BEHAVIOR DURING LESSON AND PARTICIPATION IN LEISURE ACTIVITIES AMONG STUDENTS WITH AUTISM AND INTELLECTUAL DISABILITIES

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Abstract

Participation in leisure activities constitutes an important aspect of student inclusion in school life. This study aims to compare teachers' assessments of the participation of autistic students and students with intellectual disabilities, as well as to examine the links with self-reported knowledge and perceptions of behavior during lessons. The study has a quantitative cross-sectional design, with a descriptive, comparative and exploratory character, and includes 80 teachers from five primary schools in Tetovo. Data were collected through a structured questionnaire, where the same teachers provided assessments for both categories of students. Descriptive statistics, the Stuart–Maxwell test, the paired-samples t-test, and Pearson's χ^2 test were used for the analysis, reporting effect sizes and applying the Holm correction for multiple testing. The results indicated a difference in the distribution of responses regarding participation, $\chi^2(2) = 14.35$, $p \approx 0.0002$, primarily between the categories "No" and "Sometimes." The composite index of perceptions regarding leisure activities was higher for intellectual disabilities ($M = 2.60$; $SD = 0.46$) than for autism ($M = 2.34$; $SD = 0.71$), $t(79) = 3.71$, $p < 0.001$, $d_z = 0.41$. Self-reported knowledge was associated with reported participation for both categories, whereas the association with a preference for following rules remained statistically significant after correction only for the intellectual disabilities group. The findings highlight differences in teachers' perceptions and underscore the need to further examine the conditions and support that facilitate participation in leisure activities.

Keywords: inclusive education; leisure activities; autism; intellectual disabilities; teachers' perceptions.

Introduction

Inclusion in school relates to the opportunities for a student to engage in the learning process, participate in activities, and build relationships with peers. Leisure activities create spaces for choice, collaboration, and expression of individual interests, complementing the classroom learning experience. For autistic students and students with intellectual disabilities, examining these activities helps in understanding both the opportunities for engagement and the barriers that may arise in daily school life. Consequently, assessing inclusion requires attention to how students participate, the support provided to them, and the relationships they develop during these activities.

Participation is a multidimensional phenomenon, which is related to individual characteristics and environmental conditions. In a review of 63 empirical studies, Wang et al. (2025) identified shared activities, social behavior, peer relationships, and social self-perception as key areas of participation that have been examined. The authors identified factors related to the student, peers, teachers, and the support provided. This perspective suggests that any description of participation must account for both engagement in an activity and the social experience that accompanies it.

Studies on leisure activities indicate that the opportunities for and forms of participation vary according to students' needs and the settings in which the activities take place. Sanches-Ferreira et al. (2019) reported differences in the forms and settings of participation between children with and without disabilities. Tsou et al. (2026) found that interventions could increase access to school activities for autistic students, but improvements in friendships and reciprocal relationships were not always consistent. These findings underscore the importance of

distinguishing between the opportunity to participate and the quality of interaction during an activity.

The physical and organizational conditions of a school represent another significant aspect of participation. Li et al. (2024) reported a link between the difficulties autistic students experienced within the physical school environment and their level of participation. Drawing on parental reports, Farrell et al. (2024) identified differences in participation and experiences regarding leisure activities between autistic children and their neurotypical peers. Regarding students with intellectual and developmental disabilities, Eldeniz Çetin and Çay (2020) examined the experiences and suggestions of special education teachers concerning leisure activities selected by the students. Collectively, these studies draw attention to the adaptation of the environment, the organization of activities, and the consideration of individual interests and choices. However, their findings do not provide direct comparisons between autism and intellectual disabilities.

Teachers play an important role in planning activities and creating conditions for shared engagement. Their knowledge, experience, and professional self-confidence can influence how they perceive students' needs and evaluate opportunities for participation. In a study involving teachers in Germany, Wittwer et al. (2024) reported that experience in teaching autistic students was associated with greater knowledge and professional self-confidence. This study provides context for examining teacher preparation, although it did not directly measure student participation in leisure activities.

