

Table No. 4.1

List of Assistive Technology Devices.

Sl. No.	Types of Assistive Technology	Assistive Technology
1	Physical Facility	Wheel Chair
2		Walker
3		Assistive Cane
4		Page Turner
5	Cognitive Tool	Screen Reader
6		Mobility Aid
7		Braille
8		Refreshable Braille Display
9		Optacon
10		Pencil Grip
11		High Lighter
12		Assistive Listening Device
13		Talking Watch
14		Talking Calculator
15		Text to Speech Reader
16		Screen Magnifier

Availability of Assistive Technology in schools		Name of Assistive Technology																
		Physical Facilities				Cognitive Tools												Total
		Wheel chair	Walker	Assistive Cane	Page Turner	Screen Reader	Mobility Aid	Braille	Refreshable Braille Display	Optacon	Pencil Grip	High Lighter	Assistive listening device	Talking watch	Talking calculator	Text to speech reader		
Schools																		
School 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	2	
School 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	16	
School 3	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	16	
School 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
School 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
School 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	
School 7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
School 8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
School 9	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	16	
School 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2	
School 11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4	
School 12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	
School 13	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2	
School 14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1	

Fig. 4.1: Showing Availability of Assistive Technology Devices in Respective Schools.

The fig. 4.1 representing the availability of assistive technological devices in respective schools. Out of 14 schools, 6 schools have only 1 assistive device with them. While, 4 schools have 2 assistive devices, 1 school have 4 assistive devices and 3 schools have all the 16 assistive devices with them.

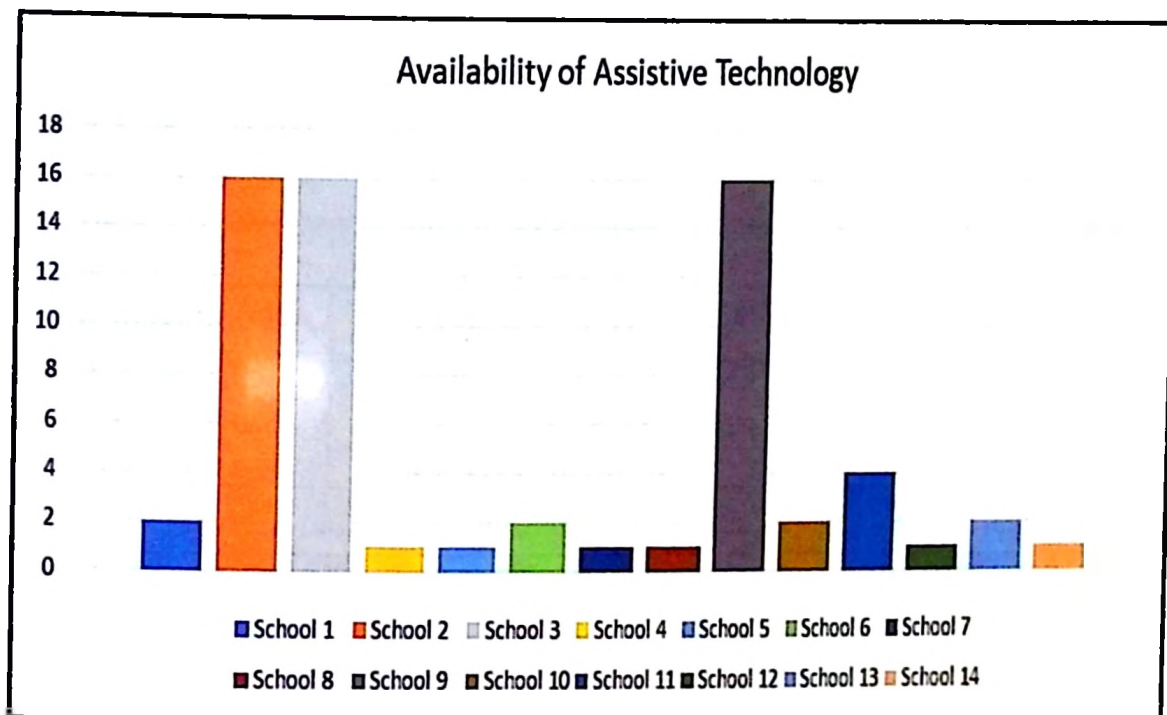


Fig. 4.2: The Column Representing the Availability of Assistive Technology in Schools.

