

Comparison of Study Habits among Senior Secondary Students with Different Levels of Intelligence: 2×2 Factorial Designs

Sohan Singh¹ and Dilip Kumar Singh²

¹Research fellow, Department of Education, CMP College, University of Allahabad, Prayagraj (U.P.), India

²Assistant Professor, Department of Education, CMP College, University of Allahabad, Prayagraj (U.P.), India

Submission: May 05, 2025; **Published:** May 21, 2025

***Corresponding author:** Dr. Sohan Singh, Research fellow, Department of Education, CMP College, University of Allahabad, India. Email: rescholar.sohan10082020@gmail.com

Abstract

In the present study, the researcher aimed to study the comparison of the study habits among senior secondary students with different levels of intelligence by using two-way ANOVA. The causal-comparative survey method was applied in this study. A simple random sampling method was used for data collection. A sample of 142 senior secondary students in Prayagraj district has been selected. The researcher uses the Samoochik Mansik Yogyata Pariksha developed by Dr. R. K. Tandon, and the study habits scale developed by Dimple Rani and M. L. Jaidka was used. Researchers found that gender has a small but statistically significant effect on study habits, with boys demonstrating better study habits than girls. Intelligence levels (high, moderate, and low) do not significantly influence study habits, and there is no significant interaction between gender and intelligence. The type of school (government or private) also does not significantly impact study habits. However, students with high intelligence perform better in government schools, while those with low intelligence show better habits in private schools, indicating a nuanced interaction between intelligence and school type. Locality (urban vs. rural) does not significantly affect study habits, but urban students with high intelligence show the best habits, while rural students with low intelligence perform better.

Keywords: abstract thinking; academic success; active learning; note-taking; time management

Abbreviations: Gen= Gender; LI= Level of Intelligence; Na S. = Nature of Schools'; Loc = Locality of Schools

Introduction

Study habits are considered crucial for academic success and overall educational development. They encompass a range of behaviors, practices and strategies that students employ to facilitate learning and improve performance. Effective study habits not only enhance the retention and understanding of knowledge but also foster lifelong learning skills [1]. In the context of senior secondary education, where students prepare for higher academic pursuits and professional careers, the establishment of sound study habits becomes particularly significant. Tribal student's study practices are often shaped by various factors including intelligence, motivation, socio-economic background and environmental influences [2]. Good study habits involve strategies such as time management, organization, note-taking, and active learning.

Intelligence, a significant predictor of academic performance, has been shown to influence Students' approaches to studying. High levels of intelligence often correlate with better problem-solving skills, abstract thinking and the ability to grasp complex concepts quickly. However, it is not the sole determinant of academic success, as study habits play a complementary role in maximizing intellectual potential [3].

Understanding how study habits vary across different levels of intelligence can provide insights into the diverse learning needs of students. It can help educators identify the specific areas where students may require additional support or alternative strategies to enhance their academic outcomes [4]. Given crucial role that the senior secondary stage plays in shaping future educational

and career trajectories fostering effective study habits during this period is particularly significant [5]. Moreover, research has shown that intelligence contributes to academic success. It is not the sole determinant factors such as motivation, time management and study strategies are equally important [6]. Thus, an understanding of the interaction between intelligence and study habits can lead to more targeted and personalized interventions. Examining the patterns of study habits among Students with different intelligence levels aims to contribute to the development of differentiated instructional strategies that can accommodate Students' unique learning profiles [7]. By recognizing the variability in tribal student's study approaches based on their intelligence, educators can design programs that encourage all students to adopt productive study behaviors thereby potentially reducing the achievement gap across different intelligence levels [8].

Reviews of related literature

Mehta and Singh (2022) found that students who utilize digital tools such as educational apps and e-learning platforms tend to have more organized and efficient study routines, contributing to improved academic performance. Verma and Sharma [9] suggested that intelligence moderates the relationship between study habits and academic performance with high-intelligence Students benefiting less from study habits compared to their lower-intelligence peers. Gupta and Patel [10] studied the effect of stress on study habits and found that students with better study habits are more resilient in managing exam pressure and perform better academically. Yadav and Kaur [11] found that female students generally employ more systematic and disciplined study habits compared to their male counterparts, resulting in better academic performance. Mishra and Sharma [12] found that students who adapted to the online learning environment by organizing their study routines showed better academic outcomes than those who struggled to adjust. A study by Rao and Jain [13] revealed that study habits had a stronger predictive power for students with average intelligence than for students with high intelligence. Sharma and Mehta [14] explored the influence of social media on study habits and found that excessive social media use negatively affects students' study habits, leading to poorer academic performance. Joshi and Prasad [15] concluded that students who engaged in group study sessions tended to have more effective study routines, contributing to higher academic performance.

