



Social-Emotional Skills and Intrinsic Motivation Among Learners with Autism in Special Education Settings

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Abstract

Learning for students with autism involves social-emotional competence and intrinsic motivation, especially when education occurs in special education settings where formal support is often needed. The study was quantitative, secondary data, and focused on the level and pattern of social-emotional skills and intrinsic motivation of learners with autism in the special education school environment. Analysis involved 21 learners and demonstrated chi-square associations with selected background variables for 16 social-emotional skill indicators and 16 intrinsic-motivation indicators. Frequencies, percentages, item means, and aggregate means were summarized using descriptive statistics and existing results from chi-square analysis were determined at the $\alpha = .05$ level of significance. Calculations indicated that there was an adequate overall level of social-emotional skills with an overall mean of 2.53, with relatively higher levels of task completion, persistence, and learning-related behaviors. Decreased scores on turn-taking, understanding the feelings of peers and solving interpersonal problems without aggression were found. The overall mean for intrinsic motivation was found to be 2.48, which was relatively low, but there was relatively greater effort of learners and interest in selected learning activities. There was no association between the two major constructs and any demographic characteristics measured. The results emphasize the need for personalized education that enhances emotional regulation, interaction with peers, personalization and meaningfulness of the learning procedure for learners with autism.

Keywords:

- autism spectrum disorder
- social-emotional skills
- Multivariate analysis
- learner engagement
- special education

1. Introduction

Autism spectrum disorder refers to lasting difficulties with social communication, social interaction, behavioral flexibility, and emotional regulation that may affect participation in educational settings. Social-emotional functioning is particularly relevant for learners with autism as impairments in understanding, expressing, and controlling emotions can impact their engagement in the classroom, social interactions, task completion, and ability to adapt to others' behaviors. The difficulties with emotion regulation are well-documented and occur throughout the autism spectrum and are linked to behavioral and social functioning throughout development (Beck et al., 2020). In special educational contexts, the difficulties involve educational responses that extend beyond academic achievement to include social competence, behavioural control and emotional development.

Social-emotional skills are generally defined as having to do with self-awareness, emotional regulation, interpersonal understanding, persistence, cooperation, and socially appropriate problem solving. These skills now play a more important role in successful learning and school involvement. Structured SEL has been found to have positive behavioral, interpersonal and academic impacts when implemented systematically (Cipriano et al., 2023), based on evidence from school-based research. However, interventions may need to be adapted to the personal communication, behavioral, and cognitive makeup of the students with special educational needs. SEL interventions appear to benefit students tackling a wide range of special educational needs, but with some context and individual learner factors, interventions can be effective (Hassani & Schwab, 2021). In special education settings, positive behavioral support has also been deemed as one of the factors that can enhance an individual's adaptive functioning when they have a developmental disability (Beqiraj et al., 2022).

Peer interactions and social participation are areas of difficulty for autistic learners, and social skills are a very important educational goal. School-based interventions shown to be effective for autistic students hold promise of enhancing observed social outcomes, particularly when school-based interventions are integrated into natural school environments (Dean & Chang, 2021). Participation is complex and is affected by a variety of reasons, including the nature of the relationship, classroom expectations, environmental support and opportunities for meaningful participation. Parents and educators have reported that participation, belonging, predictability and individual support are key aspects of the school experiences of autistic children (Hodges et al., 2020). Qualitative evidence also suggests that supportive aspects like structured routines, relational support, adaptation of instruction and recognition of individual needs can enhance the inclusive educational experiences of students with autism (Petersson-Bloom & Holmqvist, 2022).

Teacher factors are also relevant as teachers affect classroom social climate and motivational conditions. Teachers' readiness to work with autistic learners and inclusive teaching practices can be enhanced via training and professional preparation (Kisbu-Sakarya & Doeniyas, 2021). Furthermore, positive student-teacher relationships have been linked to better classroom behavioral engagement of young autistic students (Losh et al., 2022). Findings from related special education research also show positive links between supportive teacher-student relationships and greater school engagement, suggesting that positive relations might also positively influence persistence and active engagement of autistic students (Roorda et al., 2021).

