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The impact of primary schools' inclusiveness on the inclusion of students with autism spectrum disorder

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The inclusion of students with autism spectrum disorder (ASD) is a complex issue for schools. This study investigates the impact of the inclusivity of Slovenian primary schools on the inclusion of their students with ASD. We postulated that each pedagogical dimension of inclusion (i.e., academic, social, and emotional inclusion) of students with ASD would demonstrate a positive correlation with each dimension of inclusiveness of primary schools (i.e., inclusive culture, policy, and practice). Forty regular Slovenian elementary schools participated in the research. The Perceptions of Inclusion Questionnaire was completed by 200 respondents (40 students with ASD, 40 parents, 120 teachers), and the Index for inclusion by 240 respondents (40 parents, 200 school professionals). The analysis revealed one significant correlation, a weak positive correlation between inclusive practice and academic inclusion. Multiple regression analyses also identified one conditionally substantial pair. When we excluded the inclusive culture and policy and only considered the control of demographic variables, the results showed that the increase in inclusive practices corresponds to the increase in academic inclusion. The absence of correlations between the dimensions of school inclusivity and the pedagogical dimensions of including students with ASD can be attributed to the lack of systemic solutions for accommodating a diverse student population and the failure to conduct a thorough analysis of the inclusion and implementation of whole-school approaches. However, the Slovenian adaptation of the Index for Inclusion, a promising tool, offers hope in addressing these challenges.

KEYWORDS

social inclusion, academic inclusion, emotional inclusion, inclusive policies, inclusive cultures, inclusive practices, autism

1 Introduction

Since ratifying the Salamanca Statement (UNESCO, 1994), the right to inclusive education for all students, including those with special education needs (SEN), has been increasingly recognised. With the high prevalence of autism being 1 in 54 children (Maenner et al., 2020), this is reflected in the rising number of students with autism spectrum disorder (ASD) included in regular elementary school. Nevertheless, their inclusion represents one of the more complex and poorly understood areas of education, and their full inclusion is still the exception

rather than the rule (Leonard and Smyth, 2020; McDougal et al., 2020; Roberts and Webster, 2020; Stosic et al., 2022; Muñoz-Martínez et al., 2023).

Research shows that high-quality educational inclusion can be more beneficial for students with ASD than segregated schooling. It offers them more opportunities to learn social and adaptive skills from their peers, understand their social and emotional needs, and achieve higher academic goals (Kefallinou et al., 2020; Roberts and Webster, 2020; Oliver-Kerrigan and Christy, 2021). However, many studies emphasise the dissonance of ASD characteristics (e.g., deficits in social skills, communication, adaptive behavior, etc.) with academic and social success in inclusive school environments (Hebron and Humphrey, 2014; Majoko, 2016; Williams et al., 2019). Therefore, students with ASD have to struggle with school performance even when they have average or above-average cognitive abilities (Burnham Riosa et al., 2017). This is confirmed by research revealing negative school experiences for many students with ASD (Roberts and Simpson, 2016; Williams et al., 2019; Stosic et al., 2022; Muñoz-Martínez et al., 2023).

Although students with ASD need more support and adaptations than other students with SEN (Ravet, 2017; White et al., 2023), providing effective support remains a major challenge (Leonard and Smyth, 2020; McDougal et al., 2020; Roberts and Webster, 2020). These findings raise concerns regarding the discourse on ASD, predominantly based on the medical model of the disorder (Goodall, 2018; McDougal et al., 2020; Roberts and Webster, 2020). Since this model tends to pathologize ASD and defines it as a disorder with symptoms deviating from the "*norm*," this perspective often results in viewing students with ASD as flawed or inferior (Anderson-Chavarria, 2022).

A strong theoretical foundation for understanding the relationship between inclusive practices and the academic, social and emotional outcomes for students with ASD provide Sociocultural Theory of Vygotsky (1978), Bioecological Theory of Bronfenbrenner and Ceci (1994) and the Social model of disability (White et al., 2023). According to Vygotsky (1997), a child's social environment not only acts as an influencing factor but also as the source of a child's development. Therefore, to comprehend a child's development, we must understand their relationship with their surrounding environment. Furthermore, Vygotsky's sociocultural theory approach sees SEN not as a biological impairment with psychological consequences but as a sociocultural and developmental phenomenon. It emphasizes that children can achieve much more competent performance when they receive proper assistance (scaffolded learning) from more knowledgeable members of society. Thus, regarding inclusive education, Vygotsky (1978) suggests that effective teaching should utilize appropriate methods to educate and enhance psychological functions, communication skills, and social relationships. Accordingly, he argues that teaching interventions should address the specific needs of children with SEN in order to minimize further challenges.

Similar to Sociocultural Theory of Vygotsky (1978), the Bioecological Model of Development (Bronfenbrenner and Ceci, 1994) also emphasizes environmental factors for a child's development. Furthermore, it focuses on the dynamic interactions between the individual and environmental factors over time and is commonly applied in education settings. According to this model, ASD should be understood as a developmental process involving the individual and the environment, rather than being seen as an internal condition causing deficits (Weiss et al., 2013). In this model, the individual is always at the center, and their characteristics, such as age, gender, health, skills, knowledge, previous experiences, motivation, and temperament, are shaped through interactions with the environment (Bronfenbrenner and Ceci, 1994).

