



A STUDY ON INTELLECTUAL STIMULATION AMONG SECONDARY SCHOOL STUDENTS IN INCLUSIVE SCHOOLS OF KERALA

SAVITHA.K.K,
Ph.D.Research Scholar,
School of Education,
(VISTAS) VELS University, Chennai,

Dr. S. POONGUZHALI
Research Supervisor
Assistant Professor
School of Education
(VISTAS) VELS University, Chennai,

Abstract

The present study examined intellectual stimulation among secondary-level students in inclusive schools of Kerala. The objective was to explore differences in intellectual stimulation with respect to gender, medium of instruction, locality, school management, and student category. A descriptive survey design was employed, and a total of 332 students were selected through stratified random sampling. Data were collected using a standardized Intellectual Stimulation Scale, and statistical analyses included mean, standard deviation, and independent samples t-tests. Results revealed significant differences in intellectual stimulation based on gender, school management, and student category, while no significant differences were observed for medium of instruction and locality. The findings highlight areas where inclusive teaching strategies can be strengthened to ensure equitable cognitive engagement for all learners.

Keywords: *Intellectual stimulation, inclusive education, secondary school students*

Introduction

Intellectual stimulation refers to instructional practices that encourage students to think independently, ask questions, explore ideas, and solve problems. In inclusive classrooms, teachers are required to address the learning needs of students with varied abilities while maintaining academic engagement for all learners. Kerala has made considerable progress in implementing inclusive education across schools; however, it is important to examine whether students experience similar levels of intellectual stimulation across different demographic and institutional contexts.

The present study examines intellectual stimulation among secondary-level students studying in inclusive schools of Kerala with reference to selected variables.

Significance of the Study

At the secondary level, students are expected to develop higher-order thinking skills, conceptual understanding, and independent learning abilities (NCERT, 2005).. In this context, intellectual stimulation plays a crucial role in supporting students' cognitive development and academic engagement.

The present study is significant as it provides evidence on the level of intellectual



stimulation experienced by secondary-level students studying in inclusive schools of Kerala. Indian studies have highlighted that classroom practices encouraging reasoning, questioning, and problem-solving are essential for improving learning outcomes at the secondary stage (Aggarwal, 2014; Dash, 2017).

The findings of the study may be useful for teachers in reflecting on their instructional practices and in identifying strategies that promote active thinking among all learners, including students with disabilities. Previous research in India has emphasized the need for teachers to adopt learner-centred and flexible approaches to support cognitive engagement in inclusive classrooms (Julka, 2016; Sharma & Deppeler, 2018). The study also offers insights for school administrators regarding the role of school management in creating supportive academic environments. By focusing on intellectual stimulation, the study aligns with national educational goals that emphasize understanding, critical thinking, and meaningful learning experiences for all students (NCERT, 2005).

Limitations of the Study

1. **Geographical Scope:** The study was confined to selected inclusive schools within Kerala State. Therefore, the findings may not be generalized to other states with different educational socio-economic contexts.
2. **Sample Size:** While the sample was representative, a larger sample size across all 14 districts of Kerala could have provided more granular insights into regional variations.
3. **Self-Report Scale:** The data was collected using a self-report scale. The responses might be influenced by the "social desirability" bias, where students might answer in a way they think their teachers or the researcher would prefer.
4. **Variable Constraint:** The study focused on five specific demographic variables. Other influential factors like *Socio-Economic Status (SES)* of parents, *Teacher's Experience*, and *Classroom Infrastructure* were not included in this particular analysis.

Operational Definitions

The key terms in this study are defined as follows:

- **Intellectual Stimulation:** In this study, it refers to the behavior of a student in an inclusive classroom that encourages other students to think creatively, challenge status quo beliefs, and solve problems through independent reasoning rather than rote memorization. It is measured by the scores obtained on the *Intellectual Stimulation Scale*.
- **Inclusive Schools:** These are general education secondary schools in Kerala where students with disabilities (differently abled) are educated alongside their non-disabled (normal) peers in the same classroom environment.



