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Study on effectiveness of virtual education for children with learning difficulties

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Abstract

Education for children with learning difficulties is a process which needs meticulous supervision and constant guidance from the part teachers. This process was negatively affected by the online mode of education which was adopted during the pandemic period. Students had to face many difficulties which has both physiological and psychological implications yet much studies have not been conducted in this regard. The present studies aim to bring out the difficulties faced by students with learning difficulties and also access the effectiveness of online mode of education. A self-prepared questionnaire was used for the conduct of the study and the results indicated the intensity of various issues and a need to rectify it.

Keywords: Learning difficulties, virtual learning, special education

Introduction

The pandemic has resulted in many changes in the educational sector and one of the major change is the shift to virtual mode of teaching. Virtual mode of education has definitely brought the world closer with regard to educational opportunities, but the effectiveness of this medium is definitely a matter of doubt. While most of the students have adjusted themselves to this medium there are many others who are finding it difficult to fit into this system. The children with learning difficulties and those who are differently abled are the ones who have a major difficulty in adjusting to the online mode of education. Students with the above difficulties completely depend on their teacher's guidance while learning and the impact that a proper teaching environment has on these children is immense which is lacking in the virtual educational setup.

State disability information and resource centre, Bhubaneshwar conducted a study on the impact of digital education on children with disability which has brought out many issues like

- Lack of accessibility to digital devices and internet connectivity
- Network issues and poor connectivity
- Distracting environment at home
- Inability to sustain attention for long hours on electronic devices
- Digital literacy which is lacking in few parents hence they are not being able to guide their children. (Swabhiman, 2020)

Virtual mode of education calls for high level of self-discipline and motivation or else the effort put in by teacher may not have full impact. The extent of involvement of children in the system is also difficult to measure and the level of control that the instructor has on their students is also a matter of doubt. Internet connectivity and access to devices is also an important factor that determines the impact of online learning. Longer durations of screen time are also one of the causes for vision related and other physiological issues which creates an additional burden. The level of peer interaction is also compromised in online mode of education which can lead to feelings of isolation amongst the students. A sharp decline has been observed in the level of subject related practical exposure in the class. This will negatively impact the academic performance of kinaesthetic learners as they do not get the sensory stimulations they need to study.

While the concept of integrated education is definitely relevant for children with special needs, depending solely on the virtual mode of teaching is not sufficient.

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Virtual mode of education has led to an overload of visual stimulations and children are finding it difficult to identify what to focus, filter and absorb. This platform is suitable for the visual and auditory learners but the tactile and kinaesthetic learners are the ones who are affected the most due to lack of sensory stimulation. The present study aims to bring out the issues that students are facing due to the online mode of education and emphasis on the rectifying the issues.

2. Methodology

2.1 Selection of Area

The study on effectiveness of virtual education for children with learning difficulties was conducted in Rashmika school for special education. It is a centre that caters to children with learning difficulties, slow learning and attention deficit hyperactivity disorder. The centre actively trains its students to enable them to join mainstream or are supported to take 10th board of exam either through state board or NIOS. Support for conduct of the study was extended by the principal and the faculty members of this institution. The institution encouraged training activities and implementation of novel ideas in the field special education within their system, which made the institute the preferred area for conduct of the study.

2.2 Selection of the Sample

Children with learning difficulties were the prime sample for the study. A total of 21 children were selected from Rashmika School for special education, Coimbatore. The school had adopted virtual mode of education till March 2022 which makes the sample group to be the apt ones for responding to the questionnaire on analysis. Respondents were selected from both rural and urban area using purposive sampling.

2.3 Selection of Tool

Three tools have been used in this study. The first tool selected was a self-formulated questionnaire which evaluated the effectiveness of virtual education for children with learning difficulties. The tool consisted of 41 questions. It consisted of various aspects like general details, area of residence, distractions during online class, vision related issues and mental health of students. The questions were formulated in simple language with close ended questions to suit to the ease of the respondents.

2.4 Development of Questionnaire

The impact of online classes especially on the students with learning difficulties is an area which has not been explored much. Hence as part of the study a questionnaire was prepared which included the emotional and vision related aspects of a student which regard to virtual education. The vision related aspects included factors like incidents of eye strain, vision defects, physical activities etc. The emotional aspects included feelings of isolation, missing friends and various other stress inducing factors. The questionnaire covered multiple domains and could bring out the extent of the effectiveness of this system.

2.5 Data Collection

The questionnaire on effectiveness of virtual education was sent to the institution, which was further distributed to the students in printed format. The teachers were sensitized regarding the different elements of the survey, and this enabled them to clarify the students queries during sampling. The collected data was then received through mail and was

further tabulated.

3. Results and Discussion

3.1 Background details of selected students with learning difficulties

The details of selected students from is represented in table 1.