Adapting these theories to the education of students with ASD promotes a shift from the traditional medical model to the social model of disability. The latter redirects attention from individual deficits to social structures and encourages looking at ASD from a strengths-based perspective (White et al., 2023). It also challenges the belief that ASD is a disorder requiring prevention and cure, instead presenting ASD as a form of human diversity and placing value on differences (Anderson-Chavarria, 2022). Accordingly, in the social model, "*disability*" refers to the barriers and challenges created by society's failure to be accessible and inclusive (Oliver, 2009).

Although we acknowledge the current debate about the use of person-first language (PFL: e.g., "*person with autism/ASD*") and identity-first language (IFL: e.g., "*autistic*" and "*autistic person*") for students with SEN/ASD (Vivanti, 2020; Botha et al., 2023), we adopted the use of PFL in our article. The latter aligned with the social model, emphasizes the needs, autonomy, strengths, and rights of students with ASD, as well as their rights to self-determination. It aims to avoid dehumanization and marginalization associated with identity-first language (IFL; Vivanti, 2020).

This theoretical framework supports a comprehensive approach to promoting inclusion and equity within education systems, which is also supported by research (Japelj Pavešić et al., 2019; Ainscow, 2020; White et al., 2023). This includes using evidence-based strategies that support teachers in developing inclusive practices while considering the impact on student participation and achievement. To achieve this goal, schools should use self-evaluation mechanisms like the Index for Inclusion (Booth and Ainscow, 2011; Buljubašić-Kuzmanović and Španja, 2019). This tool helps identify community resources and obstacles, which can enhance school improvement in three interconnected areas: culture, policy, and practice. Each of these dimensions is divided into two sections to further focus on enhancing learning and participation in a school. Creating inclusive cultures, such as building community and establishing inclusive values, involves creating a welcoming, collaborative, and stimulating community that prioritizes shared inclusive values to guide school policies and practices (Ainscow, 2020). Producing inclusive policies, such as developing the school for all and organizing support for diversity, ensures that inclusion is integrated into all school plans. All policies must be based on clear definitions of equity and inclusion while considering the experience and expertise of all stakeholders, including students, families, and teachers. Support refers to activities that enhance the school's ability to cater to student diversity. Evolving inclusive practices, e.g., orchestrating learning and mobilizing resources, help to create school environments that align with inclusive cultures and policies. Lessons are tailored to be responsive to students' diverse needs, and students are encouraged to actively engage in all aspects of their education, drawing on their knowledge and experiences outside of school. Staff members identify material resources and tap into resources within the student body, parents, and local communities to support learning and participation (Booth and Ainscow, 2011).

It is crucial to involve students with ASD in this processes, even though research has primarily focused on the perceptions of parents, teachers, or peers rather than the students themselves (Ainscow, 2020), due to the challenges in reliable and valid responses (Zurbriggen et al., 2019). Furthermore, research exposes inefficiencies of transferring inclusive school cultures and policies into inclusive practices (Roberts and Simpson, 2016; Leonard and Smyth, 2020; McDougal et al., 2020; EASIE, 2021a,b; Al Jaffal, 2022; Cruz et al., 2023) and highlights the necessity of multifaceted research on the inclusion of students with SEN/ASD (Furlano and Kelley, 2019). This includes studying their academic achievements as well as their academic inclusion (i.e., students' cognitive perceptions of their academic abilities), social inclusion (i.e., social relationships with peers), and emotional inclusion, i.e., emotional well-being at school (Venetz et al., 2019).

In line with these guidelines, research indicates that schools must adopt a whole-school approach to support students with ASD (Morewood et al., 2011; Roberts and Webster, 2020). Key elements of this model include effective intervention practices for students with ASD, school collaboration with parents, and modifying and structuring the environment, curriculum, and instruction. This comprises access to appropriate resources and support, individualization and differentiation of teaching, formative monitoring, and diversity of knowledge demonstration (Morewood et al., 2011; UNESCO, 2020). It necessitates collaborative efforts and shared responsibility from the entire school community (Ketikidou and Saiti, 2022; Subban et al., 2023). That includes developing proactive strategies for the whole school, enhancing the competence and training of school professionals in understanding the needs of students with ASD and managing their challenging behavior, establishing positive teacher-student relationships, and fostering collaborative partnerships among all stakeholders (Ainscow, 2020; Al Jaffal, 2022).

With these aims and to redefine inclusive education, developed countries (such as Germany, Sweden, Finland, Australia, Canada, the USA, and the United Kingdom) have implemented school reforms, changed norms, established professional centres, and adopted national guidelines that provide diverse ways of support, treatment, and assistance to students with ASD throughout the educational vertical (Kocjančič, 2017).

Slovenia, like many other European countries, supported the Salamanca Declaration (UNESCO, 1994) and other documents of UNESCO, UNICEF, and the UN, which aimed to promote the inclusion of children with SEN. This was followed by legislative changes, such as the Basic School Act (1996) and the Placement of Children with Special Needs Act (2000, 2011) Additionally, other documents were published to support the concept of inclusion for students with ASD/SEN, which includes a continuum from segregated to the most inclusive forms of education. Thus, the dual school system tradition is still preserved in Slovenia. Within it, less able students with ASD/SEN are directed to either an educational program with an equivalent educational standard, an educational program with a lower educational standard, or a special educational program. Students with ASD/SEN with average or above average intellectual abilities, appropriately adapted behavior, and academic achievements consistent with their abilities are directed to regular educational programs with adjusted implementation and additional professional assistance (APA). They are entitled to an individualised program (IP) and adjustments to the teaching and learning environment (Lesar, 2019).