Fig. 4.2 shows the graphical representation of the availability of assistive technological devices in respective schools.

4.2 Teachers' Attitude

Objective 2: To study the teachers' attitude, the investigator performed an opinionnaire among the school teachers those who are in-charge of CWSN students in their respective secondary schools. The investigator calculated the opinions of the teachers using 5-point scoring scale and classified the scores into three levels namely positive, neutral and negative attitude. As there are total 14 statements in the opinionnaire, highest mark can be scored by a teacher is 70 as each right answer carries 5 marks and lowest score will be 14 as the lowest mark for each question is 1.

Table No. 4.2

Scoring for Teachers' Opinionnaire.

SI No	Score of teachers' opinion	Range
01	Positive	52 – 70
02	Neutral	33 – 51
03	Negative	14 – 32

Table No. 4.3

Percentage of Teachers Having Positive, Neutral and Negative Attitude Towards Education of CWSN

Variable	Levels	Frequency	Percentage
Teachers' opinion	Positive	14	100%
	Neutral	0	0%
	Negative	0	0%
Total		14	100%

The investigator took 14 secondary school teachers for this study and prepared 14 statements to check the attitude of school teachers towards the education of CWSN students. All the 14 teachers from their respective schools shown positive attitude towards CWSN students' education. The above table no. 4.3 shows levels of teachers' attitude, their frequency and their percentage.

The following column represents the frequency and percentage of teachers' attitude at different levels.

Percentage of Teachers at each Level



Fig. 4.3: Pie chart represents level of Teachers' Attitude Towards Education of Cwsn and Percentage of Teachers at each level.

4.3 Academic Achievement

Objective 3: The investigator collected the F1 marks of every subject of CWSN students from their respective school registers and levelled them as per their academic achievement into high, moderate and low academic achievement levels as shown in the following table 4.4.

Table No. 4.4

Shows the Level of Academic Achievement by CWSN Students (Cumulative Score 180)

SI No	Level of Academic Achievement	Range
1	High	91-110
2	Average	71-90
3	Low	51-70

CWSN students scoring above 50% cumulatively in FAI is considered as high academic achievement. Students scoring 40-50% levelled as average academic

achievement. And lastly, students scoring below 40% is levelled as low academic achievement.

Table No. 4.5

Showing the Level of Academic Achievement of CWSN Students.

Variable	Levels	Frequency	Percentage
Academic Achievement	High	6	13.64%
	Average	17	38.63%
	Low	21	47.73%
Total		44	100.0 %

Table 4.5, showing the CWSN students' academic achievement classified in three levels and their percentage. 6 CWSN students achieved high academic achievement which can be considered as 13.64% of students. 17 of CWSN students are in average level of academic achievement which is 38.63% of total CWSN students. 21 CWSN students are found to be levelled as low academic performance, which is 47.73% of total CWSN students in Pallahara Block at secondary level.