Patel and Sinha [16] found that students with higher socio-emotional skills were more likely to develop effective study routines especially those with average intelligence, suggesting that these skills can compensate for moderate cognitive abilities. Singh and Kapoor [17] showed that students who maintained regular sleep patterns had better study habits and higher academic achievement, regardless of their intelligence level. Poor sleep quality, on the other hand, was linked to disorganized study routines and lower performance. Jain and Mehta [18] found that higher expectations from parents were associated with

more structured and consistent study habits, particularly among students with lower intelligence, who benefited from the external motivation to adopt effective study routines.

Kumar [19] indicated that students with irregular sleep patterns tend to have less effective study habits, which negatively impacts their academic success. Mishra and Kumar [20] highlighted that students with higher intelligence were more adept at minimizing distractions whereas those with average or below-average intelligence showed significant declines in study effectiveness due to frequent digital interruptions.

Objectives of the study

- To compare the study habits of senior secondary students having high, moderate and low level of intelligence with respect to gender.
- To compare the study habits of senior secondary students having high, moderate and low level of intelligence with respect to nature of schools.
- To compare the study habits of senior secondary students having high, moderate and low level of intelligence with respect to locality.

Hypothesis of the study

- There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to gender.
- There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to nature of schools.
- There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to locality.

Research Methodology

The causal-comparative survey approach of descriptive research was applied in this investigation. The population of the present study consists of all senior secondary students in the Prayagraj District of Uttar Pradesh. Simple random sampling method was used for data collection. Sample of 142 senior secondary students in Prayagraj district has been selected. The researcher has used the Samoochik Mansik Yogyata Pariksha developed by Dr. R. K. Tandon and the study habits scale developed by Dimple Rani and M.L. Jaidka. To analyze the data two-way analysis of variance statistical techniques was used.

Date Analysis and Interpretation

To compare the study habits of senior secondary students having high, moderate and low level of intelligence with respect to gender

H_0 : there is no significant difference among high, mod and low level of intelligence on study habits.

Table 1: Mean Standard Deviation and Two-Way ANOVA Statistics for Study Habits and Level of Intelligence for gender

Var.	High		Mod		Low		ANOVA			
	M	SD	M	SD	M	SD	Effect	F ratio	df	η^2
Study Habits										
Boys	125.92	16.142	122.8	13.419	122.67	17.976	Gen	5.724	1,136	0.018
Girls	118.09	20.935	113.38	17.595	115.6	12.651	L I	0.558	2,136	0.573
							Gen*L I	0.06	2,136	0.942

Note. N= 142. ANOVA= analysis of variance; Gen= Gender, L I= level of intelligence, Gen*L I= gender* level of intelligence * $p < .05$

According to table 1 testing of the null hypothesis “There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to gender.” The null hypothesis is tested in three following sub hypothesis-

$H_{01.1}$: There is no significant difference between boys and girl’s students on study habits.

Main Effect of Gender (Gen): According to table 1 the analysis revealed a statistically significant main effect of gender on study habits, $F(1,136) = 5.724$, $p < .05$, with an effect size (η^2) of 0.018. This indicates that gender has a small but statistically significant effect on study habits, suggesting that boys’ and girls’ students differ in their study habits. Mean effect of study habits on the basis of gender shown in given below table 2.

Table 2: Mean Difference between Boys and Girls on Study Habits

Gender	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Boys	123.798	2.306	119.237	128.359
Girls	115.69	2.483	110.78	120.6

According to the table 2 the mean scores show that boys have a higher average study habits score ($M = 123.798$, $SE = 2.306$) compared to girls ($M = 115.690$, $SE = 2.483$). The 95% confidence intervals further support this difference. The boys’ confidence interval ranges from 119.237 to 128.359. Confidence interval of girls ranges from 110.780 to 120.600. The confidence intervals do not overlap, suggesting a meaningful difference between boys and girls, in which boys consistently scoring higher study habits.

$H_{01.2}$: There is no significant difference among high, moderate and low level of intelligence on study habits.

Main Effect of Level of Intelligence (LI): According to table 2 the main effect of the level of intelligence was not statistically significant, $F(2,136) = .558$, $p > .05$ with a very small effect size (η^2) of 0.573. This implies that the different levels of intelligence (High, Moderate, and Low) did not significantly influence the study habits of the senior secondary students.

$H_{01.3}$: The effect of high, moderate and low level of intelligence on study habits for boys and girls at senior secondary students.

Interaction Effect (Gen*LI): According to table 1 the interaction between gender and the level of intelligence was not statistically significant, $F(2,136) = .060$, $p > .05$ with an effect size (η^2) of .942. This indicates that the combined effect of gender and

level of intelligence on study habits was not significant, meaning that the influence of intelligence levels on study habits did not differ by gender.