- Secondary Level Students: This refers to students currently enrolled in Standards 8, 9, and 10 in schools following the Kerala State syllabus or recognized equivalent boards within the state.
- Differently Abled Students: Students who have been officially identified and certified by medical or educational authorities as having specific physical, sensory, or cognitive impairments (such as visual impairment, hearing impairment, or locomotor disabilities) but are integrated into regular classrooms.
- Normal Students: Students who do not have a certified disability and represent the general population of learners in the inclusive classroom.

Review of Related Literature

Intellectual stimulation in classrooms promotes cognitive engagement, creativity, and academic achievement among secondary-level students (Dash, 2017; Chaudhary & Sharma, 2020). Some other studies have shown that teaching strategies involving problem-solving, inquiry tasks, and reflective discussions enhance students' critical thinking and motivation (Rao & Mehta, 2019; Gupta, 2017).

Teacher guidance and classroom leadership also influence intellectual stimulation (Mishra & Singh, 2016; Saxena & Bhatt, 2018). In inclusive classrooms, students with disabilities often receive fewer opportunities for cognitive challenge unless instruction is intentionally adapted (Julka, 2016; Sharma & Deppeler, 2018; Singal, 2015).

Globally, studies have emphasized intellectual stimulation as part of transformational teaching, where educators promote higher-order thinking, problem-solving, and innovation (Bass, 1985; Florian, 2019; Tomlinson, 2014; Shin & Bolkan, 2021). Teacher-driven cognitive challenges significantly enhance engagement, learning outcomes, and overall student development (Zee & Koomen, 2016).

Research Objectives

1. To examine differences in intellectual stimulation between male and female secondary-level students in inclusive schools of Kerala State.
2. To examine differences in intellectual stimulation based on medium of instruction (English vs. Malayalam) among secondary-level students in inclusive schools of Kerala State.
3. To examine differences in intellectual stimulation by locality (rural vs. urban) among secondary-level students in inclusive schools of Kerala State.
4. To examine differences in intellectual stimulation by school board type (government vs. aided) among secondary-level students in inclusive schools of Kerala State.
5. To examine differences in intellectual stimulation by student category (normal vs. differently abled) among secondary-level students in inclusive schools of Kerala State.



Research Hypotheses

H₁: There is no significant difference in intellectual stimulation between male and female secondary-level students in inclusive schools of Kerala State.

H₂: There is no significant difference in intellectual stimulation between students of English and Malayalam medium in inclusive secondary schools of Kerala State.

H₃: There is no significant difference in intellectual stimulation between rural and urban secondary-level students in inclusive schools of Kerala State.

H₄: There is no significant difference in intellectual stimulation between government and aided school students in inclusive secondary schools of Kerala State.

H₅: There is no significant difference in intellectual stimulation between normal and differently abled secondary-level students in inclusive schools of Kerala State.

Methodology

This study employs a quantitative approach to objectively measure and compare levels of intellectual stimulation across different student demographics.

1. Research Design

A Descriptive-Survey method was adopted for this study. This design is appropriate as it allows for the collection of data from a large group of participants to describe current conditions and identify significant differences between sub-groups through statistical comparison.

2. Population and Sample

The population consists of secondary-level students studying in inclusive schools in Kerala State. A stratified random sampling technique was used to ensure representation across different categories.

3.Total Sample Size: 332 students from 15 high schools of Calicut, Malappuram and Palakkad districts of Kerala.

4. Research Tool

Data were collected using the Intellectual Stimulation Scale, prepared by the research scholar under the guidance of the research supervisor. The tool measures various dimensions of cognitive engagement, including: Encouragement of critical thinking, Exposure to novel problem-solving tasks and Support for independent inquiry.

5. Statistical Techniques

The collected data were processed using the following statistical methods:

- Descriptive Statistics: Mean and Standard Deviation (S.D.) to describe the central tendency and dispersion of scores.
- Inferential Statistics: Independent samples t-test was employed to determine if the differences between the means of two groups were statistically significant at the 0.05 and 0.01 levels.