Another aspect of learning is intrinsic motivation. Doing something due to interest, enjoyment or personal value or satisfaction, not because it is required outside of oneself. Motivation in special education is multi-faceted, as students might need more structure, reinforcement, and individualized attention but could also be motivated to learn by opportunities to gain autonomy, interest, and competence (Martin, 2021). A technique that has been especially relevant to autism is the use of individual interests to incorporate them into learning activities. Single case evidence suggests that the inclusion of preferred interests may make a difference to engagement and participation of people

with autism (Ninci et al., 2020). Social motivation is also a relevant factor as autistic children vary in seeking, enjoying and maintaining social interaction in natural situations (Yu et al., 2023).

In addition to intrinsic motivation, self-determination and learner participation converge. Promoting choice, autonomy, and participation in educational transitions can positively impact autistic students' self-determined behavior (Webster et al., 2022). Both providing significant experiences for autistic pupils to take part in educational decision making and reinforcing a sense of ownership of learning experiences can also have an impact on engagement (Zilli et al., 2020). Though this is a growing body of evidence, there is a dearth of studies that have explored social-emotional skills and intrinsic motivation in learners with autism in special education contexts. Knowledge of both together could give a more comprehensive picture of how an autistic learner controls their emotions, how they communicate socially, their ability to stay on task and their interactions with learning activities.

Objectives

- To measure in general the level of social-emotional skills of learners with autism.
- To assess students with Autism's intrinsic motivation and motivation pattern.
- To investigate if the social-emotional competencies and intrinsic motivation differs by demographic factors.

2. Materials and Methods

2.1 Research Design

This investigation used a quantitative secondary data research design approach to explore the social-emotional skills and intrinsic motivation of students with autism in special education. The data obtained and the existing data titled "Impact of Modular Learning on the Social-Emotional Development of Learners with Autism in Public Sped Centers" were used in the analysis. Secondary data sources reduced the need for new primary data collection to evaluate reported patterns of behavior and motivation.

2.2 Data Source and Study Population

The data contained 21 learners with autism in public Special Education (SPED) programs. It contained learner-related factors like age, gender and parent-related factors like age, gender, civil status, education level, occupation and merged monthly wages. Only information from the original dataset was used; no synthetic respondent-level observations were created (Linux, 2024).

2.3 Study Variables

Social-emotional skills and intrinsic motivation were the two main study variables. Social-emotional skills were depicted through 16 indicators related to emotional regulation, patience, self-control, persistence, task completion, peer understanding, learning behavior and non-aggressive problem solving. 16 indicators of intrinsic motivation were measured, including interest, enjoyment, effort, perceived usefulness, willingness to engage in learning activities, satisfaction, anxiety, boredom, and the amount of energy that was invested in completing learning tasks.

2.4 Data Preparation

The original information was cleaned and created as a structured CSV dataset. Labels for the variables were standardized and records were categorized into four groups: learner profile, parent profile, SE skills, intrinsic motivation, and demographic association. The mean, percentages, frequencies, chi-square, degrees of freedom, critical values, and significance decisions were left unchanged from the source data. Most of the data available were aggregated, so that individual participant responses were not reconstructed.

2.5 Statistical Analysis

The research variables were condensed using descriptive statistics. Demographic characteristics were presented as frequencies and percentages, while the level of social-emotional skills and intrinsic motivation were presented as means and aggregate means. Previously reported chi-square tests of association were also included in the dataset and examined to determine if the two primary constructs varied by selected demographic characteristics. The criterion for statistical significance was based on $\alpha = .05$. The raw data for the respondents were not provided, so there was no possibility of performing correlation, regression, mediation or structural equation modeling.

2.6 Ethical Considerations

The research was a secondary analysis of an existing data set, so there was no direct interaction with learners, parents and teachers. No personal information was gathered or created. The data were only used for academic purposes and results were analysed at the group level to preserve confidentiality. Special attention was paid to presenting information on learners with autism in a respectful and non-stigmatising way, in line with ethical guidelines on protecting vulnerable groups, responsible use of data and privacy.