Interaction Effect Interpretation: The lines for high-intelligence students show a much steeper decline from boys to girls compared to the lines for moderate and low-intelligence. For students with moderate and low intelligence, the difference in study habits between boys and girls is less pronounced but still shows a consistent trend where boys outperform girls.

The interaction between gender and intelligence level shows that gender differences in study habits are more significant at the high intelligence level. Boys, particularly those with high intelligence, tend to have better study habits compared to girls, while the gap between boys and girls narrows for those with moderate and low intelligence.

To compare the study habits of senior secondary Students having high, moderate and low level of intelligence with respect to nature of schools

H_0 : There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to nature of schools.

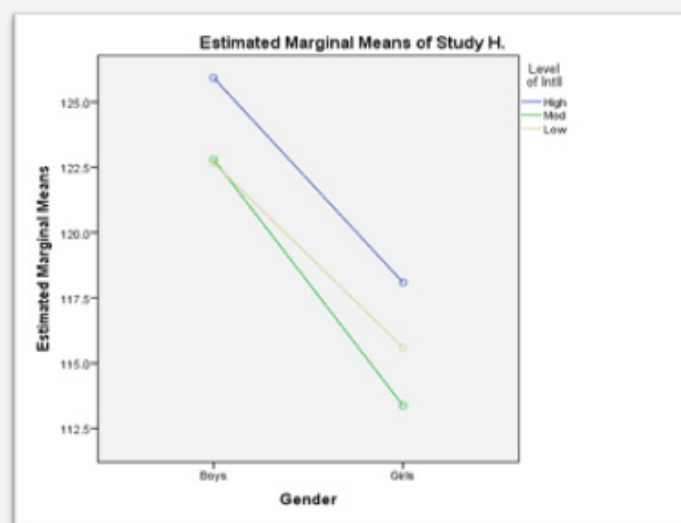


Image 1

Table 3: Mean Standard Deviation and Two-Way ANOVA Statistics for Study Habits and Level of Intelligence for Nature of School.

Var.	High		Mod		Low		ANOVA			
	M	SD	M	SD	M	SD	Effect	F ratio	df	η^2
Study Habits										
Govt S.	125.17	20.284	117.9	15.691	114.91	13.353	Na S.	.023*	1,136	0.881
Pvt S.	115.67	15.186	118.07	18.15	125.77	13.67	L I	.331*	2,136	0.719
							Na S.*LI	2.251*	2,136	0.109

Note. N= 142. ANOVA= analysis of variance; Govt S. = government school, Pvt S. = Private school, Na S. = nature of school, LI= level of intelligence, Na S.*L I= nature of school* level of intelligence * $p < .05$

According to table 3 testing of the null hypothesis "There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to nature of schools." The null hypothesis is tested in three following sub hypothesis-

H_0 2.1: There is no significant difference between Government and Private school students on study habits.

Main Effect of Nature of Schools (Na S.): According to table 3 the main effect of the nature of the school (government vs. private) on study habits was not statistically significant $F(1,136) = 0.023, p > .05$, with an effect size (η^2) of 0.881. This indicates that the type of school did not significantly influence senior secondary student's study habits.

H_0 2.2: There is no significant difference among high, moderate and low level of intelligence on study habits.

Main Effect of Level of Intelligence (LI): According to table 3 the main effect of the level of intelligence was also not statistically significant, $F(2,136) = 0.331, p > .05$ with an effect size (η^2) of 0.719. This result suggests that different levels of intelligence (high, moderate, & low) did not significantly affect tribal student's study habits.

H_0 2.3: The effect of high, moderate and low level of intelligence on study habits for boys and girls at senior secondary students.

Interaction Effect (Na S. * LI): According to table 3 the interaction effect between the nature of the school and the level of intelligence was not statistically significant $F(2,136) = 2.251, p > .05$ with an effect size (η^2) of 0.109. This indicates that the combined effect of the school type and intelligence levels did not significantly impact study habits.