Literature on inclusive education also addresses the attitudes and professional conditions within which support practices take place. Boyle et al. (2023) examined the attitudes of pre-service teachers toward inclusion, while Specht et al. (2024) analyzed factors related to self-confidence in implementing inclusive practices. Arranz-Sánchez and Espada-Chavarría (2025) explored attitudes and perceived barriers to inclusion, whereas Subban et al. (2022) summarized students' experiences within inclusive education. These contributions support the examination of teachers' perceptions alongside school conditions and the experiences of the students themselves.

The importance of organizing activities is also evident in specific educational contexts. Tarantino et al. (2025) examined teachers' attitudes toward inclusion in physical education, where shared engagement requires the adaptation of tasks and modes of participation. Duka et al. (2024), through a qualitative approach, addressed the supportive climate in inclusive classrooms and its relationship with motivation. These perspectives contribute to the discussion regarding the pedagogical value that teachers attribute to activities and the environment in which they take place.

In North Macedonia, Agai et al. (2025) examined the attitudes of primary school teachers toward inclusion, while Memedi et al. (2026) analyzed the attitudes of secondary school teachers across physical, academic, social, and behavioral dimensions. Kingsdorf et al. (2024) addressed perceptions regarding the needs of and services for autistic children, including participants from North Macedonia. These works provide a local context for discussing inclusion and support, whereas the current study focuses on assessments of leisure activities and their relationship to teachers' knowledge and reported student behavior during instruction.

The purpose of this study is to compare the assessments of primary school teachers in Tetovo regarding the participation of autistic students and students with intellectual disabilities in leisure activities, as well as their perceptions of the pedagogical contribution of these activities. Furthermore, the study examines the relationship between reported participation, the teachers' self-reported level of knowledge, and their assessment of whether students enjoy following rules during instruction. The comparisons are based on the responses of the same teachers for both categories and reflect their perceptions of the students being evaluated.

To guide the exploratory analysis, four hypotheses were formulated. **H1 – Participation:** The distribution of teachers' responses regarding participation in leisure activities differs between assessments for autistic students and those for students with intellectual disabilities. **H2 – Perceptions of activities**: The composite indicator of teachers' perceptions regarding leisure activities differs between assessments for autistic students and those for students with intellectual disabilities. **H3 – Teachers' knowledge**: The level of teachers' self-reported knowledge is associated with responses regarding participation in leisure activities, separately for autistic students and students with intellectual disabilities. **H4 – Willingness to follow rules during instruction:** Teachers' responses regarding a student's willingness to follow rules during instruction are associated with responses regarding participation in leisure activities, separately for autistic students and students with intellectual disabilities.

Method

Study design and participants

The study employs a quantitative design with descriptive, comparative, and exploratory characteristics. It examines teachers' assessments regarding the participation of autistic students and students with intellectual disabilities in leisure activities, their perceptions of the pedagogical contribution of these activities, and the associations with self-reported knowledge and the reported preference for following rules during instruction.
The target population consisted of primary school teachers in Tetovo. The sample included 80 teachers from five primary schools: “Kirili dhe Metodi,” “Istigball,” “Liria,” “Naim Frashëri,” and “Përparimi.” The unit of analysis was the individual teacher. The same participants completed the questionnaire for both categories, evaluating a specific student for each category. Consequently, comparisons between the assessments for autistic students and those for students with ID were treated as paired comparisons.
In the sample, 52.5% of the participants were female and 47.5% were male. The largest proportion consisted of participants from the oldest age group (47.5%). A total of 26.3% of the teachers reported having attended seminars, while 73.8% stated that they had not. The characteristics of the sample are presented in Table 1.

Table 1. Sample characteristics (N = 80)

Characteristic	Category	n (%)
Gender	Female	42 (52,5)
	Male	38 (47,5)
Age	Under 35 years old	15 (18,8)
	36–45 years old	27 (33,8)
	Over 46 years old	38 (47,5)
Attending seminars	Have attended	21 (26,3)
	Have not attended	59 (73,8)

Source. Own research

Instrument

A structured questionnaire was used for data collection, covering teacher characteristics as well as questions regarding behavior during lessons and participation in leisure activities. For each category of students, the questionnaire included 15 questions on behavior during lessons and 15 questions on leisure activities. The response options for these questions were “Yes,” “No,” and “Sometimes.”