3. Results

3.1 Demographic Characteristics of the Learners

A total of 21 learners with autism in special education settings were entered in the study. As shown in Table 1, most of the learners were aged 10-12 years, with 38.10% and 28.57% aged 6-7 years. A total of 19.05% of learners were between 8 and 9 years old, and 14.29% were 13 years and older. Many of the learners in the sample were male, with

16 learners accounting for 76.19% of the total learners, while only five students were female, accounting for 23.81%. The learners' age distribution is shown in Figure 1 and is found to be skewed towards the 10–12-year age group.

Table 1. Demographic Characteristics of Learners with Autism

Characteristic	Category	Frequency	Percentage (%)
Age	6–7 years	6	28.57
	8–9 years	4	19.05
	10–12 years	8	38.10
	13 years and above	3	14.29
Gender	Female	5	23.81
	Male	16	76.19

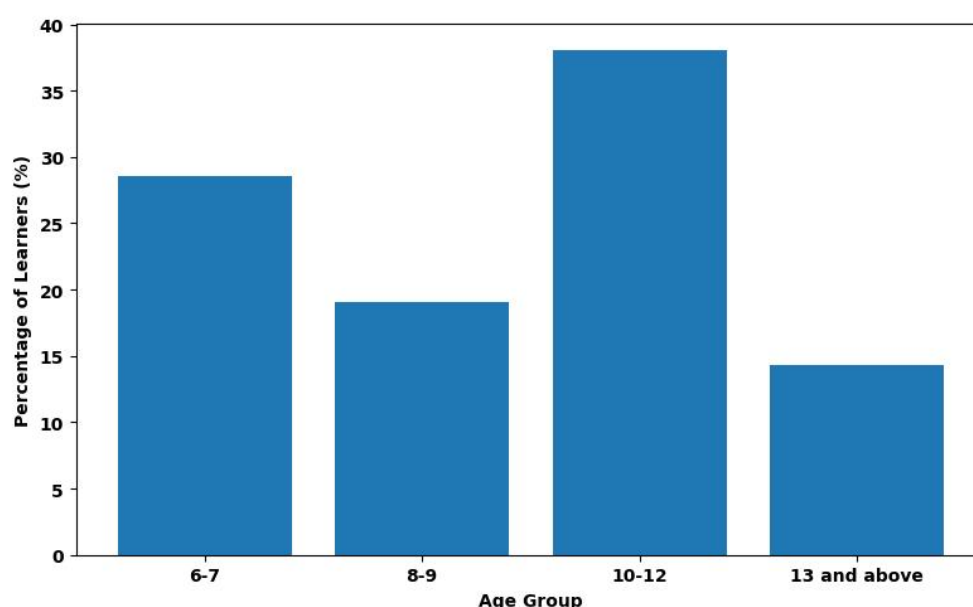


Figure 1. Age distribution of learners with autism included in the study

3.2 Demographic and Socioeconomic Characteristics of Parents

The background information on parents is given in Table 2. The ages of most of the parents were between 36 and 40 years (42.86%) and above 40 years (38.10%). Of the respondents, 61.90% were female parents, while 80.95% were married. In terms of education level, 38.10% had achieved college, 33.33% had achieved high school, and 28.57% had attained college education. The occupational profile was varied, with housewife being the most common occupation (28.57%). With reference to household income, the highest percentage of 33.33% reported a combined monthly income of PhP 9,100 – 18,200, while 28.57% had a monthly revenue of less than PhP 9,100.

Table 2. Selected Demographic and Socioeconomic Characteristics of Parents

Characteristic	Category	Frequency	Percentage (%)
Age	26–30 years	2	9.52
	31–35 years	2	9.52
	36–40 years	9	42.86

	More than 40 years	8	38.10
Gender	Female	13	61.90
	Male	8	38.10
Civil status	Married	17	80.95
	Single	4	19.05
Educational attainment	High School Graduate	7	33.33
	College Level	6	28.57
	College Graduate	8	38.10
Monthly income	Less than PhP 9,100	6	28.57
	PhP 9,100–18,200	7	33.33
	PhP 18,200–36,400	3	14.29
	PhP 36,400–63,700	3	14.29
	PhP 63,700–109,200	1	4.76
	PhP 109,200–182,000	1	4.76