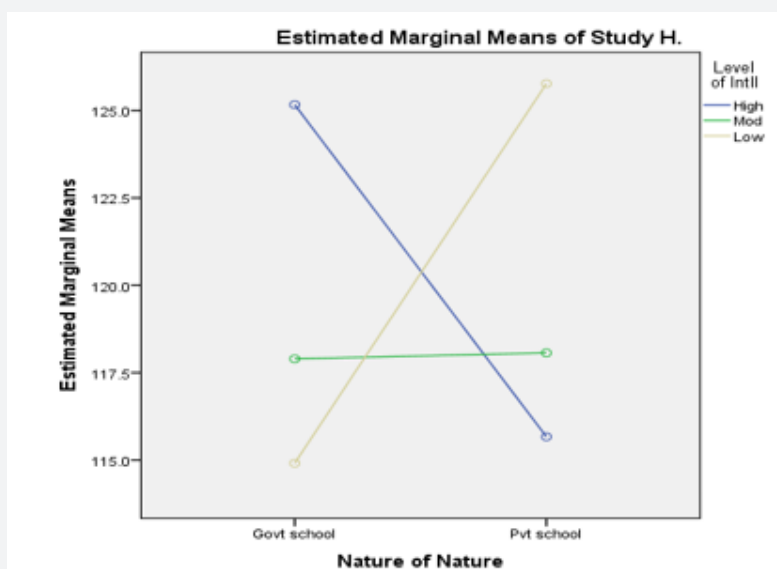


Image 2

Interaction Effect Interpretation: The plot shows that students with high levels of intelligence have higher study habits in government schools but lower study habits in private schools. Conversely, students with low intelligence levels exhibit higher study habits in private schools than in government schools as shown by the steep upward slope of the yellow line (representing low intelligence). Students with moderate intelligence (green line) show relatively stable study habits across both school types, with little variation between government and private schools.

This suggests that there is an interaction effect between the nature of the school and intelligence level on study habits. The study habits of students with high and low intelligence appear

to be influenced differently based on the type of school they attend. In particular, high-intelligence students perform better in government schools, while low-intelligence students perform better in private schools. However, students with moderate intelligence do not show much variation in study habits across the two school types.

To compare the study habits of senior secondary students having high, moderate and low level of intelligence with respect to locality.

H_0 : There is no significant difference in the study habits of senior secondary students having high, moderate and low level of intelligence with respect to locality.

Table 4: Mean Standard Deviation and Two-Way ANOVA Statistics for Study Habits and Level of Intelligence for locality.

Var.	High		Mod		Low		ANOVA			
	M	SD	M	SD	M	SD	Effect	F ratio	df	η^2
Study Habits										
Urban	124.62	19.011	122.42	15.245	116.9	13.11	Loc	1.162	1,136	0.283
Rural	114.54	15.098	114.09	17.907	124.54	14.785	LI	0.236	2,136	0.79
							Loc* LI	2.409	2,136	0.094

Note. N= 142. ANOVA= analysis of variance; Loc= locality, L I= level of intelligence, Loc*L I= locality* level of intelligence *p<.05

According to table 4 testing of the null hypothesis “There is no significant difference in the study habits of senior secondary Students having high, moderate and low level of intelligence with respect to locality.” The null hypothesis is tested in three following sub hypothesis-

H_0 1.1.: There is no significant difference between urban and

rural senior secondary students on study habits.

Main Effect of locality (Loc): According to table 4 the main effect of locality on study habits was not statistically significant, $F(1,136) = 1.162$, $p > .05$, with an effect size (η^2) of 0.283. This indicates that there is no significant difference in study habits between students from urban and rural areas.

H₀1.2: There is no significant difference among high, moderate and low level of intelligence on study habits.

Main Effect of Level of Intelligence (LI): According to table 4 the main effect of the level of intelligence was also not statistically significant, $F(2,136) = 0.236$, $p > .05$, with an effect size (η^2) of 0.790. This suggests that the different levels of intelligence (high, moderate & low) did not significantly influence the study habits of the students.

H₀1.3: The effect of high, moderate and low level of intelligence on study habits for urban and rural senior secondary students.

Interaction Effect (Loc*LI): According to table 4 the interaction between locality and the level of intelligence was not statistically significant, $F(2,136) = 2.409$, $p > .05$ with an effect size (η^2) = 0.094. This indicates that the combined effect of gender and level of intelligence on study habits was not significant, meaning that the influence of intelligence levels on study habits did not differ by locality.