6. Procedure

The researcher obtained permission from school authorities and informed consent from participants. The scale was administered in a classroom setting, and students were assured of the confidentiality of their responses. The data were then scored according to the manual and subjected to the statistical analysis detailed in the Results section.

RESULTS & DISCUSSION

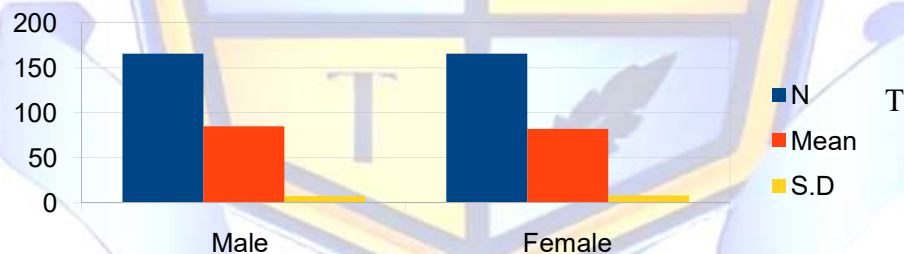
HYPOTHESIS-1

There is no significant difference in Intellectual Stimulation between Male and Female Secondary Level Students of Inclusive Schools of Kerala State

TABLE 1 Intellectual stimulation based on Gender difference(Boys/Girls)

Gender	N	Mean	S.D	d.f	't' Value
Male	166	85.11	7.42	330	3.22
Female	166	82.34	8.22		

Figure-1 Intellectual stimulation based on Gender difference(Boys/Girls)



The independent samples t-test reveals a statistically significant difference in intellectual stimulation between male and female secondary students, with males scoring higher (M=85.11, SD=7.42) than females (M=82.34, SD=8.22). The t-value of 3.22 with df=330 exceeds the critical value of 2.58 ($\alpha=0.01$), rejecting the null hypothesis.

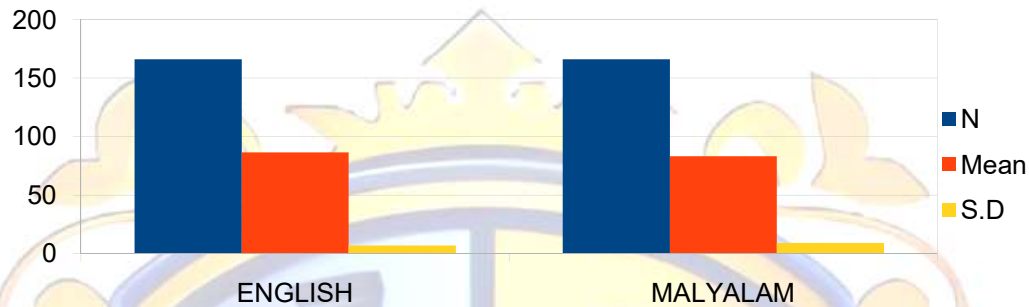
HYPOTHESIS-2

There is no significant difference in Intellectual Stimulation between the Medium of Instruction of Secondary Level Students of Inclusive Schools of Kerala State

Table-2 Intellectual stimulation based on Medium of instruction(English/Malayalam)

.Medium of Instruction	N	Mean	S.D	d.f	't' Value
ENGLISH	166	86.34	6.71	330	1.67
MALYALAM	166	83.17	8.99		

Figure- 2Intellectual stimulation based on Medium of instruction(English/Malayalam)



The independent samples t-test shows no statistically significant difference in intellectual stimulation between English-medium (M=86.34, SD=6.71) and Malayalam-medium (M=83.17, SD=8.99) students, with $t(330)=1.67$. The calculated $t=1.67$ falls below critical values of 1.96 ($\alpha=0.05$) and 2.58 ($\alpha=0.01$) for $df=330$, failing to reject the null hypothesis.