To test **H1 – Participation**, responses to the question about involvement in leisure activities were used. For **H3 – Teachers' knowledge**, these responses were examined according to the level of self-reported knowledge, categorized as "Sufficient", "Little" and "Not at all". For **H4 Preference for Following Rules During Lessons**, the analysis examined the relationship between reported participation and responses to a question about whether the student enjoys following rules during lessons. This question reflects the teacher's assessment of the student's preference and does not constitute a direct measure of actual rule compliance. To test **H2— Perceptions regarding activities,** a composite indicator was constructed based on three questions: reported participation in optional activities, the perceived impact of activity planning on motivation during instruction, and the perceived impact of the activities on the learning process. Responses were recoded as follows: "Yes" = 3, "Sometimes" = 2, and "No" = 1. The indicator was calculated as the mean of the three responses, with a potential range of 1 to 3. Higher values indicated more positive responses regarding participation and the pedagogical contribution of the activities.

The internal consistency of the indicator was assessed using Cronbach's alpha coefficient, which was 0.887 for evaluations related to autism and 0.777 for evaluations related to intellectual and developmental disabilities. The indicator served as an exploratory summary of teachers' perceptions. It was not treated as a validated scale of participation, as it simultaneously encompasses both reported participation and the perceived pedagogical contribution of the activities.

Procedure and ethical aspects

Prior to conducting the research, permission was sought from the principals of the respective schools. Teachers were informed about the purpose of the study, the voluntary nature of participation, and the maintenance of data confidentiality. The questionnaire was completed only by participants who provided their consent; they offered assessments regarding students with autism and students with intellectual disabilities. Responses were analyzed at the group level, and the results are presented in a summarized format, without identifying any individual teachers or students.

Statistical analysis

Frequencies and percentages were used to describe the sample. Responses regarding behavior during instruction and participation in leisure activities were described using percentages, while for the composite indicator, the mean (M), standard deviation (SD), and Cronbach's alpha (α) coefficient were calculated.

To test H1, the Stuart–Maxwell test was used, which examines differences in the distribution of paired categorical responses. The p-value was estimated via 100,000 paired permutations. For H2, a paired-samples t-test was employed, reporting the mean difference, the 95% confidence interval, and the effect size (d_z). The result was also verified using the Wilcoxon test to assess its robustness via a non-parametric method.

For H3 and H4, cross-tabulations and Pearson's χ^2 test were used, analyzed separately for autism and intellectual disabilities (ID). The strength of the associations was estimated using Cramér's V coefficient. Due to small expected frequencies in some cells, p-values were estimated through 50,000 permutations for each test. The relationship between attending seminars and reported participation in leisure activities was examined as a supplementary analysis, conducted separately for both categories. The threshold for statistical significance was set at 0.05. To account for multiple testing, the Holm correction was applied to the eight reported tests: H1, H2, the two tests for H3, the two tests for H4, and the two supplementary

analyses regarding the seminars. The Wilcoxon test served as a robustness check for H2. The results are interpreted with consideration for the exploratory nature and the interrupted design of the study.

Results

The results present the assessments provided by the same teachers regarding students with autism and students with intellectual disabilities. First, the responses concerning behavior during lessons and during leisure activities are described; subsequently, the comparisons and associations examined through four hypotheses are presented.
Participation in leisure activities was most frequently reported as occurring "sometimes" for both categories of students. The percentage of "Yes" responses was similar for autism and ID—31.3% and 32.5%, respectively. More notable differences appeared in the "No" responses, which were more frequent for autism, and the "Sometimes" responses, which were more prevalent for ID. The primary responses regarding behavior during lessons and leisure activities are presented in Table 2.