3.3 Social-Emotional Skills of Learners with Autism

Table 3 shows the item-level performance of social-emotional skills. The overall aggregate mean was 2.53 (moderate). The ability to work on tasks until completion had the highest mean score (2.86). Reading materials covered by the teacher and doing schoolwork due to personal interest both scored 2.71. In contrast, scores for interpersonal and self-regulatory indicators were comparatively low. When problems with siblings and peers were solved through non-aggression, the lowest mean score was attained, 2.14. Communicating and understanding the feelings of siblings and peers each had a mean of 2.19 while waiting their turn. The results suggest comparatively high task persistence and learning-related behaviours compared to peer-related social competencies. Figure 2 shows the distribution of the item means. The results illustrate that task completion was the strongest social-emotional indicator and non-aggressive conflict resolution was the weakest measured indicator.

Table 3. Social-Emotional Skills of Learners with Autism

Item	Social-Emotional Indicator	Mean	Interpretation
1	Waits patiently when wanting something	2.57	Moderate
2	Sits still when expected	2.43	Low
3	Waits for a turn when talking with siblings and adults	2.19	Low
4	Quickly calms down when excited	2.48	Low
5	Calms down quickly when upset	2.52	Moderate
6	Attempts demanding activities or homework	2.62	Moderate

7	Learns things taught by the teacher	2.71	Moderate
8	Figures out answers to complex activities	2.52	Moderate
9	Continues trying after an incorrect answer	2.57	Moderate
10	Persists with difficult activities	2.62	Moderate
11	Works on tasks until they are finished	2.86	Moderate
12	Does schoolwork because of liking to learn	2.67	Moderate
13	Does schoolwork because of interest	2.71	Moderate
14	Does schoolwork because of enjoyment	2.67	Moderate
15	Understands the feelings of siblings and peers	2.19	Low
16	Resolves peer/sibling problems without aggression	2.14	Low
	Aggregate Mean	2.53	Moderate