Although we are gradually following inclusive education trends, Slovenian research (Lesar, 2019; Šilc and Schmidt, 2022) emphasises that Slovenian education is still dominated by the traditional medical model, focused on students' deficits and predetermined forms of support. This conventional perspective separates neurotypical students (i.e., students who belong in the classroom) from students with disabilities who need the help of a special educator. It is also reflected in more or less hidden expectations regarding the necessity of the child's assimilation into a system that provides insufficiently effective programs and activities for preventing and overcoming disorders and removing obstacles to learning (Vršnik Perše et al., 2016; Schmidt et al., 2021). Among these, the most common is the implementation of additional professional assistance (APA) in the "pull-out" manner (i.e., student leaving the classroom to receive APA in a specialized classroom), which, in the absence of evaluations, leads to further or new forms of exclusion and the shift of responsibility for the student's academic achievements to special pedagogues (Lesar, 2019).

An additional challenge presents the lack of a systemic solution for educating students with ASD/SEN and neurotypical students who do not fit into the current system (Vršnik Perše et al., 2016; Schmidt et al., 2021; Cruz et al., 2023). The latter is reflected in the diverse approaches of schools, such as inconsistencies in behavioral interventions and academic modifications, and the lack of support for the social skills of students with ASD. These variations in the effectiveness of school professional teams often result in hardships for students with ASD, impacting their emotional well-being, academic performance, and social development. Additionally, it creates challenges for their teachers, leading to stress and obstacles in integrating students with ASD into the classroom community and ensuring high-quality inclusive practices (Kocjančič, 2017; Šilc and Schmidt, 2022). Furthermore, research has shown that there is a lack of resources available to provide timely and appropriate professional support for students with ASD, their families, and teachers (Rogič Ožek, 2016; Šoln Vrbinc et al., 2016; Schmidt, 2018). It is also not uncommon for teachers to lack the necessary qualifications or/and training to effectively adapt teaching methods to meet the individual needs of students with ASD, including their social and emotional needs (Vršnik Perše et al., 2016; EASIE, 2021a,b). As a result, many students with ASD/SEN end up transferring to special schools after struggling academically (Topolovec and Schmidt, 2015).

There is a lack of effective collaborative partnership models for teacher education (Vršnik Perše et al., 2016; EASIE, 2021a,b), which are designed to prepare pre-service teachers to understand better their role in teaching students with disabilities (Sharma et al., 2021). The partnerships developed across universities, sectors, and schools create a collaborative environment for school leaders, special education mentors, and pre-service teachers. This approach allows pre-service teachers to gain practical experience and engage in critical analysis and reflection during their studies. It strengthens teachers' ability to adapt to the unique school culture, enhances their openness to teamwork and professional development, promotes understanding of diversity, and improves inclusive teaching methods. Additionally, it helps teachers become more flexible, adaptable, and resourceful in making adjustments for students with SEN (Lesar, 2019; Finkelstein et al., 2021; Sharma et al., 2021).

Moreover, domestic studies have highlighted the challenges of establishing inclusive school cultures, providing opportunities for the inclusion of people with ASD into the wider local community, and the lack of political will to implement necessary changes (Rogič Ožek, 2016; Schmidt, 2018; Šilc and Schmidt, 2022). This is also reflected in the failed attempt to establish a national network of professional institutions to provide holistic support for students with ASD/SEN, families, and schools after the project phase (Šoln Vrbinc et al., 2016).

The lack of analysis regarding the quality of educational inclusion for students with ASD/SEN in Slovenia (Šoln Vrbinc et al., 2016; Šilc and Schmidt, 2022) could be addressed by utilising the Slovenian adaptation of the Index for Inclusion. This can help identify potential barriers to school inclusion and promote a more inclusive learning environment.

The present study sought to explore the impact of Slovenian primary schools' inclusivity on the inclusion of their students with ASD. In particular, we hypothesised that each pedagogical dimension of inclusion (i.e., academic, social, and emotional inclusion) of students with ASD should correlate positively with each dimension of inclusiveness of primary schools (i.e., inclusive culture, policy, and practice).

The study is an attempt to fill the gap in considering the collective voice of the key stakeholders – that is of students with ASD, their parents, teachers, school counsellors, and school principals – which, in the literature, despite its importance for identifying and addressing the unique needs of students with ASD and achieving their greater inclusion, is often neglected (Ainscow and Messiou, 2018; Schmidt, 2018; Bakhtiari et al., 2021; Messiou et al., 2024).