Table 2. Teachers' assessments of behavior during lessons and leisure activities (%)

Indicator	Category	Yes	No	Sometimes
Enjoys following the rules during lessons	Autism	21,3%	18,8%	60,0%
	ID	16,3%	40,0%	43,8%
Tries to remain seated during lessons	Autism	41,3%	12,5%	46,3%
	ID	60,0%	11,3%	28,8%
Participates in leisure activities	Autism	31,3%	27,5%	41,3%
	ID	32,5%	7,5%	60,0%
Prefers collaboration during activities	Autism	37,5%	22,5%	40,0%
	ID	35,0%	16,3%	48,8%
Has difficulty working with a peer	Autism	65,0%	10,0%	25,0%
	ID	46,3%	23,8%	30,0%
Planning activities influences motivation during lessons	Autism	63,8%	18,8%	17,5%
	ID	86,3%	5,0%	8,8%
Activities have a positive impact on the learning process	Autism	71,3%	17,5%	11,3%
	ID	80,0%	6,3%	13,8%

Source. Own research

Regarding behavior during lessons, the response “Sometimes” was the most frequent choice concerning adherence to rules, both for the autism group (60.0%) and the ID group (43.8%). Difficulties in working with a peer were reported more often—indicated by the response “Yes”—among the autism group (65.0%) compared to the ID group (46.3%). Meanwhile, positive assessments regarding the pedagogical contribution of the activities were more frequent than positive responses concerning participation itself. The influence of activity planning on motivation was acknowledged by 63.8% of the autism group and 86.3% of the ID

group, while a positive impact on the learning process was reported by 71.3% and 80.0%, respectively.

For **H1 – Participation**, the Stuart–Maxwell test indicated a statistically significant difference between the response distributions for the two categories, $\chi^2(2) = 14.35$, $p \approx 0.0002$. The difference was primarily associated with the responses "No" and "Sometimes," while the percentages for the "Yes" response were similar. The result remained significant after the Holm correction and supported H1.

For **H2 – Perceptions of activities**, the composite indicator showed a higher mean for ID ($M = 2.60$; $SD = 0.46$) than for autism ($M = 2.34$; $SD = 0.71$). The mean difference was 0.26 points, with a 95% confidence interval of [0.12; 0.40]. A paired-samples t-test indicated that this difference was statistically significant, $t(79) = 3.71$, $p < 0.001$, with an effect size of d_z = 0.41. The result remained significant after the Holm correction and was also supported by the Wilcoxon test ($p = 0.0017$). These findings supported H2.

Regarding **H3 – Teachers' knowledge**: 41.3% of participants reported having sufficient knowledge, 38.8% reported having some (limited) knowledge, and 20.0% reported having no knowledge at all. The response "Yes" regarding the participation of autistic students was given by 45.5% of teachers with sufficient knowledge, 32.3% of those with limited knowledge, and 0.0% of those who reported having no knowledge. For ID, the corresponding percentages were 48.5%, 32.3%, and 0.0%. The association between knowledge and reported participation was statistically significant for autism, $\chi^2(4) = 37.93$, $p < 0.0001$, $V = 0.487$, and for IDD, $\chi^2(4) = 15.29$, $p = 0.0036$, $V = 0.309$. Both associations remained significant after the Holm correction, supporting H3 for both categories.

Regarding **H4 – Willingness to follow rules during lessons:** a statistically significant association was found with reported participation for ID, $\chi^2(4) = 39.33$, $p < 0.0001$, $V = 0.496$, which remained significant after the Holm correction. For autism, the test yielded $\chi^2(4) = 10.50$, $p = 0.0320$, $V = 0.256$; however, the association did not remain significant after correction (corrected $p = 0.096$). Consequently, H4 was supported only for assessments related to IDD. A summary of the tests is presented in Table 3.

Table 3. Summary of hypothesis testing and supplementary analyses

Hypothesis or analysis	Category	Statistic	df	p	Size of association / effect
H1. Participation	Autism versus ID	Stuart–Maxwell $\chi^2 = 14,35$	2	≈ 0,0002	-
H2. Perceptions of activities	ID versus autism	t = 3,71	79	< 0,001	d_z = 0,41
H3. Knowledge and participation	Autism	Pearson $\chi^2 = 37,93$	4	< 0,0001	V = 0,487
H3. Knowledge and participation	ID	Pearson $\chi^2 = 15,29$	4	0,0036	V = 0,309
H4. Rules and participation	Autism	Pearson $\chi^2 = 10,50$	4	0,0320	V = 0,256
H4. Rules and participation	ID	Pearson $\chi^2 = 39,33$	4	< 0,0001	V = 0,496
Supplementary: Seminars and participation	Autism	Pearson $\chi^2 = 4,85$	2	0,0918	V = 0,246