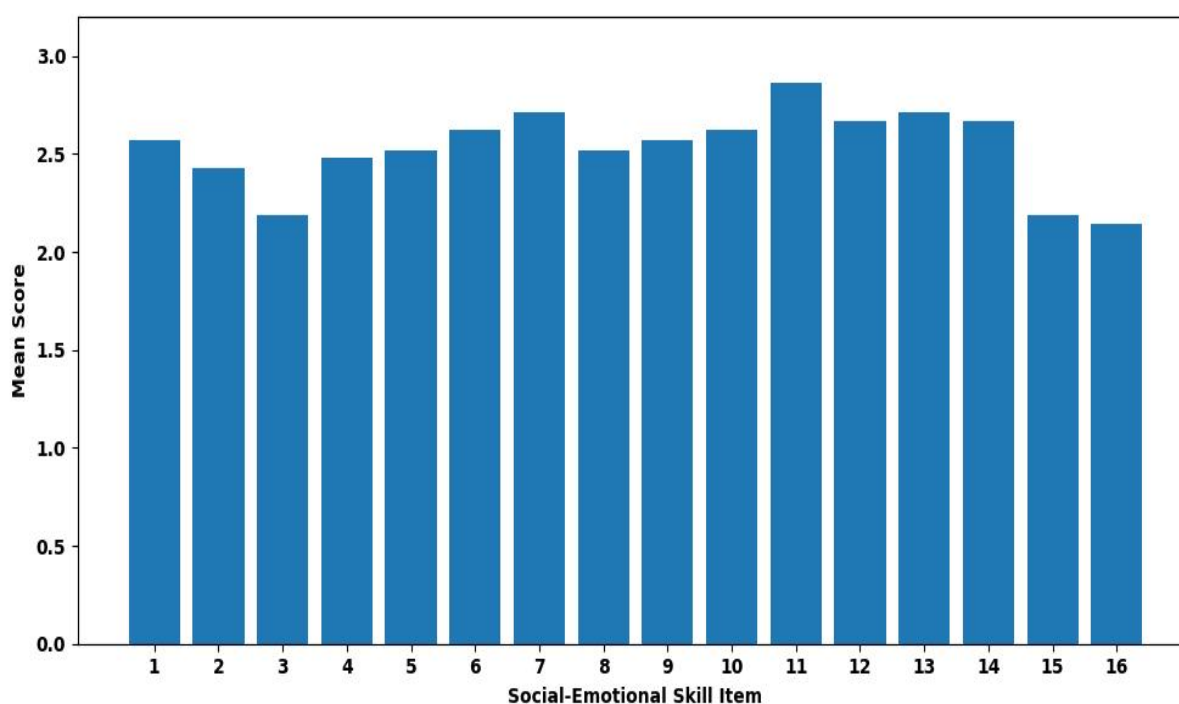


Figure 2. Mean scores for the 16 social-emotional skill indicators among learners with autism

3.4 Intrinsic Motivation of Learners with Autism

Overall, the mean score for the aggregate score for intrinsic motivation was 2.48, with low overall scores per interpretation in the source data, as shown in Table 4. There was a significant inter-indicator variation. The highest mean was found for attempting module activities (2.71), and the mean for showing interest in attempting activities to answer module questions was 2.67, as was the mean for attempting activities to answer modules with very great effort. Fun in activity completion and having fun while completing activities were achieved with mean scores of 2.62. There are several indicators that were considered at a lower level. When asked if they thought it was necessary to answer the modules and undertake activities due to their own will, then they recorded 2.29 times. The lowest score was given to the learner had not exerted much effort in completing the activities, with a score of 2.24. Effort and interest in activity were a bit more positive, with the pattern showing that they also showed relatively higher levels of effort and activity-specific interest, despite the overall low level of intrinsic motivation scores.

Table 4. Intrinsic Motivation Indicators Among Learners with Autism

Item	Intrinsic Motivation Indicator	Mean	Interpretation
1	Supposes that responding modules is essential	2.29	Low
2	Delight in answering the modules	2.62	Moderate
3	Displays enjoyment with performance	2.38	Low
4	Shows curiosity in module activities	2.67	Moderate
5	Feels good while answering modules	2.52	Moderate
6	Has fun while performing activities	2.62	Moderate
7	Conveys that answering modules is useful	2.48	Low
8	Tries very hard to accomplish activities	2.71	Moderate
9	Performs activities because of personal willingness	2.29	Low
10	Puts considerable effort into answering modules	2.67	Moderate
11	Experiences tension while completing activities	2.43	Low
12	Feels anxious while working on activities	2.38	Low
13	Does not try very hard during activities	2.52	Moderate
14	Feels bored while performing activities	2.52	Moderate
15	Performs activities because there is no choice	2.38	Low
16	Does not put much power into activities	2.24	Low
	Aggregate Mean	2.48	Low

Figure 3 shows the item-level intrinsic-motivation scores and also visually supports this, with the greatest score being for effort put into finishing activities and lower scores for several indicators of autonomous motivation, satisfaction and energy.

