

Article

Impact of Modular Learning to The Social-Emotional Development of Learners with Autism in Public Sped Centers

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Abstract: This study examines the influence of modular learning on the social-emotional development of students with autism in public Special Education (SPED) centres. The analysis provides a comprehensive examination of the learners' profiles, including their demographic origins, social and emotional skills, and degrees of intrinsic motivation. The data indicate a demographic distribution characterized by a noticeable difference in gender and a substantial presence of learners in the middle childhood stage. The parental backgrounds exhibit a notable level of educational achievement and a wide range of professional vocations. The learners demonstrate moderate proficiency in social and emotional abilities, specifically in terms of their tenacity and involvement in learning. However, they encounter difficulties in certain aspects of social interaction and emotional regulation. The study reveals a typically low level of inherent motivation for modular learning activities; however, some components do modestly engage the learners. Importantly, there was no substantial link observed between these social, emotional, and motivational aspects and the demographic factors of the learners. The study highlights the complex characteristics of autism and underlines the importance of modified educational and therapeutic approaches that acknowledge the unique requirements and abilities of each individual, going beyond simple demographic classifications.

Keywords: Modular Learning, Social-Emotional Development, Autism, SPED Centers

Introduction

Throughout public Special Education (SPED) centres, modular learning has garnered greater attention and implementation as an innovative strategy to adapt to the different requirements of learners, particularly those with autism (Mendoza, 2022). Bumblauskas & Yvas (2021) emphasized that modular learning is allowing for more flexibility in meeting the needs of students. In the context of public special education and developmental centres, the term "modular learning" refers to a teaching and learning approach that divides the



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curriculum into discrete modules or units and this approach enables students to advance at their own pace, places an emphasis on individualised learning goals, and offers flexibility in terms of learning styles and preferences (Hess, 2020). That students with autism frequently have distinctive learning profiles, as well as diverse strengths and problems, is taken into consideration by this method (Bal et al., 2022).

It is important to emphasise the connection between modular learning and the social and emotional development of students with autism who are attending public special education centres (Paguirigan et al., 2023). Individuals with autism are characterised by difficulties in social interactions, communication, and behaviours that are repetitive (Martinez-Gonzalez et al., 2022). Learners are able to work at their own pace in a structured and individualised setting that is provided by modular learning, which reduces the amount of pressure they feel to keep up with their classmates (Wanner et al., 2021). This has the potential to relieve anxiety and frustration, both of which are significant issues for people who have autism. Furthermore, because modular learning is individualised, it enables educators to target specific social and emotional goals, such as developing healthy peer interactions, enhancing self-regulation, and building self-esteem, which ultimately contributes to the facilitation of holistic development (Ansari & Rizvi, 2023).

The ability of modular learning to effectively handle the specific educational requirements of learners with autism who are enrolled in public special education programmes is the primary reason for its significance (Morin et al., 2021). The curriculum may be broken down into digestible modules, which allows teachers to modify their instructional methods and resources to meet the needs of each individual student, taking into account their strengths and weaknesses (Waldia et al., 2023). A sense of autonomy and accomplishment is fostered via the utilisation of this personalised method, which in turn boosts the learners' self-esteem and self-efficacy. Furthermore, modular learning supports self-regulation since it teaches kids how to regulate their own progress and create objectives that are attainable. These are essential skills for the students' long-term social and emotional development (Purwadi et al., 2020).

The research that has been done in this area has brought to light various spaces. Initially, there is a requirement for a greater number of comprehensive empirical research that explicitly study the influence that modular learning has on the social-emotional development of students with autism who are enrolled in public special education centres. Further research could provide a deeper knowledge of the mechanisms through which modular learning promotes social and emotional outcomes. While the research that has already been conducted offers some intriguing insights, additional research could provide this understanding. Additionally, research should investigate

the varying efficiency of modular learning based on the severity of autism, individualised needs, and other contextual elements inside special education and related services (SPED) centres.

Moreover, future studies should focus on the development and implementation of evidence-based practices and guidelines for incorporating modular learning effectively into public SPED centers. This may involve examining different strategies for individualization, teacher training, and assessment methods that align with the unique needs of learners with autism. Furthermore, investigating the long-term effects of modular learning on social-emotional development, academic achievement, and post-school outcomes for individuals with autism can provide valuable insights for policy makers.

