"General Education Teachers' Attitude Regarding the Use in Their Classes of Assistive Technology by Special Children"

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Abstract

The purpose of this study was to determine the attitudes of general education teachers regarding the use of assistive technology in their classrooms by children with special needs. Assistive technology plays a crucial role in enhancing the learning experience of students with diverse disabilities, including physical, sensory, cognitive, and communication impairments. A five-point Likert scale was used to assess teachers' perceptions, comfort levels, and willingness to integrate assistive technology into their teaching practices. The participants in this study were general education teachers from elementary and secondary schools in a sirsa district in Haryana. The survey aimed to collect data on teachers' attitudes toward incorporating assistive technology to support the academic growth and inclusion of children with special needs in mainstream classrooms. The hypothesis proposed that general education teachers would have a positive attitude toward the use of assistive technology by children with special needs, recognizing its benefits in fostering accessibility, engagement, and independent learning. The findings of the study supported this hypothesis, revealing that most teachers acknowledged the value of assistive technology in addressing the diverse learning needs of their students. However, some concerns were raised regarding the availability of resources, training, and technical support required for effective implementation.

This study highlights the importance of professional development programs to enhance teachers' confidence and competence in utilizing assistive technology. By fostering a more inclusive educational environment, assistive technology can empower children with special needs to participate fully in the learning process and achieve their academic potential.

INTRODUCTION

Technology is advancing rapidly in the field of education, just as it is in other aspects of society. Research indicates that educational technology is among the most critical issues in schools today (Northwest Regional Educational Laboratory, 1995). The integration of technology into education provides students with real-world learning experiences, engaging them in problem-solving and critical thinking (Duffy & Cunningham, 1996; Honebein, 1996; Cognition and Technology Group at Vanderbilt, 1992).

One important question is whether schools are effectively incorporating technology and keeping pace with new advancements to support future generations in their learning. Over the past two decades, K-12 schools have invested substantial financial resources in acquiring modern technological tools. However, in many cases, these investments have been made without a well-defined strategy for their impact on teaching and learning (Barnett, 2001).

According to a report by the National Center for Education Statistics (U.S. Department of Education, 2000), a significant number of teachers struggle with integrating technology into their instructional practices. Many educators feel unprepared and lack the necessary training to use technology effectively in their classrooms (Lonergan, 2001). Professional development and continuous training are essential to ensure teachers can utilize technology to its full potential.

Technology alone does not automatically enhance learning; its effectiveness depends on how teachers and students implement it within the educational process (Driscoll, 2002). As inclusive education becomes more prevalent, it is crucial for general education teachers to develop awareness and proficiency in assistive technology. By acquiring the necessary skills and knowledge, educators can create more accessible learning environments that support the diverse needs of all students.

Technology plays a crucial role in supporting individuals in completing various tasks (Quenneville, 2001). For students with disabilities, assistive technology can be particularly

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beneficial in helping them overcome challenges and achieve academic success. Assistive technology refers to any tool, device, or system—whether commercially available, modified, or customized—that enhances, sustains, or improves the functional abilities of individuals with disabilities (Behrmann, 1995).

Some common examples of assistive technology include graphic organizers, audio recording devices, handheld calculators, augmentative communication tools, and instructional software. Research suggests that the use of these tools and services significantly improves the performance of students with disabilities, enabling them to complete tasks with greater efficiency and independence (Edyburn, 2000).

Even today, many sectors of society remain without access to information and communication technologies (ICTs) for various reasons, preventing them from benefiting from these advancements. This disparity has led to the concept of the "digital divide," which refers to the gap between individuals or social groups who have access to technology and those who do not (Warf, 2019; Liu et al., 2022).

INCLUSION

Inclusion provides many benefits for students with special needs. One key advantage is that it allows them to be part of a general classroom alongside their peers, helping them feel included and valued. This integration fosters a sense of belonging and encourages participation in a regular learning environment.