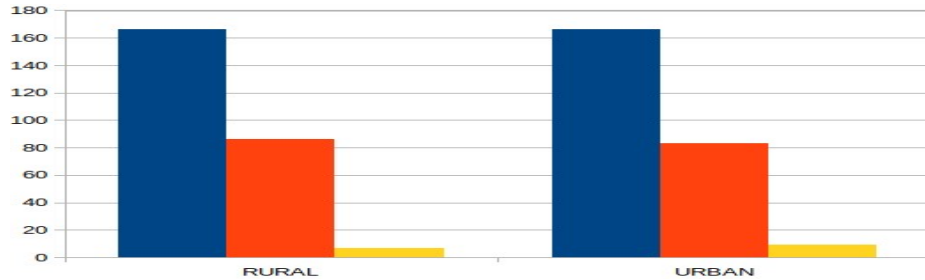
HYPOTHESIS-3

There is no significant difference in intellectual stimulation between rural and urban secondary-level students in inclusive schools of Kerala State.

Table-3 Intellectual stimulation based on residential area(Rural/Urban)

. Residential area	N	Mean	S.D	d.f	't' Value
RURAL	166	86.13	7.71	330	0.82
URBAN	166	85.42	8.19		

Figure-3 Intellectual stimulation based on residential area(Rural/Urban)



The obtained *t*-value is **not significant** at either level. $0.82 < 1.96$ and 2.58 . The analysis shows that there is **no significant difference** in **Intellectual Stimulation** between Rural and Urban Secondary Level Students of Inclusive Schools. Although the mean score of Rural students (Mean = 86.13) is slightly higher than that of Urban students (Mean = 85.42), the difference is **not statistically significant**. Hence, residential area does not significantly influence the intellectual stimulation of the students. The obtained ‘*t*’ value (0.82) is not significant at either the 0.05 or 0.01 level. Therefore, the null hypothesis is accepted. Residential locality is not a determining factor for intellectual stimulation .

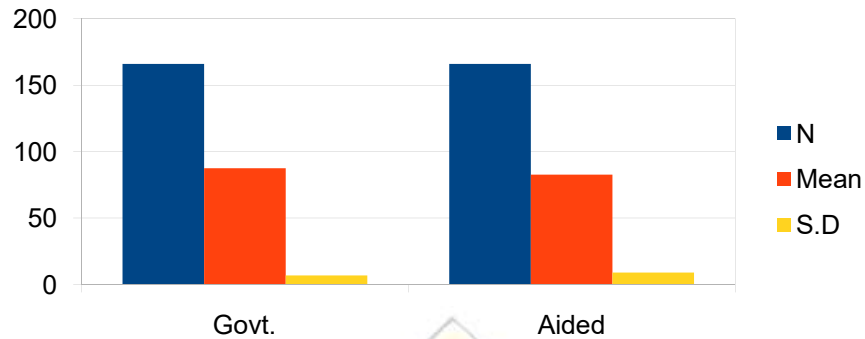
HYPOTHESIS-4

There is no significant difference in intellectual stimulation between government and aided school students in inclusive secondary schools of Kerala State.

Table-4; Intellectual Stimulation based on Type of management of the schools(Govt/Aided)

Type of Management of the school	N	Mean	S.D	D.f	‘t’ Value
Govt.	166	87.43	6.71	330	5.43
Aided	166	82.71	8.99		

Figure-4 Intellectual stimulation based on Type of management of the schools(Govt/Aided)



The results indicate a **significant difference** in **Intellectual Stimulation** between Government and Aided school students. Government school students (Mean = 87.43) show significantly higher intellectual stimulation than Aided school students (Mean = 82.71). Hence, the type of school management has a significant influence on the intellectual stimulation of secondary level students. The calculated 't' value (5.43) is much higher than the critical value (2.58) at the 0.01 level. The null hypothesis is rejected. Students in government schools show significantly higher levels of intellectual stimulation compared to those in aided schools.

HYPOTHESIS-5

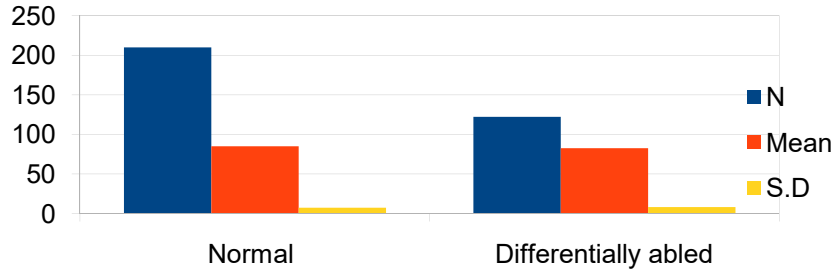
There is no significant difference in intellectual stimulation between normal and differently abled secondary-level students in inclusive schools of Kerala State.