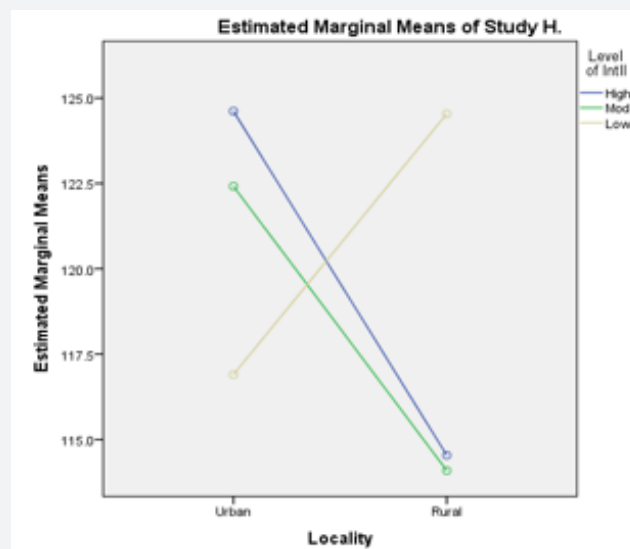


Image 3

Interaction Effect Interpretation

There is a significant interaction effect between locality and intelligence level on study habits. While urban students with high intelligence show the highest study habits, rural students with low intelligence exhibit the highest study habits in their group. The steep slopes of the lines particularly the blue (high intelligence) and yellow (low intelligence) lines show that the study habits of Students with different intelligence levels vary more across localities indicating a strong interaction between these factors. The interaction effect suggests that the impact of intelligence level on study habits differs based on whether students are from urban or rural areas. Urban students with high intelligence tend to have better study habits while rural students with low intelligence perform better in terms of study habits. This crossover pattern highlights that locality plays a key role in moderating the relationship between intelligence levels and study habits.

Conclusion

The present study examined the influence of gender, intelligence levels, school type, and locality on study habits among

senior secondary students by utilizing a 2×3 factorial design. The findings are as follows:

Gender was found to have a small but statistically significant effect on study habits, where boys demonstrated better study habits than girls. However, the level of intelligence (high, moderate, and low) does not significantly impact Students' study habits. Additionally, the interaction between gender and intelligence is not significant, though boys with higher intelligence tend to show better study habits compared to girls at the high intelligence level. Students from government and private schools do not significantly differ in their study habits based on the type of school. Similarly, the level of intelligence does not significantly influence study habits across different school types. However, the interaction effect suggests that students with high intelligence performed better in government schools, while those with low intelligence showed better study habits in private schools, highlighting a nuanced relationship between school type and intelligence. Lastly, the locality (urban vs. rural) does not significantly affect study habits. Yet, the interaction effect between locality and intelligence is noteworthy. Urban students with high intelligence exhibit the

best study habits, whereas rural students with low intelligence perform better in terms of study habits. The findings suggest that Students' location moderates the relationship between intelligence levels and study habits. Overall, these findings contribute valuable insights into how various factors intersect to influence study habits in senior secondary students.

Educational Implication

The present study highlights the need for a more gender-sensitive approach to fostering better study habits among senior secondary students. Given that boys demonstrate significantly better study habits than girls, schools should implement targeted interventions to support girls in improving their study strategies and time management skills. Additionally, although intelligence levels do not significantly influence study habits, educators should recognize that students with varying intellectual abilities may require different types of academic support. Schools especially in rural areas should focus on enhancing study habits for students with low intelligence through personalized learning plans. Moreover, the findings suggest that the type of school (government or private) and locality (urban or rural) do not directly impact study habits, so efforts should focus on promoting effective study behaviors across all school types and regions to ensure equal opportunities for academic success.

