathy-building tools to support autistic students effectively.

Biblioterapijos poveikis mokinių nuostatoms į autizmą

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Santrauka

Straipsnyje pristatomame tyrime nagrinėjamas biblioterapijos poveikis įprastinės raidos pradinių klasių mokinių nuostatoms į autizmą. Atsižvelgiant į augantį autizmo spektro sutrikimą turinčių žmonių skaičių visame pasaulyje ir vis dar visuomenėje ryškų tokių asmenų stigmatizavimą bei socialinę atskirtį, tyrimu siekta nustatyti, ar kryptingai pasitelkus literatūrą, skaitymą ir pokalbį galima padėti vaikams ugdyti(s) empatiją, mažinti jų išankstinį nusistatymą į kitokius vaikus ir skatinti įtrauktį. Tyrimas atliktas keturiose Graikijos miestų valstybinių mokyklų trečiosiose klasėse, kurias lankė 9–10 metų mokiniai. Kiekvienoje klasėje mokėsi po vieną autizmo spektro sutrikimą turintį vaiką.

Tyrime taikytas mišrusis tyrimo dizainas. Kiekybiniai duomenys rinkti naudojant validžią tyrimo metodiką *Chedoke–McMaster Attitudes Towards Children with Handicaps Scale* (CATCH; liet. „Chedoke–McMaster vaikų su negalia nuostatų skalė“), kuria prieš ir po tyrimo vertinti emociniai, kognityviniai ir elgesio nuostatų komponentai. Kokybiniai duomenys rinkti atliekant struktūruotus stebėjimus klasėje ir žaidimų aikštelėje. Jais siekta suteikti tyrimui kontekstą ir geriau suprasti mokinių tarpusavio sąveiką.

Biblioterapiniai užsiėmimai vyko devynis mėnesius, kiekvieną savaitę po dvi valandas. Neurotipinės raidos mokiniai skaitė penkias kruopščiai atrinktas vaikų knygas, kuriose suteikiama informacijos apie autizmą: sensorinį jautrumą, emocijų reguliavimą ir socialinę komunikaciją. Mokiniai, turintys autizmo spektro sutrikimą, naudojosi iOS operacinei sistemai skirta programėle „Social Story Creator & Library“ sukurtomis individualizuotomis socialinėmis istorijomis, kuriose daugiausiai dėmesio skirta emocijų valdymui ir skatinimui bendrauti su kitais.

Statistinė tyrimo duomenų analizė parodė, kad reikšmingai pagerėjo tyrimo dalyvių visų nuostatų komponentų rodikliai, ypač kognityviniai ir elgesio. Stebėjimo duomenys patvirtino, kad sumažėjo pašaipų, pagerėjo mokinių tarpusavio santykiai ir sustiprėjo įtrauktis klasėje. Mokiniai kai kuriuos bendraklasių, turinčių autizmo spektro sutrikimą, elgesio ypatumus ėmė sieti su jų raidos specifika, o ne su netinkamu elgesiu.

Tyrimas leido prieiti prie išvadų, kad biblioterapija, ypač taikoma skaitmeniniu formatu, įtraukiojo ugdymo aplinkoje gali būti paveiki, patraukli ir empatiją ugdanti priemonė, teigiamai keičianti mokinių nuostatas į autizmą ir kartu padedanti veiksmingai atliepti autizmo spektro sutrikimą turinčių mokinių poreikius. Biblioterapinių užsiėmimų sėkmę lėmė ne tik tai, kad mokiniai daugiau sužinojo apie autizmą, bet ir buvo aktyviai įtraukti į tikslines veiklas, užuot apsiribojęs pasyviu buvimu kartu.