Methodology

This study employed quantitative research method. To gather quantitative data, a survey was administered to assess the social-emotional skills of learners with autism who were exposed to modular distance learning in public Special Education (SPED) centers in Lapu-Lapu City and Mandaue City. The study's input parameters encompassed demographic information of the respondents, including age, gender, and their levels of social-emotional skills. The research participants consisted of parents of learners with autism who were enrolled in self-contained classes within the SPED centers. Two instruments were employed for data collection: a survey questionnaire with three sections, first capturing the profile of the learners and their parents, followed by sections assessing social-emotional skills and intrinsic motivation. The social-emotional skills survey was adapted from the Child Trends' Social and Emotional Skills Survey, comprising 16-item statements rated on a 4-point Likert Scale, while the intrinsic motivation survey was modified from Rodeiro and Nadas' (2012) study, similarly featuring 16-item statements assessed on a 4-point Likert Scale.

Results and Discussion

Table 1. Profile of the Learners with Autism

	Frequency	Percentage
A. Age (in years)		
6 - 7	6	28.57
8 - 9	4	19.05
10 - 12	8	38.10
13 and above	3	14.29
B. Gender		
Female	5	23.81
Male	16	76.19

Table 1 presents the demographic profile of learners with autism in

terms of age and gender. In the age distribution, the majority of the learners are within the 10-12 years age bracket, constituting 38.10% of the population. This is followed by the 6-7 years age group, which makes up 28.57%. Learners aged 8-9 years represent 19.05%, and those aged 13 and above constitute the smallest group, with 14.29%. Regarding gender distribution, the table indicates a significant disparity. Male learners make up a substantial majority, accounting for 76.19% of the total, while female learners represent only 23.81%. This data highlights the predominance of male learners within the studied autism spectrum disorder (ASD) population and suggests a potential age trend where the highest concentration of learners with autism falls within the middle childhood years, specifically between 10 to 12 years.

Table 2. Profile of the Parent Respondents

	Frequency	Percentage
A. Age (in years)		
26 - 30	2	9.52
31 - 35	2	9.52
36 - 40	9	42.86
More than 40	8	38.10
B. Gender		
Female	13	61.90
Male	8	38.10
C. Civil Status		
Married	17	80.95
Single	4	19.05
D. Highest Educational Attainment		
High School Graduate	7	33.33
College Level	6	28.57
College Graduate	8	38.10
E. Occupation		
Bookkeeper	1	4.76
Businessman	2	9.52
Driver	2	9.52
Financial Advisor	1	4.76
Housewife	6	28.57
Manager	1	4.76
Nurse	1	4.76
OFW	1	4.76
Retired	1	4.76
Secretary	1	4.76
Self-Employed	1	4.76
Staff	1	4.76
Store Owner	1	4.76
Teacher	1	4.76
F. Combined Monthly Income [in PhP]		
Less than 9,100	6	28.57
9,100 - 18,200	7	33.33
18,200 - 36,400	3	14.29
36,400 - 63,700	3	14.29
63,700 - 109,200	1	4.76
109,200 - 182,000	1	4.76

Table 2 provides a comprehensive overview of the demographic profile of parent respondents with children diagnosed with autism. Age-wise, the majority of parents fall within the 36-40 years bracket, constituting 42.86%, closely followed by those aged above 40, who make up 38.10%. Parents in the younger age groups of 26-30 and 31-35 years are less represented, each comprising 9.52%. Regarding gender, there is a higher percentage of female respondents (61.90%) compared to males (38.10%). When observing their civil status, a significant majority (80.95%) of the respondents are married, indicating that most of the children with autism in this study are from two-parent households. Only 19.05% of the respondents are single.

The educational background of the parent respondents shows diversity but leans towards higher educational attainment. The largest group consists of college graduates at 38.10%, followed by high school graduates (33.33%), and then those who have reached college level (28.57%). Occupationally, the respondents cover a wide range of jobs, with 'Housewife' being the most common occupation, representing 28.57% of the respondents. This is followed by a variety of professions including Businessman, Driver, and others, each constituting between 4.76% to 9.52%. This diversity suggests a mix of socioeconomic backgrounds among the families. The combined monthly income of the families varies, with the majority earning between 9,100 to 18,200 PhP (33.33%) and less than 9,100 PhP (28.57%). There's a noticeable decrease in the percentage of families as income increases, with the least number of families earning between 63,700 to 182,000 PhP. Overall, the profile of the parent respondents is diverse in terms of age, gender, civil status, educational attainment, occupation, and income, which may reflect a wide range of experiences and backgrounds within the context of raising a child with autism.