2 Materials and methods

2.1 Participants

The sample consisted of 40 randomly selected regular Slovenian primary schools from a list of 253 schools that enrolled students with ASD provided by the Ministry of Education. The SPSS program was used to obtain a random sample (i. e. to reorder the list of schools based on their associated random number). Since in each of the selected schools there was only one student with ASD, the sample of students also consisted of 40 students with ASD (Mage = 12.18 years). The Perception of Inclusion Questionnaire (PIQ) was completed by students with ASD, their parents (one arbitrary parent per student; $N = 40$), and their teachers (three teachers per student – a Slovene language teacher, a Mathematics teacher, a Music teacher/a Physical Education teacher; $N = 120$). The Index for Inclusion questionnaire was also completed by parents of students with ASD and their teachers, as well as by school counsellors (one counsellor per school; $N = 40$) and principals (one principle per school; $N = 40$).

2.2 Instruments

2.2.1 The perceptions of inclusion questionnaire

To assess the academic, social, and emotional inclusion of students with ASD, students, their parents, and teachers were asked to fill out the adapted version of The Perceptions of Inclusion Questionnaire (PIQ-S-SLO), which exists in three versions for students from 3rd to 9th grade, for their parents and teachers (Venetz et al., 2024). The PIQ consists of three subscales – academic inclusion (e.g., I do well in my schoolwork), social inclusion (e.g., I have very good relationships with my classmates), and emotional inclusion (e.g., I like going to school). The Likert-type items have four response categories: 0 = not at all true, 1 = rather not true, 2 = somewhat true, and 3 = certainly true. In the pilot study, we added statements to the shorter questionnaire version for students based on the longer original questionnaire (Haeberlin et al., 1989). After administering a pilot test to 40 participants, where they answered 42 questions, we identified one factor for each of the three dimensions measured. From the preserved 24 statements (8 statements for each of the three subscales), we recorded two statements, namely, "*I feel lonely in class*" and "*School is boring*." The Cronbach alpha coefficient for the subscale "*emotional inclusion*" was 0.878, for the subscale "*social inclusion*" 0.902, and for the subscale "*academic inclusion*" 0.889, which indicates good reliability of the constructed variables. The three-factor structure and good internal consistency agree with the research findings for the German version of the PIQ (DeVries et al., 2021; Knickenberg et al., 2022) and the Slovenian version of the student PIQ questionnaire (Schmidt et al., 2021).

2.2.2 Index for inclusion

To measure the inclusivity of schools, an adapted version of the Index for Inclusion questionnaire (Booth and Ainscow, 2011) was used, intended for parents of students with ASD, teachers, school management, and school counsellors. The questionnaire contains 44 Likert-type statements (1 = do not agree at all, 2 = I disagree, 3 = I neither agree/neither agree, 4 = I agree, 5 = I strongly agree, 6 = I do not know/do not want to answer), divided into three scales that measure "*inclusive culture*" (7 indicators of "*building community*" and six indicators of "*establishing inclusive values*"), "*inclusive policy*" (6 indicators of "*developing the school for all*" and nine indicators of "*organizing support for diversity*") and "*inclusive school practice*" (11 indicators of "*orchestrating learning*" and five indicators of "*mobilising resources*"). For the original version of the Index for inclusion (Booth and Ainscow, 2011), we did not find any research examining its psychometric characteristics, as the studies are primarily qualitative. However, the results of the psychometric properties for the Spanish versions of the Index for inclusion confirmed good to excellent internal consistency (Cronbach alpha above 0.8) and the three-factor structure of the questionnaire (Castillo et al., 2020; Fiuza-Asorey et al., 2021).

2.3 Procedure and ethics

The survey was conducted from March to June 2022. All adult respondents filled out the online version of the Index for inclusion, while teachers and parents also filled out the online version of the PIQ. Students with ASD completed the written form of the PIQ in the presence of a school counsellor, who provided them with detailed instructions and, if necessary, guided them through the questionnaire filling process. Questionnaires were then returned either by post or email.

The research was approved by the Research Ethics Commission of the Faculty of Arts, University of Maribor. The respondents' participation was voluntary. To ensure ethical safety, written informed

consent was obtained from all participants. Since the students were under the age of 18, their parents were asked to give their written permission. All participants were allowed to ask questions and withdraw their consent at any time.

2.4 Data analysis

We used factor analysis (PCA) to evaluate the validity of the PIQ and the Index for Inclusion to check whether the respondents' entries in the individual statements of the implied questionnaires could be combined as an average into a common new variable (i.e., composite variables). Cronbach's alpha was calculated to evaluate the reliability of the subscales. Correlations between individual variables were analyzed with Pearson's correlation coefficient (r).

Multiple regression analysis was used to examine the impact of school inclusivity on the social, academic, and emotional inclusion of students with ASD. Before starting the analysis, we tested basic assumptions of linear regression analysis at the level of the entire sample of 40 schools. The assumption testing did not confirm the statistical adequacy of the regression model, which tested the impact of inclusion dimension and socio-demographic variables on the academic, social, and emotional inclusion of students with ASD. We did not interpret the models due to non-significant F-ratios.

3 Results

As a result of the factor analysis and reliability analysis, only 21 composite variables for the PIQ and 22 composite variables for the Index for inclusion were included in the further analysis. Since the composite variables represent averages of the included items, they, like the individual statements, have a range of values between 1 and 4 for the PIQ and 1 and 5 for the Index for inclusion.