Inclusion also plays a crucial role in building social skills. Studies show that students with disabilities tend to develop better social behaviors when they learn alongside their peers in a general classroom (Cole & Meyer, 1991). Additionally, students without disabilities become more accepting and willing to support their peers with special needs. When students without disabilities actively assist their classmates, it fosters a positive attitude, increases empathy, and enhances appreciation for diversity (D'Alonzo, 1997). Overall, inclusion benefits all students by promoting academic growth, social development, and a more accepting school environment. Administrators play a vital role in the success of an inclusive education program. Their support is crucial for both general and special education teachers as they work together to create an effective learning environment for all students.Collaboration between general and special education teachers is a key factor in making inclusion successful. Teachers must work as a team to identify student needs, implement effective teaching strategies, and track student progress to ensure learning goals are met (Tralli, 1996). When administrators encourage teamwork and provide necessary resources, they help create an inclusive classroom where all students can thrive.

ASSISTIVE TECHNOLOGY

Baniawwad et al. (2024) investigated the impact of assistive technology training on educators' performance in Saudi special education institutions. Their study found that such training enhances educators' knowledge and self-efficacy, which in turn positively influences their teaching effectiveness. Using questionnaires and Smart-PLS analysis, the study confirmed that knowledge and self-efficacy mediate the relationship between training and performance. The findings emphasize the importance of assistive technology training in improving educators' capabilities, highlighting its role in advancing special education quality.

Khasawneh (2024) explored the role of tablet-based assistive technology (TBAT) in Saudi special education classrooms, focusing on educators' experiences and perceptions. The study found that TBAT enhances student engagement, personalized learning, and communication skills. However, challenges such as limited training, inadequate resources, and resistance to change were identified. Statistical analysis confirmed a significant relationship between educators' perceptions and the impact of TBAT on academic progress. The study emphasizes the need for targeted professional development, technical support, and structured implementation strategies to maximize the benefits of TBAT in special education.

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Fernández-Batanero et al. (2022) conducted **a** systematic review on the role of assistive technology (AT) in fostering the inclusion of students with disabilities. Analyzing 31 empirical studies from 2009 to 2020, they found that AT significantly enhances accessibility and participation in education. However, key challenges, such **as** insufficient teacher training, lack of information, and accessibility issues, hinder its full potential. The study underscores the need for professional development programs and improved infrastructure to maximize AT's impact on inclusive education.

Schools are responsible for ensuring that assistive devices and services are available when necessary to provide students with a free and appropriate public education (Bowser & Reed, 1995). The Individuals with Disabilities Education Act (IDEA) requires that assistive technology be considered when developing Individualized Education Programs (IEPs) for students with disabilities. These tools can support students in organization, note-taking, writing, academic tasks, accessing general education materials, and cognitive development **(Behrmann& Jerome, 2002).** If assistive technology is essential for a student's learning, schools must provide it (Edyburn, 2000).

PURPOSE OF STUDY:

This study was developed to seek and evaluate general education teachers' attitudes regarding the use in their classes of assistive technology by students with learning disabilities. Specifically, the researchers wanted to find out what the general education teachers' attitude was regarding the use in their classes of assistive technology by students with learning disabilities.

PARTICIPANTS:

Participants were 29 general education teachers from a The Sirsa School, Sirsa. Twenty- three of the participants were female and six were male. All 29 of the participants taught in an inclusion classroom. Seventeen of the participants held a Bachelor's degree, while 12 held a Master's degree. Two of the teachers taught for 0-3 years. Five of the teachers had 4-7 years of teaching experience. Five of the teachers taught for 8-11 years. Six teachers have taught for 12-15 years. Eleven of the teachers had 16 or more years of teaching experience.

INSTRUMENTATION:

The teacher-researcher developed a questionnaire survey that was utilized as an assessment instrument. There was 20 questions asked about the use of assistive technology. The researcher gathered information regarding the general education teachers' attitude on the use in their classes of assistive technology by students with learning disabilities. The instrument was field tested on general education teachers that were graduate students.