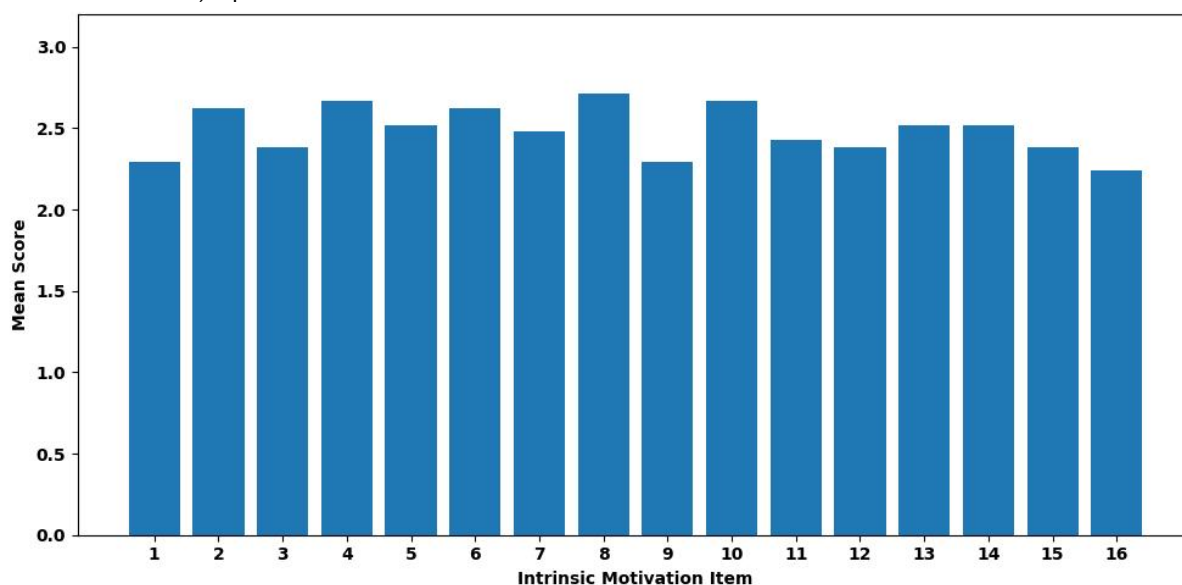


Figure 3. Mean scores for the 16 intrinsic-motivation indicators among learners with autism

3.5 Association of Demographic Characteristics with Social-Emotional Skills and Intrinsic Motivation

The results from the chi-square test are presented in the data set and are summarized in Table 5. There were no demographic differences were found to be statistically significant for social-emotional skills. The calculated chi-square value was 2.806, while the critical value at age is 12.592. There was also no significant association between gender with a χ^2 of 1.400 and a critical value of 5.991. This was the case for civil status, level of education, occupation and combined income. Likewise, no demographic correlations were found for intrinsic motivation. The chi-square values calculated for each of the other variables were found to be less than the critical values, namely age, gender, civil status, educational attainment, occupation, and combined income. The null hypotheses were therefore accepted in all comparisons of demographic groups.

Table 5. Chi-Square Tests for Social-Emotional Skills and Intrinsic Motivation According to Demographic Characteristics

Outcome	Demographic Variable	χ^2	df	Critical Value	Decision
Social-Emotional Skills	Age	2.806	6	12.592	Not significant
Social-Emotional Skills	Gender	1.400	2	5.991	Not significant
Social-Emotional Skills	Civil status	2.193	2	5.991	Not significant
Social-Emotional Skills	Educational attainment	6.838	4	9.488	Not significant
Social-Emotional Skills	Occupation	24.733	26	38.885	Not significant
Social-Emotional Skills	Combined income	17.133	10	18.307	Not significant
Intrinsic Motivation	Age	2.890	6	12.592	Not significant
Intrinsic Motivation	Gender	1.726	2	5.991	Not significant
Intrinsic Motivation	Civil status	1.176	2	5.991	Not significant
Intrinsic Motivation	Educational attainment	7.898	4	9.488	Not significant
Intrinsic Motivation	Occupation	24.619	26	38.885	Not significant
Intrinsic Motivation	Combined income	16.886	10	18.307	Not significant

The comparison between calculated and critical chi-square values is illustrated in Figure 4. For every demographic variable and both outcome domains, the calculated statistic remained below its respective critical threshold. The