The factor analysis (Table 1) confirmed the three-factor structure of the construct "*inclusion of students with ASD*." The first factor is academic inclusion, the second factor is social inclusion, and the third factor is emotional inclusion. High reliability was confirmed for all three factors (Cronbach $\alpha_2 = 0.974$; Cronbach $\alpha_2 = 0.917$; Cronbach $\alpha_3 = 0.954$). The three-factor structure and internal consistency of the three PIQ scales are also confirmed by other research (DeVries et al., 2021; Knickenberg et al., 2022).

The first-factor analysis (PCA) with the Index for inclusion items indicated six factors. Since the solution did not meet all the recommended criteria, all items extracted into a single factor independently or in pairs with only one other item were eliminated. Three factors were imposed. By eliminating individual composites according to their contribution to the formation of statistically relevant and theoretically interpretable factors, we obtained a solution with three statistically relevant and theoretically meaningful dimensions derived from a total of 10 indices for inclusion composites. The analyses confirmed that this is the optimal solution regarding construct validity and reliability of the measured subscales and the level of explained variance.

The results (Table 2) show that the Index for inclusion is not factorially confirmed regarding the dimensions of inclusive culture, policy, and practice. Nevertheless, it is possible to form three other statistically relevant and theoretically meaningful dimensions from the questionnaire items. Composites of the three subscales of the Index for Inclusion, after which the factors were also named, were appropriately classified into the resulting factors, namely the first-factor *organizing support for diversity* (subscale of inclusive policy), the second-factor *building community* (subscale of Inclusive culture) and the third-factor o*rchestrating learning* (subscale of Inclusive practice). All three factors are reliable (Cronbach $\alpha_1 = 0.861$; Cronbach $\alpha_2 = 0.573$; Cronbach $\alpha_3 = 0.882$). The three-factor structure and sound to high internal consistency of the questionnaire are also confirmed by other research (Castillo et al., 2020; Fiuza-Asorey et al., 2021), with the difference that the factors refer to the basic dimensions of the questionnaire and not the sub-dimensions as in our research. Based on preliminary factor analysis (PCA) and reliability calculation (Cronbach α coefficient), composite variables were created for the items.

The analysis of the relationship between the academic, social and emotional inclusion of students with ASD and the three inclusion dimensions (i.e., "building community," "organizing support for diversity," and "*orchestrating learning*") reveals one statistically significant correlation (Table 3). Specifically, "*orchestrating learning*" as a dimension of inclusive practice shows a weak correlation with "academic inclusion" ($r = 0.391$; $p < 0.05$). This indicates the general validity of our measurement since the two variables coincide in content. Furthermore, the analysis of the relationship between the critical pedagogical dimensions of the inclusion of students with ASD in primary schools in Slovenia indicates the existence of a positive moderate statistically significant correlation between "*academic inclusion*" and "*emotional inclusion*" ($r = 0.478$; $p < 0.01$) and between "*social inclusion*" and "*emotional inclusion*" ($r = 0.413$; $p < 0.01$). Similarly, the analysis of correlations of inclusiveness constructs (Table 3) shows the existence of a positive moderate statistically significant correlation between "*orchestrating learning*" and "*organization of support for diversity*" ($r = 0.592$; $p < 0.01$), as well as between "*building community*" and "*organizing support for diversity*" ($r = 0.396$; $p < 0.05$).

The correlation analysis between the pedagogical dimensions of the inclusion (i.e., academic, social and emotional inclusion) of students with ASD and sociodemographic variables (i.e., the gender of the students, the age of the students, the formal education of the parents, the rurality of the family's place of residence; Table 4) shows three statistically significant weak correlations, namely between "*academic inclusion*" and "*parents' formal education*" ($r = 0.323$; $p < 0.05$); "*emotional inclusion*" and "*age of students*" ($r = -0.364$; $p < 0.05$) and "*the rurality of the family's place of residence*" ($r = 0.328$; $p < 0.05$). This means that students with ASD of parents with a higher level of formal education achieve higher academic involvement than students of parents with a lower level of formal education. However, younger students and those living in a more urban environment are more emotionally involved.

Furthermore, the results of the multiple regression analysis (Table 5) did not confirm the influence of the Index for inclusion dimensions and socio-demographic variables on the academic, social, and emotional inclusion of students with ASD. The R^2 values are well below 30% in all three cases, which indicates a low overall explanatory power of all inclusiveness dimensions (between 20 and 30% of the variance).

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TABLE 1 Pattern matrix based on factor analysis of items measuring academic, social, and emotional inclusion of students with ASD.

	Academic inclusion	Social inclusion	Emotional inclusion
I am a fast learner./They are a fast learner.	0.975		
Tasks from school subjects are easy for me./Tasks from school subjects are easy for them.	0.955		
I quickly learn the material I read./They quickly learn the material they read.	0.948		
I can solve very difficult exercises. They can solve very difficult exercises.	0.909		
I have good grades in all school subjects./They have good grades in all school subjects.	0.893		
I do well in my schoolwork. They do well in their schoolwork.	0.891		
I have good grades in math./They have good grades in Math.	0.857		
Reading is not a problem for me./Reading is not a problem for them.	0.850		
I like going to school./They like going to school.		0.723	
I have many friends in my class./They have many friends in my class.		0.738	
I like it in school./They like it in school.		0.749	
I have very good relationships with my classmates. They have very good relationships with their classmates.		0.791	
I am popular among my classmates./They are popular among my classmates.		0.834	
Classmates like to hang out with me./Classmates like to hang out with them.		0.841	
I hang out with my classmates during breaks./They hang out with their classmates during breaks.		0.844	
I like school./They like school.			−0.806
I hang out with my classmates outside of class (afternoons, during weekends)./They hang out with their classmates outside of class (in the afternoons, during weekends)			−0.813
I am looking forward to school after the holidays./They are looking forward to school after the holidays.			−0.879
My classmates invite me to a conversation or a game./Their classmates invite them to a conversation or a game.			−0.919
I look forward to going to school in the morning./They look forward to going to school in the morning.			−0.942
School is not boring for me/them.			−0.945

Principal Axis Factoring with Oblimin rotation. Values below 0.4 were omitted.