Table 1: General information of Respondents

Sl. No	Particulars	Responses (N = 21)%
1.	Age in years	
	• 7 years	35
	• 12 years	5
	• 13 years	14
	• 14 years	31
	• 16 years	15
2.	Class	
	• 2 nd Standard	35
	• 6 th Standard	20
	• 8 th Standard	31
	• 9 th Standard	14
3.	Area of Residence	
	• Urban	81
	• Rural	19
4.	No. of Siblings	
	• Nil	29
	• One	71

Basic details of the respondents were collected which included criteria like age, class, area of residence, no of siblings, details regarding parental occupation and the educational qualifications of their parents. The respondents were from the age group of 7 to 16 years. It is seen from the above table that 35 per cent of the respondents were from the age group of 7 years, 31 percent from the age group of 14 years, 15 percent of the respondents were 16 years old and 14 per cent of the respondents were 13 years old. Corresponding to their age 35 per cent were studying in 2nd standard. Around 81 per cent of the respondents were from urban are and most of them (71%) had one sibling each.

3.2 Study environment at home

The major sources of distraction have been depicted in table 2

Table 2: Major sources of distraction

Sl. No.	Major Sources of Distraction	Responses (N = 21)%
1.	External Sounds	91
2.	Too much visual input	10
3.	Curiosity to Explore	10
4.	Chatting in between	5

An evaluation was done on the major sources of distractions and the respondents were given the freedom to choose multiple options. Out the selected sample, 67 per cent reported that they were distracted during online classes. The major source of distraction included external sounds which accounted for 91 per cent followed by excessive visual input (14%), Curiosity to explore (9%) and chatting in between was reported to be five per cent. The results indicate that it is very important to set a conducive study environment at home. Learning through virtual media can be very difficult if there are many distracting factors in the environment. Conscious efforts can be made from parents to lessen external sounds so that the child does not lose focus. Which regard to other distracting factors the students much be trained to improve

self-discipline so that they do not wander around during online classes.

3.3 Assistance from teachers during online classes

The frequency of assistance that was provided by the teachers to their students has been presented in Fig-1.

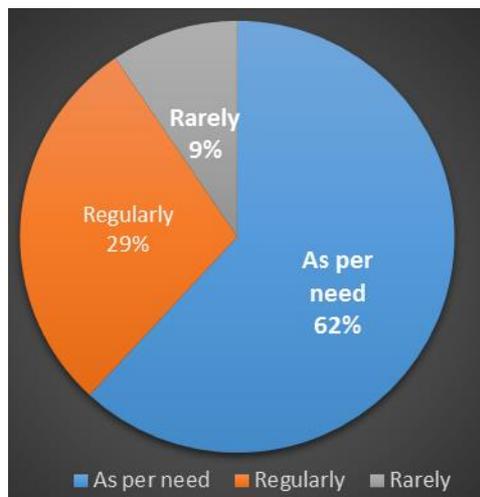


Fig 1: Discussion with teachers

It is evident from the above figure that 91 percent utilised online classes to clear their doubts. With regard to discussion with teachers, 62 per cent responded that they interact with teachers as per their need, 29 per cent of the students had a regular interaction with their teachers and nine per cent rarely interacted with their teachers. It can be inferred from the results that there has been a decline in casual interaction between teachers and students in the online platform.

Students especially with learning difficulties depended intensively upon their teachers for academic and personal support. The key to effective learning is the interaction and the relation between the teacher and student. Virtual education has lessened the opportunities for physical interaction between students and their teachers but individual attention must be given to students, so that they remain motivated. This can be done through regular one to one meetings and having a casual talk session at the end of every class, where the students are allowed to discuss casual matter happening in their life.

3.4 Attention span of students during online class

The figure given below represent the attention span of selected students during online classes.

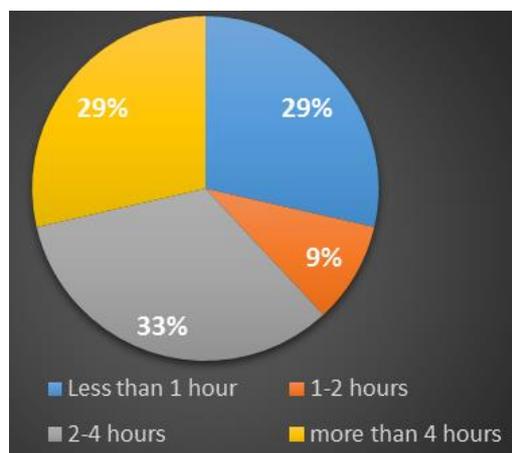


Fig 2: Attention span during online class

Students were asked about the time period for which they can sustain their attention during online class. Thirty-three per cent responded that they could sustain their attention for 2-4 hours, 29 per cent of students had an attention span between 1-2 hours and another 29 per cent could sustain their attention for more than 4 hours. Nine per cent of students indicated that they could hold their attention only for a period of less than 1 hour.

Being focused during class is an integral factor that contributes towards academic excellence. Majority of the students responded that they can sustain their attention between 2 to 4 hours. This indicated that if the students are forced to attend classes which exceed this duration it may lead to inattention on part of the students. Proper schedules must be made so that the children are provided which adequate breaks and they are not forced to attention long classes.

3.5 Types of learners and academic pressure during online class

The sections details on the types of learners and academic pressure experienced by students during online class, the gathered information regarding the same as been represented in Table 3 and Table 4 respectively.