References

- GemlInni© Educational Systems (2012) Solutions - get started [webpage].
- Cooper JO, Heron TE, Heward WL (2020) Applied behavior analysis. (3rd edn.). Pearson Publishing.
- Autism and Developmental Disabilities Monitoring Network (2021) Prevalence and characteristics of autism spectrum disorder among children aged 8 years. Centers for Disease Control and Prevention. *MMWR* 70(11): 1-16.
- Rose V, Trembath D, Keen D, Paynter J (2016) The proportion of minimally verbal children with autism spectrum disorder in a community-based early intervention programme. *J Intellect Disabil Res* 60(5): 464-477.
- American Psychiatric Association (2013) Diagnostic and statistical manual of mental disorders, text revision: DSM-V-TR (5th edn). Washington.
- Dawson G, Osterling J (1997) Early intervention in autism: Effectiveness and common elements of current approaches. In: M Guralnik (Ed.), *The effectiveness of early intervention: Second generation research*. Baltimore, MD: Brookes Publishing, pp. 307-326.
- Howlin P, Magiati I, Charman T (2009) Systematic review of early intensive behavioral interventions for children with autism. *Am J Intellect Dev Disabil* 114(1): 23-41.
- Goods K, Ishijima E, Chang YC, Kasari C (2013) Preschool based JASPER intervention in minimally verbal children with autism: Pilot RCT. *J Autism Develop Disord* 43(5): 1050-1056.
- van der Meer LAJ, Rispoli M (2010) Communication interventions involving speech-generating devices for children with autism: A review of the literature. *Dev Neurorehabil* 13(4): 294-306.
- Virués-Ortega J (2010) Applied behavior analytic intervention for autism in early childhood: Meta-analysis, meta-regression and dose-response meta-analysis of multiple outcomes. *Clinical Psychology Review* 30(4): 387-399.
- Howlin P, Gordon RK, Pasco G, Wade A, Charman T (2007) The effectiveness of Picture Exchange Communication System (PECS) training for teachers of children with autism: A pragmatic, group randomized controlled trial. *J Child Psychol Psychiatr* 48(5): 473-481.
- Duffy C, Healy O (2011) Spontaneous communication in autism spectrum disorder: A review of topographies and interventions. *Res Autism Spectrum Disord* 5(3): 977-983.
- Goldstein H (2002) Communication intervention for children with autism: A review of treatment efficacy. *J Autism Develop Disord* 32(5): 373-396.
- Charlop MH, Schreibman L, Thibodeau MG (1985) Increasing spontaneous verbal responding in autistic children using a time delay procedure. *J Appl Behav Anal* 18(2): 155-166.
- Charlop MH, Walsh M (1986) Increasing autistic children's spontaneous verbalizations of affection through time delay and modeling procedures. *J Appl Behav Anal* 19(3): 307-314.
- Matson JL, Sevin JA, Fridley D, Love SR (1990) Increasing spontaneous language in three autistic children. *J Appl Behav Anal* 23(2): 227-233.
- Ross DE, Greer RD (2003) Generalized imitation and the mand: Inducing first instances of speech in young children with autism. *Res Dev Disabilities* 24: 58-74.
- Mancil GR, Conroy MA, Hayden TF (2009) Effects of a modified milieu therapy intervention on the social communicative behaviors of young children with autism spectrum disorders. *J Autism Dev Disord* 39(1): 149-163.
- Krantz PJ, McClannahan LE (1993) Teaching children with autism to initiate to peers: Effects of a script-fading procedure. *J Appl Behav Anal* 26(1): 121.
- Morris ZS, Wooding S, Grant J (2011) The answer is 17 years, what is the question: understanding time lags in translational research. *J Royal Soc Med* 104(12): 510-520.
- Interagency Autism Coordinating Committee (2017) IACC summary of advances in autism spectrum disorder research. U.S. Department of Health and Human Services.
- Chang YC, Shire SY, Shih W, Gelfand C, Kasari C (2016) Preschool deployment of evidence-based social communication intervention: JASPER in the classroom. *J Autism Dev Disord* 46(6): 2211-2223.
- Shire SY, Chang YC, Shih W, Bracaglia S, Kodjoe M, et al. (2017) Hybrid implementation model of community-partnered early intervention for toddlers with autism: a randomized trial. *J Child Psychol Psychiatr* 58(5): 612-622.
- Office of Special Education Programs, Individuals with Disabilities Education Act (IDEA) database, Digest of Education Statistics 2020, U.S. Department of Education.
- Anderson DK, Lord C, Risi S, DiLavore PS, Shulman C, et al. (2007) Patterns of growth in verbal abilities among children with autism spectrum disorder. *J Consult Clin Psychol* 75(4): 594-604.
- Rogers SJ, Hayden D, Hepburn S, Charlifue-Smith R, Hall T, et al. (2006) Teaching Young Nonverbal Children with Autism Useful Speech: A Pilot Study of the Denver Model and PROMPT Interventions. *J Autism Dev Disord* 36(8): 1007-1024.