PROCEDURE:

First, the researcher passed out the surveys to all grades, four through twelve general education teachers. The surveys were put in each general education teachers' mailbox on their specific campus. A period of one week was given for surveys to be completed and returned to the researcher's campus mailbox. The teachers were able to choose to not complete the survey. Each teacher responded on the survey itself. The teachers responded to items using a five-point Likert scale. The Likert indexes used were strongly agree, agree, neutral, disagree, and strongly disagree.

Item	%SA	%A	%N	%D	%SD	M	SD
1	51.1	28.7	11.4	0	0	4.0	0.79
2	13.4	2.3	12.7	27.8	32.7	2.10	1.33
3	34.5	55.2	11.3	0	0	4.24	0.62
4	40.7	47.6	12.9	4.4	0	4.48	0.86
5	26.5	32	23.4	14.6	4.4	3.66	1.12
6	18.6	34.9	38.3	0	2.2	3.41	0.90
7	30.5	38.4	25.8	3.6	0	3.86	0.84

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8	15.2	54.8	25.3	4.4	0	3.69	0.71
9	18.3	65.2	10.9	10.6	3.6	4.03	1.01
10	13.7	45.7	29.7	12.3	2.7	3.72	1.04
11	16.5	49.9	27.3	1.3	0	3.62	0.71
12	29	56.2	19.4	0	0	4.21	0.71
13	36.6	42.8	21.8	0	0	4.17	0.75
14	32	57.8	7.7	3.6	0	4.17	0.70
15	26.1	54.8	27.1	1.4	0	4.41	0.86
16	25.7	61.2	11.6	0	0	4.00	0.59

Table1 (completed)

Item	%SA	%A	%N	%D	%SD	M	SD
17	26.4	67.2	7.9	0	0	4.21	0.55
18	41	38.5	21.7	0	0	4.21	0.76
19	6.6	43.9	18.2	19.7	5.9	3.14	1.08
20	47.8	48.4	3.6	0	0	4.45	0.56

ANALYSIS AND INTERPRETATION OF DATA:

Quantitative information was used to analyze the data from the surveys to determine what the general education teachers' attitude on the use in their classes of assistive technology by students with Learning disabilities. All of the participants fully completed the survey. No item responses were left blank. Frequencies, means, and standard deviations were used to assess the teachers' responses.

RESULTS

A summary of the statistics from the general education teachers' attitude survey is presented in Table 1. Frequencies of responses, means, and standard deviations are given.

Table1

Summary of Survey Data

Note.SA=strongly agree, A=Agree, N= neutral, D=disagree, SD=strongly disagree.

All of the responses to the survey items were generally positive, where lower scores represent a more positive attitude. The item with the lowest score (most positive response) was item 1 (M = 4.00, SD=.79). The item with the highest score was item 2 (M=2.10, SD=1.33). Due to the wording of the question, the high score on item 2 also reflect a positive attitude.
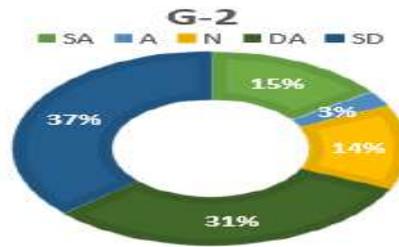
Graph-1 Descriptive Analysis of Percent Responding to Question1 in Survey

1.   I think the availability of an AT device for students is important in my class.
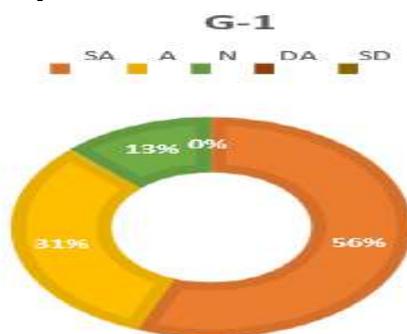
Based on the answers to survey question 1, 56 % strongly agreed and 31% agreed that AT devices were important in their classes. Only 13% were neutral.
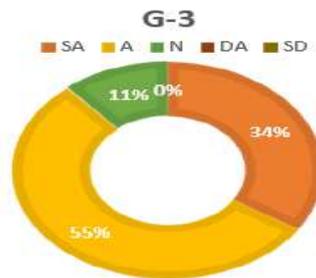
Graph 2 Descriptive Analysis of Percent Responding to Question2 in Survey I think too much time is spent using AT devices in my class.