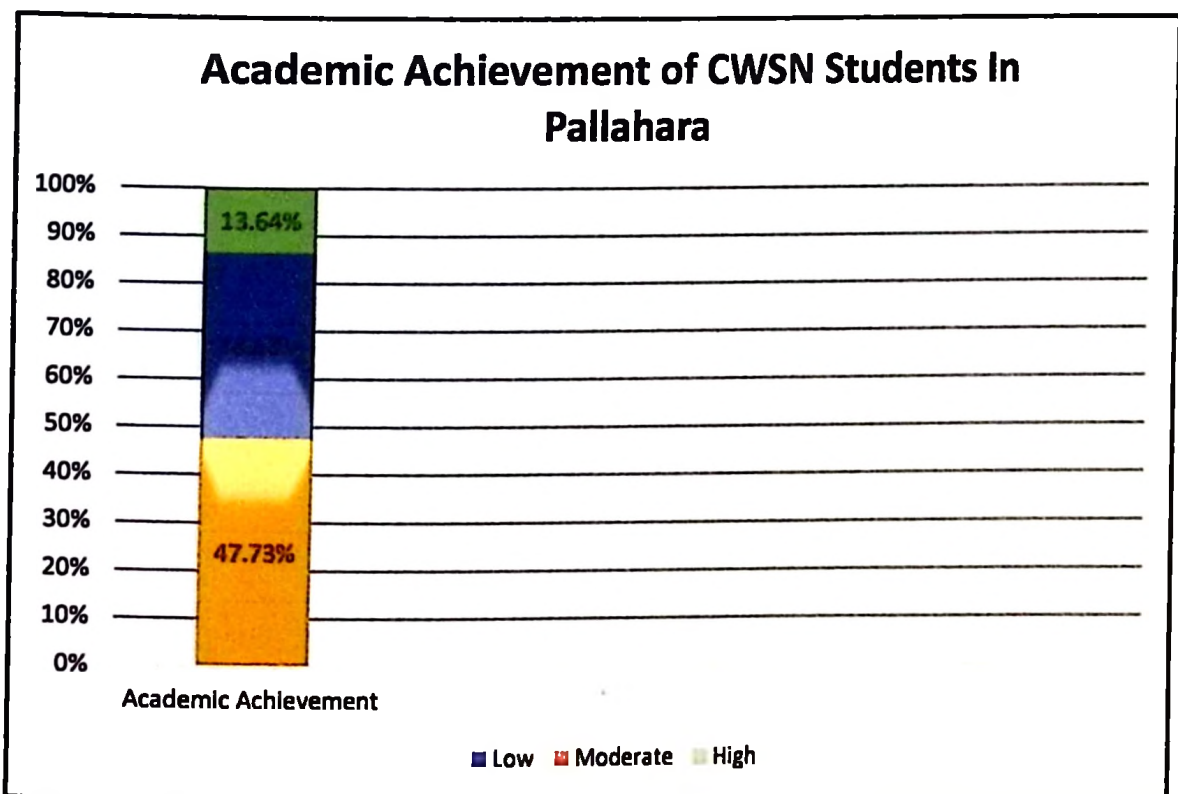


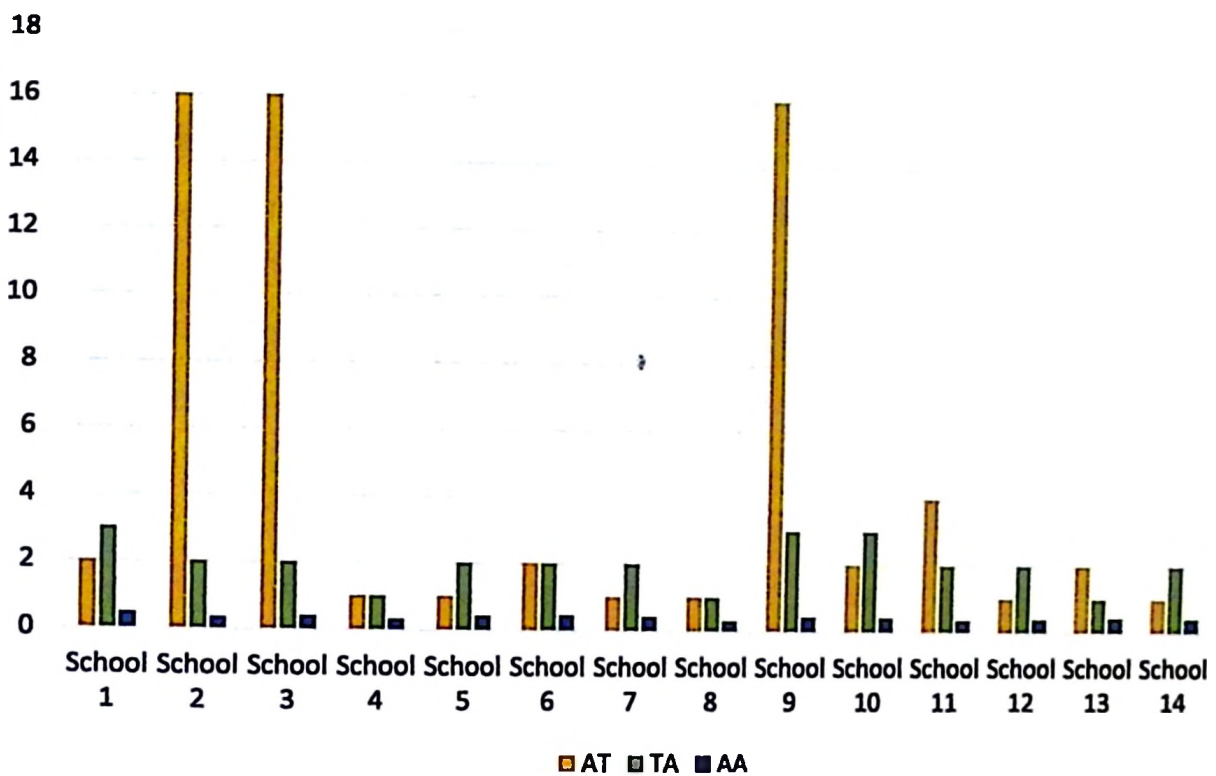
Fig. 4.4: The 100% stacked column showing the percentage of CWSN students at different levels.