27. Rogers SJ, Estes A, Lord C, Vismara L, Winter J, et al. (2012) Effects of a brief early start Denver model (ESDM)-Based parent intervention on toddlers at risk for autism spectrum disorders: A randomized controlled trial. *J Am Acad Child Adolesc Psychiatr* 51(10): 1052-1065.
28. Vismara LA, Colombi C, Rogers SJ (2009) Can one hour per week of therapy lead to lasting changes in young children with autism? *Autism* 13(1): 93-115.
29. Tager-Flusberg H, Kasari C (2013) Minimally verbal school-aged children with autism spectrum disorder: The neglected end of the spectrum. *Autism Res* 6(6): 468-478.
30. Boucher J, Bigham S, Mayes A, Muskett T (2008) Recognition and language in low functioning autism. *J Autism Dev Disord* 38(7): 1259-1269.
31. Tager-Flusberg H, Paul R, Lord CE (2005) Language and communication in autism. In: Volkmar F, Paul R, Klin A, Cohen DJ, (Eds.), *Handbook of autism and pervasive developmental disorder* (3rd edn), New York.
32. National Research Council, Committee on Educational Interventions for Children with Autism (2001) *Educating Children with Autism*. National Academics Press.
33. Koegel LK, Bryan KM, Su PL, Vaidya M, Camarata S (2020) Definitions of nonverbal and minimally verbal in research for autism: A systematic review of the literature. *J Autism Dev Disord* 50(8): 2957-2972.
34. Kasari C, Brady N, Lord C, Tager-Flusberg H (2013) Assessing the minimally verbal school-aged child with autism spectrum disorder. *Autism Res* 6(6): 479-493.
35. McGrew JH, Ruble LA, Smith IM (2016) Autism spectrum disorder and evidence-based practice in psychology. *Clin Psychol Sci Practice* 23(3): 239-255.
36. Gelbar NW, Anderson C, McCarthy S, Buggie T (2012) Video self-modeling as an intervention strategy for individuals with autism spectrum disorders. *Psychology in the Schools* 49(1): 15-22.
37. Odom S, Thompson J, Hedges S, Boyd B, Dykstra J, et al. (2015) Technology-aided interventions and instruction for adolescents with autism spectrum disorder. *J Autism & Dev Disord* 45(12): 3805-3819.
38. Grynszpan O, Weiss PL, Perez-Diaz F, Gal E (2014) Innovative technology-based interventions for autism spectrum disorders: A meta-analysis. *Autism* 18(4): 346-361.
39. McCleery JP (2015) Comment on technology-based intervention research for individuals on the autism spectrum. *J Autism Deve Disord* 45(12): 3832-3835.
40. Rayner C, Denholm C, Sigafoos J (2009) Video-based intervention for individuals with autism: Key questions that remain unanswered. *Res Autism Spectr Disord* 3(2): 291-303.
41. Ayres KM, Langone J (2005) Intervention and instruction with video for students with autism: A review of the literature. *Educ Train Develop Disabil* 40(2): 183-196.
42. Bellini S, Akullian J (2007) A meta-analysis of video modeling and video self-modeling interventions for children and adolescents with autism spectrum disorders. *Exceptional Child* 73(3): 264-287.
43. Buggie T (1995) Videotaped self-modeling: The next step in modeled instruction. *Early Educ Dev* 6: 39-51.
44. Buggie T (2007) A picture is worth. Video self-modeling applications at school and home. *J Positive Behav Interven* 9(3): 151-158.
45. Delano ME (2007) Video modeling interventions for individuals with autism. *Remedial & Special Educ* 28(1): 33-42.
46. Dowrick P (1999) A review of self-modeling and related interventions. *Appl Preventative Psychol* 8(1): 23-39.
47. Hitchcock C, Dowrick P, Prater M (2003) Video self-modeling intervention in school-based settings: A review. *Remed Special Educ* 24(1): 36-45.
48. McCoy K, Hermansen E (2007) Video modeling for individuals with autism: A review of model types and effects. *Educ Treat Child* 30(4): 183-213.
49. Mechling L (2005) The effect of instructor-created video programs to teach students with disabilities: A literature review. *J Spec Educ Technol* 20(2): 25-36.
50. Sturmey P (2003) Video technology and persons with autism and other developmental disabilities: An emerging technology for PBS. *Journal of Positive Behavior Interventions* 5: 3-4.
51. Wissick CA (1996) Multimedia: Enhancing instruction for students with learning disabilities. *Journal of Learning Disabilities* 29: 494-503.
52. Haring TG, Kennedy CH, Adams MJ, Pitts-Conway V (1987) Teaching generalization of purchasing skills across community settings to autistic youth using videotape modeling. *J Appl Behav Anal* 20(1): 89-96.
53. Sigafoos J, O'Reilly M, de la Cruz B (2007) *How to use video modeling and video prompting*. Austin TX: Pro-Ed.
54. Schreibman L, Whalen C, Stahmer AC (2000) The use of video priming to reduce disruptive transition behavior in children with autism. *J Positive Behav Interven* 2: 3-11.
55. Cannella-Malone H, Sigafoos J, O'Reilly M de la Cruz B, Chaturi E, Giulio EL (2006) Comparing Video Prompting to Video Modeling for Teaching Daily Living Skills to Six Adults with Developmental Disabilities. *Educ Train Dev Disabil* 41(4): 344-356.
56. Payne E, Antonow J (1982) Development and applications of user produced interactive videotape instructional materials. *J Special Educ Technol* 5(4): 33-36.
57. Buggie T, Toombs K, Gardener P, Cervetti M (1999) Training responding behaviors in students with autism: Using videotaped self-modeling. *J Positive Behav Interven* 1(4): 205-214.
58. Buggie T (2005) Video self-modeling applications with students with autism spectrum disorder in a small private school setting. *Focus Autism Other Develop Disabil* 20(1): 52-63.
59. Mechling L, Pridgen L, Cronin B (2005) Computer-based video instruction to teach students with intellectual disabilities to verbally respond to questions and make purchases in fast food restaurants. *Educ Train Dev Disabil* 40(1): 47-59.
60. Gallardo Montes C del P, Rodríguez Fuentes A, Caurcel Cara MJ (2021) Apps for people with autism: Assessment, classification and ranking of the best. *Technol Soc* 64: 101474.
61. Bittner M, Myers D, Silliman-French L, Nichols D (2018) Effectiveness of instructional strategies on the motor performance of children with autism spectrum disorder. *Palaestra* 32(2): 36-42.
62. Whittington-Barnish AK (2012) Research to practice: Evaluation of conversation skills video modeling intervention for adolescents with autism. In ProQuest LLC.
63. Radley KC, Helbig KA, Schrieber SR, Ware ME, Dart EH (2021) Superheroes social skills: A comparison of video only and full curriculum on social skill use. *Focus Autism Other Dev Disabil* 36(2): 95-107.