Due to the high VIF value (2.197) of the "*orchestrating learning*" variable, we also performed a regression analysis, in which we excluded the remaining dimensions of inclusivity (i.e., "*building community*" and "*organizing support for diversity*") and only considered the control demographic variables (i.e., "*gender of the students*," "*age of the students*," "*the rurality of the family's place of residence*" and "*parent's formal education*"). The results show that the increase in the "*orchestrating learning*" variable corresponds to an increase in "*academic inclusion*" ($\beta = 0.331$, $p < 0.05$). Thus, we can conclude that the regression analysis reveals one conditionally (i.e., without controlling for other dimensions of inclusivity) significant pair. However, the independent variable accounts for only 15.60% ($R^2adj = 0.156$) of the dependent variable, which means that there are many other explanatory factors of the academic inclusion of students with ASD that were not included in the regression analysis.

4 Discussion

This study aimed to explore the impact of the inclusivity of Slovenian primary schools on the inclusion of their students with ASD. The analysis of the connection between the three pedagogical dimensions of their inclusion and the three dimensions of school inclusivity reveals one statistically significant correlation, i.e., a weak positive correlation between "*orchestrating learning*," as a dimension of inclusive practice, and "*academic inclusion*." Furthermore, multiple

TABLE 2 Pattern matrix based on factor analysis of items measuring Index for inclusion.

	Organizing support for diversity	Building community	Orchestrating learning
Barriers to attendance are reduced.	0.844		
The school tries to reduce the disciplinary suspensions of students by taking preventive measures.	0.771		
The school strives to prevent all forms of violence.	0.663		
Pupils who speak Slovenian as a second language receive help to reduce behavioral problems.	0.654		
A partnership relationship is established between staff and parents/guardians.		0.697	
Everyone is made to feel welcome at this school.		0.551	
Staff and school management work well together.		0.501	
Students are encouraged to take responsibility for their learning.			−0.777
Teachers use different ways of assessing students' knowledge.			−0.830
Teachers cooperate in solving problems.			−0.910

Principal Axis Factoring with Oblimin rotation. Values below 0.4 were omitted.

TABLE 3 Coefficients (r) for the correlations between Index for inclusion and Perception of Inclusion.

		Organizing support for diversity	Building community	Orchestrating learning	Academic inclusion	Emotional inclusion	Social inclusion
Organizing support for diversity	r	1	0.189	0.592**	0.282	0.162	0.163
	n	32	28	32	32	32	32
Building community	r		1	0.396*	0.126	0.056	0.146
	n		36	35	36	36	36
Orchestrating learning	r			1	0.391*	−0.023	−0.063
	n			39	39	39	39
Academic inclusion	r				1	0.478**	0.232
	n				40	40	40
Emotional inclusion	r					1	0.413**
	n					40	40
Social inclusion	r						1
	n						40

In some cases, the number is < 40 because we did not have data for all variables (missing values) for all analysed schools. *$p < 0.05$; **$p < 0.01$.

regression analyses did not confirm the influence of dimensions of inclusivity and socio-demographic variables (i.e., gender of the student, age of the student, parents' formal education, rurality of the family's place of residence) on the inclusion of students with ASD. The only conditionally significant pair (i.e., without controlling for other dimensions of inclusivity) represents the influence of "*orchestrating learning*" on "*academic inclusion*."

The study's findings indicate a discrepancy between inclusive objectives and actual practices in Slovenian primary schools. The research discovered significant correlations between inclusive school policies and practices but not between inclusive practices and school culture, revealing considerable room for improvement in inclusive education. This aligns with earlier studies that have identified several obstacles to implementing inclusion in school practices (Leonard and

TABLE 4 Coefficients (r) for the correlations between Perception of Inclusion compound variables and sociodemographic variables.

Gender of the students	r	−0.100	0.083	0.06
	n	40	40	40
Age of the students	r	−0.068	−0.364*	−0.125
	n	40	40	40
The rurality of the family's place of residence	r	0.257	0.328*	−0.027
	n	40	40	40
Parent's formal education	r	0.323*	0.077	0.149
	n	40	40	40

*$p < 0.05$.

Smyth, 2020; McDougal et al., 2020; Al Jaffal, 2022; Šilc and Schmidt, 2022; Breznikar et al., 2023). Therefore, to better support students with ASD in classrooms and assist teachers in teaching a diverse population of students, it is essential to evaluate the effectiveness of current support systems.