Table-5.

Intellectual stimulation based on Type of category of the student(Normal/Differentially abled)

Category of the student	N	Mean	S.D	d.f	t' value
Normal	210	85.11	7.42	330	3.02
Differentially abled	122	82.34	8.22		

Figure-5. Intellectual stimulation based on category of the student(Normal/Differentially abled)



The table presents a comparison of **Intellectual Stimulation** scores between **normal** and **differently abled** secondary level students of inclusive schools. **The mean score of normal students (Mean = 85.11, SD = 7.42) is higher than that of differently abled students (Mean = 82.34, SD = 8.22).** This indicates that normal students exhibit a relatively higher level of intellectual stimulation compared to differently abled students. **The calculated ‘t’ value (3.02) is significant at the 0.01 level. The null hypothesis is rejected. Normal students exhibit a significantly higher level of intellectual stimulation compared to differently abled students in inclusive settings.**

Table-6 : Summary of Findings

Variable	t-value	df	95% CI (Lower, Upper)	Result
Gender	3.22*	330	(0.90, 4.64)	Significant
Medium	1.67	330	(-1.30, 6.94)	Not sig.
Locality	0.82	330	(-1.11, 2.71)	Not sig.
Management	5.43*	330	(3.24, 6.20)	Significant
Category	3.02*	330	(0.95, 4.59)	Significant

Interpretation

1. Male students exhibited higher intellectual stimulation than female students.
2. No significant difference in intellectual stimulation was found between English and Malayalam medium students.
3. No significant difference was observed between rural and urban students.
4. Government school students showed higher intellectual stimulation than aided school students.
5. Normal students showed higher intellectual stimulation than differently abled students.



Educational Implications

The findings of this study have significant implications for teaching and learning in inclusive secondary schools in India, particularly in the context of the National Education Policy (NEP 2020). NEP 2020 emphasizes holistic, learner-centred, and inclusive education, promoting critical thinking, problem-solving, and creativity across all stages of learning (NCERT, 2005).

Teachers can enhance intellectual stimulation by designing classroom activities that encourage reasoning, questioning, and analytical thinking for all students, including those with disabilities (Dash, 2017; Mohanty, 2018). Such strategies align with NEP 2020's focus on experiential and inquiry-based learning, enabling students to engage actively in knowledge construction rather than passive reception.

Inclusive pedagogical approaches, guided by NEP 2020 principles, ensure that students with diverse learning needs access cognitively appropriate and meaningful learning experiences (Julka, 2016; Sharma & Deppeler, 2018). Flexible instructional strategies, differentiated support, and the use of collaborative learning can help bridge gaps in participation and engagement among differently abled students.

Professional development programmes that focus on learner-centred and interactive teaching practices can strengthen teacher effectiveness and foster higher levels of student engagement (Kumar & Rao, 2019). These programmes support the NEP 2020 vision of continuous teacher training to implement inclusive, competency-based learning.

Finally, curriculum materials and classroom tasks should promote higher-order thinking, critical analysis, and problem-solving skills, in line with NEP 2020's emphasis on experiential, skill-based, and multidisciplinary education. By integrating these principles, inclusive classrooms can ensure meaningful intellectual stimulation for all learners, preparing them to meet 21st-century learning demands (NCERT, 2005)

Conclusion

The present study examined intellectual stimulation among secondary-level students studying in inclusive schools of Kerala. The results indicate that intellectual stimulation differs with respect to gender, school management, and student category, while no differences were observed based on medium of instruction and locality. The study shows that inclusive schooling in Kerala ensures uniformity across language and location, though variations exist among certain student groups. The findings provide descriptive information on intellectual stimulation in inclusive secondary schools.

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