Hypothesis or analysis	Category	Statistic	df	p	Size of association / effect
Supplementary: Seminars and participation	ID	Pearson χ^2 = 0,60	2	0,7899	V = 0,086

Note. df = degrees of freedom; V = Cramér coefficient; d_z = effect size for paired comparisons. The table presents uncorrected p-values. P-values for the χ^2 tests were estimated using permutations. After Holm correction, H1, H2, H3 for both categories and H4 for ID remained statistically significant. The V values for autism and ID do not constitute a direct test of the difference between the strength of the associations.
Source. Own research

Additional analyses showed no statistically significant association between attending seminars and reported participation in leisure activities, neither for autism (p = 0.0918) nor for ID (p = 0.7899).
At a descriptive level, attending seminars was associated with a more positive distribution of responses regarding the relationship with the student. Among teachers who had attended seminars, 81.0% described the relationship as good and 19.0% as neutral; none reported a difficult relationship. Among those who had not attended seminars, 55.9% reported a good relationship, 27.1% a neutral one, and 16.9% a difficult one. These percentages describe the relationship with the student and represent an indicator distinct from participation in leisure activities.

Discussion

The purpose of this study was to compare teachers' assessments of the participation of autistic students and students with ID in leisure activities, and to examine the associations with self-reported knowledge and reported willingness to follow rules during instruction. The results supported the first three hypotheses, while the fourth hypothesis was supported only for students with ID after correcting for multiple comparisons. The findings highlight differences in how teachers describe participation and the pedagogical contribution of the activities, as well as associations between some of these assessments.
Regarding H1, the difference in the distribution of responses was primarily related to the categories “No” and “Sometimes,” whereas the percentage of “Yes” responses was nearly identical for both autism and intellectual disabilities. Therefore, the result does not support a general conclusion that students in one category participate more across all circumstances. Instead, it indicates that teachers reported a lack of participation more frequently for autistic students, and occasional participation for students with intellectual disabilities. The prevalence of the response “Sometimes” for both categories draws attention to the conditions under which activities take place and the support that enables engagement.
This interpretation aligns with the multidimensional concept of participation presented by Wang et al. (2025), according to which shared activities, social behavior, peer relationships, and social self-perception represent distinct aspects of inclusion. Sanches-Ferreira et al. (2019) also highlighted variations in the forms and settings of participation in leisure activities. In our study, the categorical responses do not provide information regarding the frequency, duration, or quality of engagement. Consequently, participation reported as "occasional" may encompass diverse experiences that warrant more detailed examination.
The studies by Li et al. (2024) and Farrell et al. (2024) provide context regarding the importance of the environment and activity conditions for the participation of autistic children. However,

such factors were not directly measured in our study and cannot be used to explain the difference observed between the assessments for autism and those for intellectual and developmental disabilities. Furthermore, Tsou et al. (2026) demonstrated that increased access to activities is not always associated with improvements in friendships and reciprocal relationships. This underscores the need to examine participation also through the lens of the student's own experience and the quality of their interactions with peers.

Regarding H2, the composite indicator of perceptions concerning leisure activities was higher for ID than for autism. This result should be interpreted in light of the indicator's content, which combines reported participation with the perceived impact of the activities on motivation and the learning process. Positive responses regarding pedagogical contribution were more frequent than positive responses regarding participation itself. This suggests that teachers may consider the activities beneficial even when student engagement is reported as only occasional. Consequently, the higher mean for ID reflects a more positive combination of these perceptions and does not represent a direct measure of student benefit.

In this regard, Duka et al. (2024) provide a useful context for discussing a supportive classroom climate and its link to motivation. Similarly, the work of Eldeniz Çetin and Çay (2020) places the selection of activities and the experience of teachers at the core of examining leisure activities for students with ASD. These perspectives underscore the importance of organizing activities based on the interests and needs of the students. In our study, although the indicator demonstrated satisfactory internal consistency, this is insufficient to claim that the three items measure a single construct. Its use remains exploratory.