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There were many participants that strongly disagreed (37%) and disagreed (31%) that too much time is spent with AT devices being used in their classes. Only 3% strongly agreed with 14% being neutral.

Graph-3 Descriptive Analysis of Percent Responding to Question 3 in Survey

2.   I think integrating technology into lessons for the student is beneficial in my class.

Many strongly agreed (55 %) that integrating technology in their classes is beneficial and 34 % agreed while 11 % were neutral.

Graph 4 Descriptive Analysis of Percent Responding to Question 4 in Survey

3.   I think adapting assignments for students is appropriate in my class.
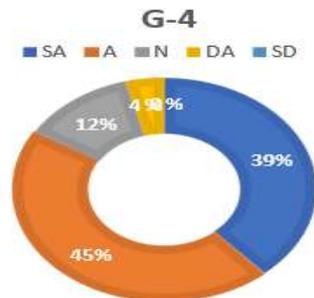
Overall most participants strongly agreed (45 %) and agreed (39%) that adapting assignments is appropriate. A very small percent (12%) were neutral while 4.9% disagreed.

Graph-5 Descriptive Analysis of Percent Responding to Question 5 in Survey

4.   I think there are a growing number of students in my class eager to use AT devices.
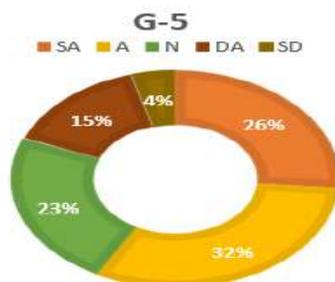

The participants in this survey indicated that 23% strongly agreed, 32% agreed, 26 % were neutral, 15% disagreed and 4% strongly disagreed about the eagerness to use AT devices.

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Graph-6 Descriptive Analysis of Percent Responding to Question 6 in Survey
5.   I think students who use AT devices in my class will have higher achievement scores.

G-6
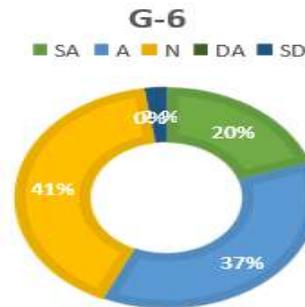
Majority of the participants agreed (41%) and were neutral (37%) while 20% strongly agreed that AT devices could produce higher achievement scores.

Graph-7 Descriptive Analysis of Percent Responding to Question 7 in Survey
6.   I think AT devices used in my class will help students work towards independence.

G-7
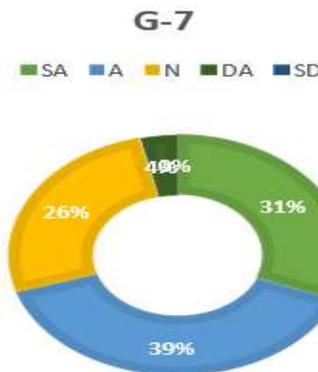
Most participants agreed (39%) that AT devices will help students towards independence, while 26% strongly agreed, 31% were neutral and 4.8% disagreed.

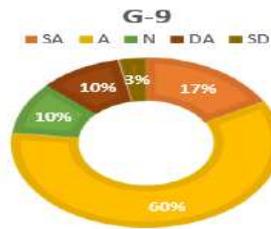**Graph-8 Descriptive Analysis of Percent Responding to Question 8 in Survey**
7.   I think students using AT devices in my class are able to identify their strengths and weaknesses.

G-8

Based on the answers to survey question 8, 15% strongly agreed and 55% agreed that AT devices are able to identify strengths and weaknesses. Only 25% were neutral, while 5.9% disagreed.

**Graph -9 Descriptive Analysis of Percent Responding to Question 9 in Survey**
8. I think the lack of training for teachers in using AT devices is a major barrier for students' success in my class.

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Many agreed (60%) that the lack of training for teachers is a major barrier for success of students in their classes. Some strongly agreed (10%), 10% were neutral, 17% disagreed and 3% strongly disagreed.