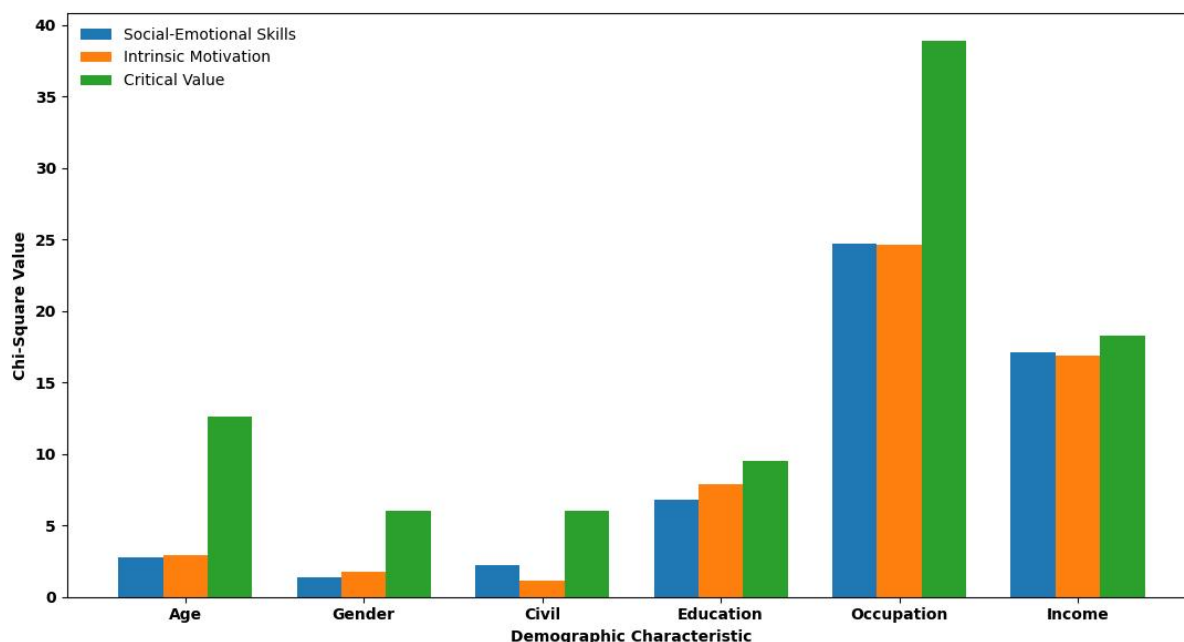


Figure 4. Comparison of calculated and critical chi-square values for demographic associations with social-emotional skills and intrinsic motivation

In general, the results showed that the students with autism (SWA) had moderate social-emotional skills, while the overall level of intrinsic motivation was low. Task persistence and learning-oriented behaviors were comparatively higher while the ability to understand peers and non-aggressive conflict resolution had lower scores for social-emotional functioning. While intrinsic motivation on several measures of autonomous involvement and energy was lower than their scores on selected learning activities, their scores on effort and interest in selected learning activities were higher. The reported chi-square analyses also revealed that demographic characteristics of the data sample (the subjectiveness of the demographic characteristics) were not significant in differentiating these patterns.

4. Discussion

The current research investigated social-emotional competencies and intrinsic motivation of learners with autism in special education. The results indicated a medium level of social-emotional skills, with an aggregate mean of 2.53, while intrinsic motivation was relatively low with an aggregate mean of 2.48. Results also showed that task persistence and learning-related behaviors were relatively stronger than peer-oriented social competencies. Several interpersonal awareness, turn-taking, and non-aggressive conflict resolution items received lower scores, in contrast. The patterns indicate that students with autism may be more competent in what is socially simpler and more task-oriented as compared to what is more socially complex and requires interpreting emotions, reciprocal interaction, and social problem solving.

The relatively high scores on social-emotional skills in this study confirmed that children with autism often have profiles of social and emotional skills that are not uniformly low. There is significant inter-individual and situational variability in emotion regulation, inhibitory control, and self-regulation of behavior (DeLucia et al., 2022). The present findings also align with previous studies suggesting that emotion regulation is related to social skills, behavioral functioning, and emotional issues among children with autism (Reyes et al., 2020). This means that the average score on the scale may be a balance of some high-functioning self-directed behaviors and ongoing interpersonal regulation challenges.