Table No. 4.7

Showing the Relationship Between Availability of AT in Secondary Schools, Teachers' Attitude and Academic Achievement of CWSN Students.

Sl. No	AT	TA	AA (%)	Remarks
School 1	2	Positive	48%	R
School 2	16	Positive	34%	NR
School 3	16	Positive	41%	R
School 4	1	Positive	32%	NR
School 5	1	Positive	43%	R
School 6	2	Positive	46%	R
School 7	1	Positive	43%	R
School 8	1	Positive	31%	NR
School 9	16	Positive	44%	R
School 10	2	Positive	43%	R
School 11	4	Positive	35%	NR
School 12	1	Positive	38%	NR
School 13	2	Positive	44%	R
School 14	1	Positive	42%	R

AT; Assistive Technology, TA; Teacher Attitude, AA; Academic Achievement, R- Related, NR- Not Related.



AT- Assistive Technology, TA- Teachers' Attitude, AA- Academic Achievement.

Fig. 4.5: Represents the relation between need of Assistive technology, teachers' attitude and Academic Achievement of the CWSN student.

School 1

School-1 have screen/video magnifier and assistive listening device for low vision and hearing-impaired children in their school. While they still lack other 14 assistive devices. That means only 12.5% of Assistive Technology are available in that particular school. While, the attitude of school teacher towards education of CWSN are quite positive or high. And the academic achievement of the CWSN students in school 1 is 48% which is levelled as high. Although the availability of assistive technology device is poor in school 1, but due the positive attitude of the teachers inspires and helps the CWSN students to learn better.

School 2

Respectively, in school 2, all the 16 Assistive technology elements that researcher took for the checklist of availability of assistive technology. That is 100% assistive technology is available in the school and can be called as ideal inclusive school. The teacher in care of CWSN students in school 2 showed positive attitude towards the education of CWSN students. Hence, the academic achievement is low, that is, 34%.

School 3

School 3 similarly have all the 16 assistive technology elements for CWSN students in their school and can be considered as ideal inclusive school. 100% availability of assistive technology. Here, the teacher's attitude towards CWSN students is positive or neutral. And the students performing good academically with 41%. Its shows that due the high availability of assistive technological devices and attitude of the teacher helping the learner to develop.

School 4

In school 4, only assistive listening device is available for hearing-impaired students. No other assistive technology elements are available for the easy access for learning for other CWSN students. It has 6.25% availability of assistive technology in their school. Hence, it can be said that the school still lack in being an ideal inclusive school. And the teacher showed positive attitude towards the education of CWSN students. The academic achievement of the CWSN students in school 4 is also low, that is 32%. Here, both unavailability of assistive technology and teachers negative attitude hindering the educational development of the CWSN students.