Graph 10 Descriptive Analysis of Percent Responding to Question 10 in Survey

9.   I think administrators, teachers, and parents are helpful when need help or explanation of AT devices for my class.
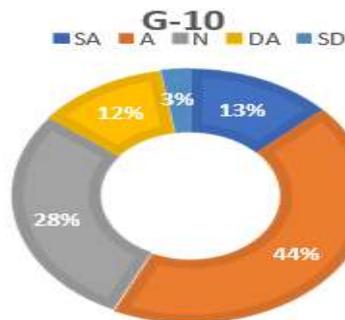
According to the answers of survey question10, 44% agreed that administrators, teachers, and parents are helpful when they need help or explanation of AT devices for their class. 28% were neutral, 12% strongly agreed, 13% disagreed, while 3% strongly disagreed.

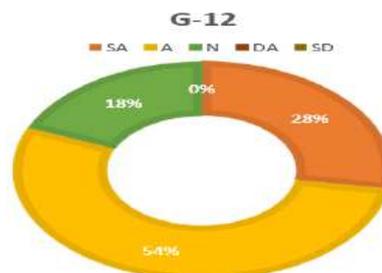**Graph 11 Descriptive Analysis of Percent Responding to Question 11 in Survey**

10. I think students that use AT devices in my class are accepted among their peers.
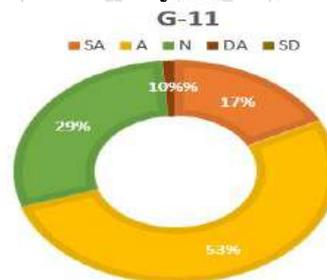
Many agreed (53%) agreed that students that use AT devices are accepted among their peers. 29% were neutral and 17% strongly agreed.

Graph 12 Descriptive Analysis of Percent Responding to Question 12 in Survey

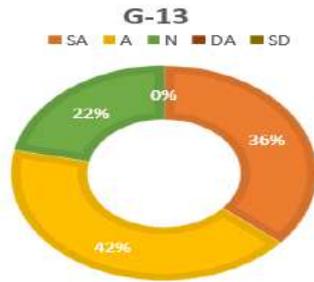**11. I think AT devices are useful for all core academic classes.**

Many (54%) agreed that AT devices are useful for all core academic classes. Only18% were neutral while 28% strongly agreed.

Graph 13 Descriptive Analysis of Percent Responding to Question 13 in Survey

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12. I think AT devices help students with independent living skills.

G-13

Many agreed (42%) agreed that AT devices help within dependent livings kills. 36% strongly agreed and 22% were neutral.

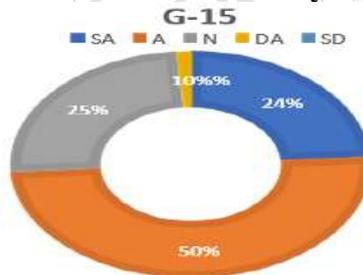**Graph 14 Descriptive Analysis of Percent Responding to Question 14 in Survey**

13. I think AT devices help students with job skills.

G-14
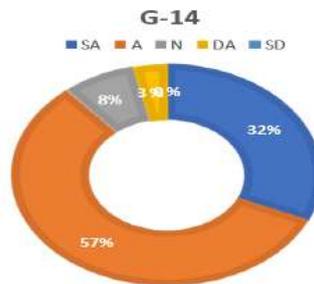
Many agreed (57%) that AT devices help with job skills and 32% strongly agreed while 8% were neutral and 3.8% strongly disagreed.

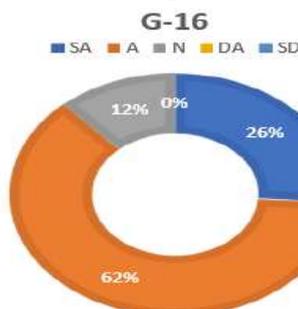**Graph 15 Descriptive Analysis of Percent Responding to Question 15 in Survey**

14. I think AT devices help students with community skills.

G-15

Many agreed (50%) that AT devices help with community skills and 24% strongly agreed while25% were neutral and 1% strongly disagreed.