Table 3. Social and Emotional Skills of the Learners

Indicators		Mean	Description
A. Social and Emotional Skills of the Learners			
1.	Waits patiently when he wants something.	2.57	Moderate
2.	Sits still when she/he is supposed to be.	2.43	Low
3.	Waits for his/ her turn when talking with siblings and adults.	2.19	Low
4.	Quickly calms down when excited.	2.48	Low
5.	Calms down quickly when he/she gets upset.	2.52	Moderate
6.	Tries to do even the most demanding activity or homework.	2.62	Moderate
7.	Learns the things taught by the teacher.	2.71	Moderate
8.	Figures out answers to complex activities.	2.52	Moderate
9.	If he/she solves a problem wrong the first time, he/she keeps trying until he/she gets it right.	2.57	Moderate
10.	Keeps doing a problematic activity.	2.62	Moderate
11.	Works on tasks until they are finished.	2.86	Moderate
12.	Does his/her schoolwork because he/she likes to learn.	2.67	Moderate
13.	Does his/her school because he/she is interested in it.	2.71	Moderate
14.	Does the schoolwork because he/she enjoys it.	2.67	Moderate

15.	Understands the feelings of his/ her siblings and peers.	2.19	Low
16.	Resolves problems with his/her siblings and peers without being aggressive.	2.14	Low
Aggregate Mean		2.53	Moderate

Table 3 delineates the assessment of social and emotional skills of learners with autism, as indicated by a set of 16 different indicators. The aggregated mean score of 2.53 suggests that the overall social and emotional skill level of these learners is moderate. Notably, skills such as 'Waits patiently when he wants something' (2.57), 'Calms down quickly when he/she gets upset' (2.52), and various indicators of persistence and engagement in learning activities, like 'Tries to do even the most demanding activity or homework' (2.62), 'Learns the things taught by the teacher' (2.71), and 'Works on tasks until they are finished' (2.86), are rated as moderate. These moderate scores indicate a balanced level of competency in certain areas, showing that while these learners might have challenges, they also possess considerable strengths in persistence and engagement. However, there are notable areas of concern, particularly in skills associated with sitting still (2.43), waiting for turns during conversations (2.19), calming down when excited (2.48), and understanding and resolving conflicts with peers without aggression (2.19 and 2.14 respectively), all of which are rated as low. These lower scores underscore challenges in certain aspects of social interaction and emotional regulation, which are common areas of difficulty for individuals with autism. Despite these challenges, the overall moderate rating suggests a nuanced profile of social and emotional skills among these learners. It highlights their capabilities in certain areas while also identifying specific domains where support and intervention might be particularly beneficial to foster their social and emotional development.

Table 4. Intrinsic Motivation of the Learners

Indicators		Mean	Description
B.	Intrinsic Motivation of the Learners		
1.	Believes that answering the modules is essential.	2.29	Low
2.	Enjoys answering the modules very much.	2.62	Moderate
3.	Shows satisfaction with his/her performance in the modules.	2.38	Low
4.	Shows interest in answering the activities in the modules.	2.67	Moderate
5.	Feels good and well in answering the modules.	2.52	Moderate
6.	Shows are having fun doing the activities.	2.62	Moderate
7.	Expresses that answering the modules is useful.	2.48	Low
8.	Tries very hard to accomplish the activities in the modules	2.71	Moderate
9.	Does the activities because he/she wants to.	2.29	Low
10.	Puts much effort into answering the modules.	2.67	Moderate
11.	Feels very tense while doing the activities in the modules.	2.43	Low
12.	Feels anxious while working on the activities in the modules.	2.38	Low
13.	Does not try very hard to do the activities in the modules.	2.52	Moderate
14.	Feels bored doing the activities in the modules	2.52	Moderate
15.	Expresses that he/she does the activities because there is no choice.	2.38	Low
16.	Does not put much energy into accomplishing the activities.	2.24	Low
Aggregate Mean		2.48	Low

Table 4 presents an overview of the intrinsic motivation levels of learners with autism in relation to their engagement with educational modules. The aggregate mean of 2.48 indicates an overall low level of intrinsic motivation among these learners, pointing to potential challenges in finding internal enthusiasm and interest in the learning activities. Several indicators highlight areas where motivation is notably low. Learners seem to struggle with perceiving the relevance and usefulness of the modules, as indicated by low scores in 'Believes that answering the modules is essential' (2.29) and 'Expresses that answering the modules is useful' (2.48). The emotional responses towards the activities also reflect low motivation, with learners feeling tense (2.43) and anxious (2.38) while working on the modules, and a sense of compulsion rather than choice in doing the activities, as shown in 'Expresses that he/she does the activities because there is no choice' (2.38). Furthermore, a lack of effort and energy in engaging with the modules is evident in 'Does not try very hard to do the activities in the modules' (2.52) and 'Does not put much energy into accomplishing the activities' (2.24). However, it's not uniformly negative. Some indicators of moderate motivation suggest that certain aspects of the modules engage the learners to some extent. These include 'Enjoys answering the modules very much' (2.62), 'Shows interest in answering the activities in the modules' (2.67), and 'Puts much effort into answering the modules' (2.67). These moderate scores indicate that while overall motivation is low, there are specific elements within the modules that resonate with the learners and could potentially be leveraged to enhance their overall engagement and motivation. The data underscores the complexity of fostering intrinsic motivation among learners with autism in educational settings. It suggests the need for tailored approaches that not only address the areas of low motivation but also build on the aspects where moderate motivation is observed, to create a more engaging and internally rewarding learning experience.