School 5

In school 5, again there is only one assistive technology is available, that is, assistive listening device for hearing impaired students. No other assistive technology is available for the other category of CWSN students. In percentage it has only 6.25% assistive technology in their school. Teacher shows positive attitude towards CWSN students. The academic achievement of school 5 is 43% which is levelled as good. Here, investigator concluded that the academic achievement of CWSN students is related to the teacher's attitude.

School 6

Out of total 16 assistive technology, in school 6 only 2 assistive Technology are available. Assistive cane and assistive hearing device for locomotor disability and hearing-impaired students. That is only 12.5% of assistive Technology are available in this school. In school 6 also, the teacher showed positive attitude and the academic achievement of CWSN students is 46%.

School 7

In school 7, again only one assistive technology is present, that is Assistive hearing device for hearing impaired students. There is no other accessibility to assistive technology for other type of Cwsn students in school. Which contributes only 6.25% of total assistive technology. The attitude of teacher in school 7 shown to be positive and academic achievement is high that is 43%.

School 8

In school 8, only one assistive technology is present, that is Assistive hearing device for hearing impaired students. There is no other accessibility to assistive technology for other type of Cwsn students in school. Which contributes only 6.25% of total assistive technology. The teacher of school 8 also showed positive attitude towards CWSN students. The academic achievement of this school is also low, that is 31%. Here both lack assistive technology and low educational attitude of the teacher affecting the academic performance of the CWSN students.

School 9

In school 9, all the 16 assistive Technology are available for all types of CWSN students in the school. 100% availability of assistive technology. An ideal inclusive school. Also, the teacher's attitude is positive towards the education of CWSN student. And the academic achievement of school 9 is 44%, which shows that the availability of needed assistive technology and teacher's positive attitude helping the CWSN students.

School 10

In school 10, 2 out of 16 assistive Technology are there. Those are, assistive listening device and text to speech reader for hearing impaired and visually impaired students. But all other 14 assistive technology are unavailable. The teacher showed positive attitude towards the education of CWSN students. And academic achievement of the CWSN student is 43% in this school. There is not much availability of assistive technology in school 10, but the attitude of teacher is positive towards the CWSN students, that's why their academic achievement is high.

School 11

In school 11, there are 4 assistive Technology out of 16 assistive technology elements. Those are walker, mobility aid, assistive listening device and text to speech reader for locomotor disable students, hearing impaired and low vision or visually impaired students. Total 25% of the assistive technology are available in the school. And teacher's attitude is positive and the CWSN students' academic achievement is 35% which is low. Both unavailability of assistive device and lack teacher's positive attitude affecting the academic attitude of CWSN students.

School 12

In school 12, single assistive technology is present in the school. That is, assistive listening device for hearing impaired students only. Assistive technology for all other category of CWSN students. 6.25% assistive technology is available. Teacher's attitude was positive and the academic achievement of the CWSN students also seen as moderate, that is 38%.

School 13

The school 13 provided with only two assistive technological devices out of 16 basics. That is assistive listening device for hard to hear or hearing-impaired students only and walker for locomotor disabled students. The school lacks all other basic needed assistive technological devices. That means only 12.5% assistive technology is available in the school. Here the attitude if the teacher shown to be positive towards education of CWSN students and the academic achievement of the same students are 44%.

School 14

In school no. 14, only one assistive technology was available out of 16. The percentage of availability of assistive technology in school 14 is 6.25%. here, the attitude of teacher towards education of CWSN student is positive and the academic achievement is 42%.

If we interpret all the above explained data and keep teachers' attitude as a base variable of the study, we found that all the 14 teachers from 14 different secondary schools showed positive attitude towards education of CWSN students although most of them have not taken any special training to deal with CWSN students. But only few schools showing that teachers attitude affecting the academic achievement of the

CWSN students. And many schools are lacking with some basic assistive technology, while only 3 schools have all the 16 basic needed assistive technology in their schools. Hence, it is concluded that a teacher's attitude matters a lot in a student's life. If the attitude of a teacher is positive towards their CWSN children, it can bring a positive-changes in academic achievement of the child. Same way availability of assistive technology is also plays a vital role in academic achievement of the CWSN students. Due to the availability of assistive technology, education is becoming easy and hustle-free for the CWSN students and helps to enhance their education and knowledge.