Graph 16 Descriptive Analysis of Percent Responding to Question 16 in Survey

15. **I think AT devices help students accomplish their tasks in my class**.
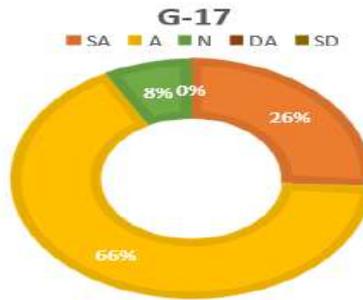
G-16

Many agreed (62%) that AT devices help accomplish tasks in class and 26% strongly agreed while 12% were neutral.

Graph 17 Descriptive Analysis of Percent Responding to Question 17 in Survey

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16. I think AT devices used in my class are effective in the students' learning process.

Many agreed (66%) that AT devices used are effective in the students' learning process and 26% strongly agreed while 8% were neutral.

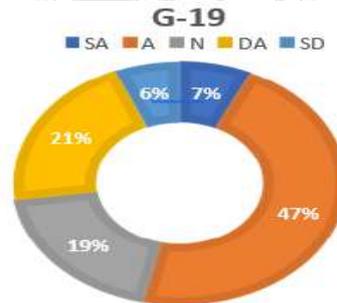**Graph 18 Descriptive Analysis of Percent Responding to Question 18 in Survey**

17. I think my class room set-up is important for students who use AT devices.
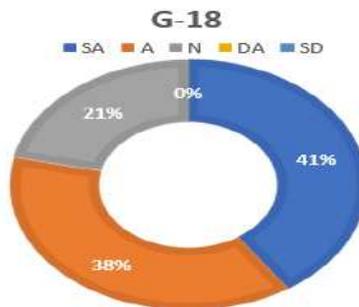
Many agreed (41%) that classroom set-up is important for students who use AT devices and 38% strongly agreed while 21% were neutral.

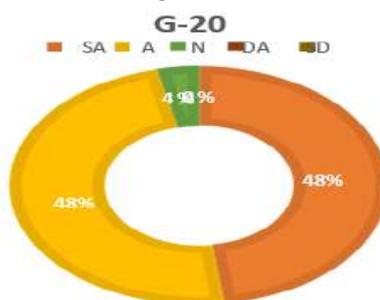**Graph 19 Descriptive Analysis of Percent Responding to Question 19 in Survey**

18. I think there will be challenges to overcome to accommodate students who use AT devices in my class.

Many agreed (47%) that there will be challenges to overcome to accommodate students who use AT devices and 6% strongly agreed while 19% were neutral, 21% disagreed and 7% strongly disagreed.

Graph 20 Descriptive Analysis of Percent Responding to Question 20 in Survey

19. I think overall, AT devices used in my class are useful and helpful for students.

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Many agreed (48%) that AT devices are useful and helpful for students and 48% strongly agreed while 4% were neutral.

Discussion

The hypothesis that general education teachers' attitude regarding the use in their classes of assistive technology by students with Special Needs would be positive was supported. Kosakowski (1998) stated the essential need of teachers to use assistive technology. It appeared in the present study that teachers had a positive attitude toward incorporating assistive technology in their classrooms. The teachers' positive attitudes toward assistive technology may help with students' frustration, motivation, peer acceptance, and productivity in the classroom (Quenneville, 2001). Bryant and Bryant (1998) made a call for teachers to use assistive technology to benefit students. Teachers' positive attitude toward the use of assistive technology is essential for its successful use in promoting student success. From the present study, it appears that general education teachers have the positive attitude needed to successfully implement assistive technology in their classrooms.

The present study is limited by the small sample size and the use of volunteers. It may be that only general education teachers with positive attitudes towards assistive technology chose to complete and return the surveys. This study represents only a small number of general education teachers who chose to participate. Future studies should include a larger, more diverse sample to determine general education teachers' attitudes toward assistive technology and the effects of such attitudes.

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