Table 5. Relationship Between Social and Emotional Skills and Intrinsic Motivation of the Learners and their Profiles

Variable	Computed Chi-Square	df	Critical Value	Significance	Result
A. Social and Emotional Skills of the Learners					
Age	2.806	6	12.592	Not significant	Ho accepted
Gender	1.400	2	5.991	Not significant	Ho accepted
Civil Status	2.193	2	5.991	Not significant	Ho accepted
Highest Educational Attainment	6.838	4	9.488	Not significant	Ho accepted
Occupation	24.733	26	38.885	Not significant	Ho accepted
Combined Income	17.133	10	18.307	Not significant	Ho accepted
B. Intrinsic Motivation of the Learners					

Age	2.890	6	12.592	Not significant	Ho accepted
Gender	1.726	2	5.991	Not significant	Ho accepted
Civil Status	1.176	2	5.991	Not significant	Ho accepted
Highest Educational Attainment	7.898	4	9.488	Not significant	Ho accepted
Occupation	24.619	26	38.885	Not significant	Ho accepted
Combined Income	16.886	10	18.307	Not significant	Ho accepted

Table 5 presents the results of chi-square tests examining the relationship between the social and emotional skills and the intrinsic motivation of learners with autism and various demographic factors of their profiles, including age, gender, civil status, highest educational attainment, occupation, and combined income. In both categories—social and emotional skills and intrinsic motivation—the chi-square values computed for each demographic variable fall below the corresponding critical values, leading to the acceptance of the null hypothesis (Ho) in every case.

This result indicates that there is no statistically significant relationship between the learners' social and emotional skills or their intrinsic motivation and the demographic factors examined. For the social and emotional skills of the learners, variables such as age, gender, civil status, highest educational attainment, occupation, and combined income show chi-square values of 2.806, 1.400, 2.193, 6.838, 24.733, and 17.133 respectively, all of which are not significant when compared to the critical values. Similarly, for intrinsic motivation, the chi-square values for the same demographic variables—2.890, 1.726, 1.176, 7.898, 24.619, and 16.886—also do not reach the threshold of statistical significance.

These findings suggest that within this specific cohort of learners with autism, their social and emotional skills and their level of intrinsic motivation are not influenced by their age, gender, civil status, educational background, occupation, or income level of their families. This lack of significant relationships highlights the unique and individual nature of social, emotional, and motivational development in learners with autism, emphasizing the need for individualized approaches in educational and therapeutic interventions that do not rely solely on demographic factors.

In the study of Kelly et al. (2017), no statistically significant relationship between income status or neighborhood material deprivation was found after controlling for mothers' education status. The results suggest a substantial underdiagnosis for children of lower education status mothers, though additional research is required to identify the extent to which this is replicated across the United Kingdom. Tackling inequalities in autism diagnosis will require action, which could include increased education, awareness, further exploration of the usefulness of screening programs, and the provision of more accessible support services.

Conclusion

The findings offer a multifaceted view of learners with autism, their family backgrounds, and their social, emotional, and motivational characteristics. Finding underscores a gender disparity and a concentration of learners within the middle childhood age range, while diverse demographic profiles of parent respondents, with a prevalence of higher educational attainment and a range of occupational backgrounds. Result also indicates a moderate level of social and emotional skills among the learners, with particular strengths in persistence and engagement in learning activities, juxtaposed against challenges in specific social interaction and emotional regulation skills. Moreover, findings show a low level of intrinsic motivation in educational activities among the learners, with certain aspects of the modules engaging them to a moderate extent. Finally, the social and emotional skills and intrinsic motivation of the learners do not have statistically significant relationships with the demographic variables of their profiles. This comprehensive overview underscores the complexity and individuality of autism, highlighting the need for personalized and nuanced approaches in educational and therapeutic settings that recognize the unique strengths and challenges of each learner, beyond demographic factors.

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