Of the social-emotional indicators, working on tasks until completion had the highest mean of 2.86, and learning teacher-presented material and completing schoolwork due to personal interest were also relatively high. These results suggest that perseverance could be a key strength of some autistic learners in educational tasks with predictable and structured tasks. Turn-taking and understanding others' feelings were rated low, while solving problems with peers or siblings without aggression was rated the lowest with a mean of 2.14. These results align with intervention research, which shows that social interaction and reciprocal communication may need direct and systematic instructional support. The use of modelling and social stories has been found to enhance students with autism's social skills in educational programs (Alkinj et al., 2022). Likewise, peer-mediated interventions have been shown to have positive impacts on children's social participation and interpersonal competence (Zhang et al., 2022). The results further validate the benefits of structured social-skills interventions in special education. Group-based interventions can offer opportunities for repeated practice of reciprocal interaction, communication and socially appropriate behaviors. There are indications from randomized controlled studies that social-skills training targeting various aspects of social functioning has beneficial effects on autistic adolescents (Afsharnejad et al., 2022). At the broader level, there is systematic evidence for the potential benefits of social-skills group training for adolescents with disabilities, with outcomes influenced by the characteristics of the intervention, learner needs, and context of the

intervention implementation (Gilmore et al., 2022). This is to emphasize the need to explicitly teach social problem solving, not assuming that it will be acquired incidentally.

The level of intrinsic motivation was relatively low in the current study. The overall mean score (2.48) was considered low, but some of the individual indicators indicated some effort and engagement. The highest motivation score (2.71) was observed when trying very hard to complete activities, followed by interest in activities and effort devoted to completing modules (both with a score of 2.67). Such a contrast between relatively high levels of effort and low levels of aggregate motivation indicates that learners might sustain some aspects of the educational process (such as working hard) but not necessarily the others (such as being autonomous, enjoying what they do or being internally motivated). The participation of autistic learners has been shown to vary significantly across tasks, environment and level of support (Golos et al., 2022). Accordingly, motivation can be enhanced through meaningful, predictable, individually responsive learning opportunities and with participation that is successful.

The results have implications for the design of special education environments. School interventions should aim for social-emotional competence and active participation, and not individual goals. Participation, environmental support, and coordinated intervention are suggested as key features to facilitate school experiences of autistic learners (Hodges et al., 2022). Similarly, interventions focusing on interoception indicate potential for emotional regulation, highlighting the importance of assisting autistic children in identifying and understanding their inner emotional experiences and how these influence their daily functioning and other aspects of self-regulated behaviour (Mahler et al., 2022).

Demographic factors (age, gender, ethnicity, BMI, and employment status) were not significantly related to the social-emotional skills or intrinsic motivation measured. This indicates that no clear difference could be seen between the age, gender, marital status, level of education, occupation and income of households of the observed patterns within the study group. Heterogeneity has been found among autistic adolescents in socialization experiences and intervention reactions; this suggests that there are more nuanced effects of gender than just group differences (Ko et al., 2022). However, with only a small number of samples and aggregates, these non-significant results should be taken with a pinch of salt.

The findings as a whole highlight the importance of using tailored, individual and socially responsive education provision. Emotional regulation, understanding of peers, conflict resolution, and autonomy, and meaningful engagement can be strengthened to support learners' current persistence and to specifically support learners' relatively weaker interpersonal and motivational abilities in special education programs.

5. Conclusion

The study in the present study focused on social-emotional skills and intrinsic motivation in learners with autism in special education. The results revealed that learners' overall social-emotional skills were at a moderate level, while their overall intrinsic motivation level was at a low level. In the social-emotional area, there was relatively better performance seen in areas of task persistence, completion of activities, and learning-related behaviors, while there was relatively poorer performance seen in turn-taking, understanding the feelings of peers and siblings, and resolving interpersonal problems without aggression. This pattern suggests that the student may perform better in situations in which tasks are clearly defined and socially less complex.

The same was true of intrinsic motivation. Overall, learners showed relatively high effort, interest and persistence in activities to complete tasks, however, a few indicators for autonomous willingness, perceived value, satisfaction and sustained energy were relatively low. The results of this study indicate that the structure, relevance and support of the learning environment can greatly influence the engagement of learners with autism in education.

No significant relationship with social-emotional skills or intrinsic motivation was found with the demographic factors studied. So it is important to focus less on demographic differences and more on learning profiles. Special education programs in schools need to focus on developing emotional control, peer interaction, conflict management, independence, interest-based learning, and meaningful participation to reinforce social-emotional skills and motivation of students with autism.

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