The Slovenian school system offers various programs and activities to help students who face challenges in learning and social inclusion, such as IP, APA, and extended programs. However, research indicates these efforts are neither particularly effective nor of high quality (Vršnik Perše et al., 2016; Cankar and Zupanc, 2020; Schmidt et al., 2021). One of the significant obstacles is the implementation of additional professional assistance (APA) for students with ASD (Vršnik Perše et al., 2016; Lesar, 2019). APA is commonly provided through a "pull-out" approach, which has some limitations. Firstly, it excludes students with ASD from the classroom. Secondly, it offers insufficient support for teachers and parents. The main reason behind this form of APA is the shortage of sufficient APA personnel, which causes the overburdening of current APA providers who have to manage many students with SEN in multiple schools. This shortage is concerning, especially since research shows that teachers require more professional support to include students with ASD than they currently receive (Leonard and Smyth, 2020; McDougal et al., 2020; Roberts and Webster, 2020). This support includes providing teaching methods, managing challenging behavior, managing a diverse student population, preparing peers to include ASD students in the classroom community, and collaborating with parents (Ravet, 2017; Roberts and Webster, 2020; Sušec Lušnic, 2020; Šilc and Schmidt, 2022).

The lack of support for teachers and students with ASD is also reflected in our findings, which show that inclusive practices (i.e., "*orchestrating learning*") have a significant impact on the academic inclusion of students with ASD but not on their social and emotional inclusion. Similarly, previous research (Majoko, 2016; Kocjančič, 2017; Ainscow, 2020; Breznikar et al., 2023) consistently shows that academic inclusion remains at the forefront of inclusive school practices. This is reflected in higher risk of students with ASD for social exclusion, bullying, low self-esteem, and negative attitude toward school and school work than their typical peers or other groups of students with SEN (Williams et al., 2019; Sušec Lušnic, 2020; EASIE, 2021a,b; Libster et al., 2022). These findings also highlight students with ASD require more support and adaptation than other groups of students with SEN (Ravet, 2017; Anderson, 2020).

These findings can play a crucial role in shaping future inclusive education policies and practices in several ways. Firstly, inclusive policies should encourage ongoing evaluations to understand better the factors that influence the academic, social and emotional inclusion of students with ASD (Japelj Pavešić et al., 2019; Ainscow, 2020; Mintz and Norwich, 2023). This will help refine inclusive practices, identify the most effective ones, and how they can be replicated in different schools or districts. Secondly, it is essential to develop and implement scalable models of inclusive education that can be adapted to various contexts and settings (Beamish et al., 2024; D'Angelo and Singal, 2024). Additionally, inclusive policies should focus on creating an inclusive culture within schools that goes beyond practices in the classroom (i.e., promoting inclusive values, encouraging peer support programs, and ensuring that school leadership is committed to inclusion; Kivirand et al., 2022). The weak correlation also indicates that inclusive practices and limiting support for students with ASD to APA alone may not be sufficient to achieve better academic, social and emotional inclusion. Therefore, inclusive policies should adopt a broader holistic approach that addresses other factors such as social–emotional support, cooperation with families, and community involvement to create a more supportive environment for all students. They should also aim to enhance teacher training, providing time, resources, and frameworks for effective teamwork, providing continuous professional development to teachers, and develop inclusive curricula that address the diverse needs of students with ASD more effectively (Kivirand et al., 2022; Radojlovic et al., 2022). On a broader scale, it entails establishing a network of experiences, ideas, support, knowledge, and effective practices between schools and the community. This also includes creating an external support system where special schools are considered resource centres for inclusive education (Šoln Vrbinc et al., 2016).

Our results also reflect the significance of promoting a positive emotional environment in schools and designing educational programs that help students establish emotional connections with their peers and the learning material. They confirm a moderate positive correlation between the social and emotional inclusion of students with ASD.

Considering these correlations is critical for Slovenian schools, as research indicates that such activities are currently underrepresented in Slovenian curricula (Kocjančič, 2017).

Furthermore, results show that students in urban areas and younger students experience greater emotional inclusion in the classroom. These findings are consistent with previous research (Trygger, 2019) confirming that the focus in higher grades lies more on academic achievements to the detriment of social and emotional factors, resulting in pupils feeling less emotionally included. This can lead to students feeling emotionally excluded, especially those with SEN, as teachers have less time to actively help them with their social relationships. The lack of appropriate support for pupils with SEN/ASD is particularly noticeable in the more rural areas of the country, where there is a shortage of school professionals such as special educators, psychologists, and others (Šoln Vrbinc et al., 2016; Schmidt, 2018; EASIE, 2021a,b).

Our results also confirmed that students with ASD whose parents have higher formal education achieve better academic inclusion. This highlights the lack of support for parents of students with ASD, especially for those with a lower socio-economic status who are unable to provide their children with self-paying leisure activities and opportunities to develop social and academic skills

TABLE 5 Results of multiple regression analysis for academic, social and emotional inclusion of students with ASD as dependent variables by Index for inclusion dimensions.