64. Gilmour MF (2015) Comparing the teaching efficacy of two video modeling programs delivered in a group format in special education classrooms to improve expressive language. *J Spcl Educ Technol* 30(2): 112-121.
65. Collet-Klingenberg L (2015) Determination of GemlIni© systems as a proven and effective treatment for individuals with autism spectrum disorder and/or other developmental disabilities. Wisconsin Department of Health Services, Treatment Interventional Advisory Committee.
66. GemlIni© Support (2021) Pricing and Financial Aid Options.
67. Tager-Flusberg H (2014) Promoting communicative speech in minimally verbal children with autism spectrum disorder, editorial. *J Am Acad Child Adolesc Psychiatr* 31(1): 612-613.
68. Ur P (1996) A course in language teaching: Practice and theory. Cambridge University Press.
69. Zhang Y (2009) Reading to speak: Integrating oral communication skills. *English Teaching Forum* 47(1).
70. Bellanca JA, Fogarty RJ, Pete BM (2012) How to teach thinking skills within the common core. Bloomington, IN: Solution Tree Press.
71. Johnston JM, Pennypacker HS, Green G (2020) Strategies and tactics of behavioral research and practice (4th Edn.). Routledge Publishing Group.
72. Kazdin AE (2011) Single-case research designs: Methods for clinical and applied settings (2nd Edn.). Oxford University Press.
73. Shukla-Mehta S, Miller T, Callahan KJ (2010) Evaluating the effectiveness of video instruction on social and communication skills training for children with autism spectrum disorders: A review of the literature. *Focus Autism Dev Disabil* 25(1): 23-36.
74. MacDonald RPF, Dickson CA, Martineau M, Ahearn WH (2015) Prerequisite skills that support learning through video modeling. *Educ Treat Child* 38(1): 33-47.
75. Morlock L, Reynolds JL, Fisher S, Comer RJ (2015) Video modeling and word identification in adolescents with autism spectrum disorder. *Child Language Teach Therap* 31(1): 101-111.
76. Heward WL, Alber-Morgan SR, Konrad M (2022) Exceptional children: An introduction to special education (12th Edn.): Pearson.
77. Pickett E, Pullara O, O'Grady J, Gordon B (2009) Speech acquisition in older nonverbal individuals with autism: A review of features, methods, and prognosis. *Cogn Behav Neurol* 22(1): 1-21.
78. Kasari C, Kaiser A, Goods K, Nietfeld J, Mathy P, et al. (2014) Communication interventions for minimally verbal children with autism: A sequential multiple assignment randomized trial. *J Am Acad Child & Adolesc Psychiatr* 53(6): 635-646.
79. Shire S, Goods K, Shih W, Distefano C, Kaiser A, et al. (2015) Parents' adoption of social communication intervention strategies: Families including children with autism spectrum disorder who are minimally verbal. *J Autism Devel Disord* 45(6): 1712-1724.
80. Bal VH, Katz T, Bishop SL, Krasileva K (2016) Understanding definitions of minimally verbal across instruments: evidence for subgroups within minimally verbal children and adolescents with autism spectrum disorder. *J Child Psychol & Psychiatry* 57(12): 1424-1433.



This work is licensed under Creative Commons Attribution 4.0 License
DOI: [10.19080/OAJELS.2025.03.555606](https://doi.org/10.19080/OAJELS.2025.03.555606)

Your next submission with Juniper Publishers
will reach you the below assets

- Quality Editorial service
- Swift Peer Review
- Reprints availability
- E-prints Service
- Manuscript Podcast for convenient understanding
- Global attainment for your research
- Manuscript accessibility in different formats (Pdf, E-pub, Full Text, Audio)
- Unceasing customer service

Track the below URL for one-step submission
<https://juniperpublishers.com/online-submission.php>