Regarding H3, teachers' self-reported knowledge was associated with their responses concerning the participation of both categories of students. Teachers who indicated having sufficient knowledge reported higher levels of student participation compared to those who reported having little or no knowledge. This finding aligns with the literature's focus on professional preparation as a key condition for inclusive education. Wittwer et al. (2024) identified links between experience in teaching autistic students, knowledge, and professional self-confidence. However, in our study, knowledge was measured via self-assessment; therefore, these reports may simultaneously reflect experience, professional assurance, and the individual's interpretation of the survey questions. It cannot be determined whether greater knowledge facilitates higher levels of participation, or whether experience with student participation influences how teachers self-assess their own knowledge.

Local studies by Agai et al. (2025) and Memedi et al. (2026), along with the contribution of Kingsdorf et al. (2024), situate professional preparation and perceptions regarding inclusion within a broader educational and societal context. Our findings complement this discussion by focusing on leisure activities and teachers' assessments concerning two categories of students. However, differences in instruments, samples, and indicators preclude a direct comparison of the magnitude of the results across these studies.

Regarding H4, the association between the reported level of adherence to rules and participation remained statistically significant for ID, whereas for autism, it did not remain so following the Holm correction. This result indicates a link between two teacher-rated measures for ID, but it does not demonstrate that adherence to rules causes greater participation. Furthermore, the presence of statistical significance in one category and its absence in the other does not prove that the strength of the association differs between autism and ID; such a conclusion would require direct testing. Participation in activities should be supported based on the student's needs, while responses concerning adherence to rules must be interpreted within the context of the specific question and the teacher's own perceptions.

Additional analyses showed no statistically significant relationship between attending seminars and reported participation in leisure activities. Meanwhile, at a descriptive level, teachers who had attended seminars reported having good relationships with their students more frequently.

These results refer to two different indicators and are not contradictory. Furthermore, the question regarding seminar attendance provides no information about the content, duration, timing, or practical application of the knowledge gained. Therefore, the absence of a statistically significant relationship should not be interpreted as evidence that professional development lacks value.

From a practical point of view, the findings support more careful consideration of how leisure activities are planned and adapted. Teacher preparation can include identifying students' interests, providing choices, adapting communication, and organizing collaboration with peers. Evaluation of activities should include not only attendance or general response to participation, but also engagement, enjoyment, and opportunities for interaction.

The results should be interpreted taking into account several limitations. The sample included teachers from five schools in one municipality, which limits the generalizability of the findings, while the analyses did not take into account the grouping of participants by school. The cross-sectional design precludes causal inferences. The data is based on teacher assessments, without direct observations or student and parent perspectives. Moreover, knowledge, behavior, and participation were all reported by the same individual, a factor that may contribute to the observed associations. The psychometric validation of the questionnaire has not been documented, and the composite indicator encompasses various facets of perceptions regarding the activities. Future studies should use more detailed measures of participation, include several sources of information, and examine the concrete conditions under which activities enable engagement and mutual relationships.

Conclusions

The study revealed differences in teachers' assessments regarding the participation of autistic students and students with intellectual and developmental disabilities in leisure activities. The percentage of positive responses was similar for both categories; however, the distinction primarily stemmed from a higher frequency of reported non-participation for autistic students, compared to occasional participation for students with ID. The composite index of perceptions regarding these activities was higher for students with ID, reflecting more positive evaluations based on a combination of reported participation and perceived pedagogical contribution.

Teachers' self-reported knowledge was associated with reported participation in both categories. The association between willingness to follow rules during learning and participation remained statistically significant after correcting for multiple testing for ID only. Attending seminars did not show a statistically significant association with participation in discretionary leisure activities. These results reflect teachers' perceptions and do not allow for causal conclusions.

In school practice, these findings highlight the importance of planning accessible activities, tailoring support, and respecting students' interests and choices. Teachers' professional development should be accompanied by opportunities for classroom implementation and evaluation. Future research should incorporate direct observations as well as the perspectives of students and their families to better understand the quality of participation and the conditions that support it.

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