Factor	Academic inclusion	Social inclusion	Emotional inclusion
R^2	0.278	0.216	0.245
	β	β	β
Building community	−0.027	0.312	0.054
Organizing support for diversity	0.129	0.429	0.248
Orchestrating learning	0.259	−0.504	−0.201
Gender of the students	−0.092	−0.089	0.026
Age of the students	−0.074	−0.176	−0.317
The rurality of the family's place of residence	0.190	−0.193	0.210
Parent's formal education	0.250	0.317	0.135

(Kurth et al., 2020) This implies the importance of schools being more flexible in working with parents of students with SEN/ASD and reducing formalities (Roberts and Simpson, 2016; Kurth et al., 2020; Fiuza-Asorey et al., 2021; Šilc and Schmidt, 2022). While legislation acknowledges the crucial role of parents in their children's education, recent research (Fiuza-Asorey et al., 2021; Reid, 2021) reports that parents of students with SEN often experience exclusion from decision-making processes and feel unwelcome in schools.

The findings suggest that Slovenian schools, like most other school systems (Ainscow, 2020; Leonard and Smyth, 2020; EASIE, 2021a,b; Cruz et al., 2023), face significant challenges in the educational inclusion of students with ASD/SEN. Although EASIE (2021a,b) emphasizes the importance of building a wider accepting community, effectively transferring national policies to the regional, local, and school levels, and taking into account the relationship between crucial inclusion factors, Slovenia lacks a systematic and long-term whole-school approach to meet the needs of a diverse student population (Kocjančič, 2017; Lesar, 2019; Šilc and Schmidt, 2022). We assume that these issues arise partially from the lack of a legislative framework for the educational inclusion of students with ASD/SEN. Because of this, it is essential to note that the current laws only address the integration of students with SEN and do not provide any definition or explanation of the term "*inclusion*" (Placement of Children with Special Needs Act, 2011) as a foundation for creating inclusive school environments, policies, and practices (Booth and Ainscow, 2011; Ainscow, 2020). The lack of a systematic approach to inclusion of students with ASD/SEN is also reflected in the dual school system, where alternative forms of student inclusion are scarce, as well as in varying school approaches and effectiveness of professional teams, leading to significant difficulties for students with ASD and their teachers (Šoln Vrbinc et al., 2016; Vršnik Perše et al., 2016; Šilc and Schmidt, 2022).

Other challenges in teaching a diverse student population in Slovenian primary schools include the high norm regarding class size and irregularity in assigning assistants for students with ASD. According to the current Slovenian legislation, only temporary assistants are allowed for students with ASD with moderate to severe socialisation deficits or deficits in behavior, activities, and interests (Placement of Children with Special Needs Act, 2011). However, the provision of permanent assistants and the necessary qualifications of these assistants are not addressed, which is another issue that needs to be looked into.

It is also essential to highlight the absence of tools for continuous self-evaluation of inclusivity in Slovenian primary schools. Here, we should not neglect the role of the school leadership; it must be directed toward analyzing the existing situation in schools and collecting evidence regarding challenging issues (Reid, 2021; EASIE, 2021a,b). The Slovenian adaptation of the Index for Inclusion can be of great support in these processes that form the basis of effective strategies and responding to students' diversity, promoting equality, and providing more opportunities for the implementation of inclusive values and inclusion of all students within schools (Booth and Ainscow, 2011; Ainscow, 2020).

Some limitations of this research must be considered. Firstly, a direct comparison of research results from different school systems is not possible. Secondly, comparison with other research is also not possible because they did not examine the correlations between the composites of the perceptions of different groups of respondents. Another limitation of the research presents the voluntary participation of schools and parents, which means that students with ASD and their parents who have very negative school experiences may be underrepresented in the sample. The same applies to schools - we can assume that the participating schools have a higher awareness of educational inclusion for students with ASD. At the same time, it is necessary to consider that the respondents' perceptions are characterised by specific dynamics and variability over time.

Future research should transcend these limitations by using supplementary methods, a larger sample size, and analysing the perspectives of all stakeholders (i.e., students with ASD, peers, parents, school professionals, and school management) in the inclusive educational process. Additionally, comparing the inclusion of students with ASD to other groups of students with SEN and analysing the socio-demographic factors of families of students with ASD would provide valuable information.

5 Conclusion

We can conclude that inclusive cultures and policies in Slovenian primary schools do not significantly impact the

academic, social, and emotional inclusion of students with ASD. Despite a rich set of new guidelines and concepts for working with students with ASD, there is still a lack of organizational and objective conditions for inclusive school practice, for which the results show an impact only on the academic dimension of the inclusion of students with ASD, but not on the social and emotional inclusion.

The research findings emphasise the necessity for a more in-depth analysis of school inclusion and the development of more comprehensive and systematic long-term strategies to promote inclusivity in Slovenian schools. The Slovenian adaptation of the Index for Inclusion can significantly contribute to the self-analysis and monitoring of these processes and existing barriers to school inclusion for students with ASD/SEN. This involves assessing the available support for teachers and students with ASD, developing coherent system solutions, and formulating school policies that promote whole-school approaches and comprehensive support for teachers, students with ASD and their families.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The studies involving humans were approved by Ethics Committee of Faculty of Arts, University of Maribor. The studies were conducted in accordance with the local legislation and institutional requirements. Written informed consent for participation in this study was provided by the participants' legal guardians/next of kin.

Author contributions

MŠ: Writing – original draft, Conceptualization, Data curation, Formal Analysis, Investigation, Methodology. ML: Formal Analysis, Methodology, Writing – review & editing. MS: Conceptualization, Writing – review & editing.

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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