Table 3: Learning pattern of respondents

Sl. No.	Learning style	Responses (N = 21)%
1.	Tactile	33
2.	Visual	33
3.	Kinesthetic	19
4.	Auditory	14

An analysis was done on the learning style of the respondents. Thirty-three per cent children responded that they learnt better when by writing notes, similarly 33 per cent learned better when the topics were presented visually, 19 per cent could understand the concept through hands on activities and fourteen per cent learnt well when someone explained the topic to them. Every class has a mixture of the four types of learners and few students were also found to have a mixture of different learning styles within themselves. Hence care must be taken so that the classes are conducted in a manner which accommodated all the types of learners. A mismatch between the learning style and teaching style can lead to poor academic outcome. The diverse types of learners indicate that online learning which is more accommodating to auditory and visual learners may not cater to the needs of tactile and kinesthetic learners. Hence practical activities that can be done within the student's home should be included in the syllabus. Regular monitoring must be also undertaken, so that the teachers can give students necessary guidance and suggestions if necessary. The system of recorded classes can be also employed so that the auditory learners can listen to the lectures for better understanding.

Table 4: Parameters of academic stress

Sl. No	Parameters for academic stress	Responses (N = 21)%	
		Present	Absent
1.	Break during classes	91	9
2.	Effective Feedback system	86	14
3.	Completion of syllabus	86	14
4.	Completion of tasks	66	24
5.	Equal attention by teachers	52	48

The results indicate that 81 per cent of the respondents believed that academic pressure has increased during online

classes. Sixty-six per cent of the respondents reported that they were able to complete the tasks given by their teachers and 52 per cent responded that teachers are able to give equal attention to all the students in the class. The results suggest that the majority of the students (91%) were given breaks during class this can be an effective way to ease stress for children who have difficulty to maintain attention. Effective feedback system helps in regular monitoring of the students works and aids in academic progress. The syllabus is also being completed on time so that the children are not stresses during their study period. A major fault that was identified is that the teachers are not being able to give equal attention, those students who are being attended will excel with regard to academics and those who do not get attention may get distracted and will not focus on their academics.

3.6 Functioning and major issues in online class

Table 5 represents the preferences for learning material and exam.

Table 5: Preference for learning material and exam

Sl No.	Preferences for exam and learning material	Responses (N = 21)%	
		Online	Offline
1.	Exam	19	81
2.	Learning material	38	62

An analysis was done on the preferred medium for examination and learning material which indicate that 81 per cent preferred offline mode of examination and 62 per cent opted for offline learning materials. The preference for offline learning material indicated the inability to adjust to online of examination and learning. The various factors which make online learning difficult like distraction, incongruence to learning style, physiological and psychological factors could be the reason for this. The attendance of students during online class was also studied which indicated that almost 57 per cent of the students joined on time, 38 per cent were occasionally late and five per cent of the students were always late to join the classes. This indicates that the class schedule is being implemented strictly and the children are also aware about the importance of joining class on time. Proper attendance in class also indicates that the children are not missing the lectures completed in classes.

Figure 3 and table 6 represents the major issues in online learning and evaluation on physical activities and practical experience.

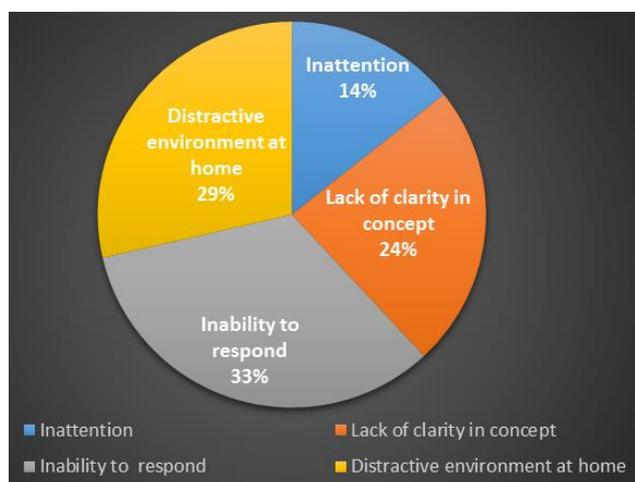


Fig 3: Major issues in online learning

Table 6: Evaluation on physical activity and practical experience

Sl No.	Issues	Responses (N = 21)%	
		Agree	Disagree
1.	Lack of physical activity	62%	38%
2.	Lack of practical experience	76%	24%

An effort was made to identify the major issues during online classes thirty three per cent responded that they were unable to respond during classes, 29 per cent said that they had a distractive environment at home while 24 per cent opted that there was a lack of clarity in the concepts. Inattention was the major cause of concern for 14 per cent of the respondents. Seventy per cent experienced lack of physical activity and 66 percent experienced a lack of practical experiences due to online mode of education. The present of such a diverse range of distractions indicate that changes have to be brought in the system to minimize such limiting factors. Delivering practical classes through virtual medium might not be possible but efforts can be made to exposure the children to possible activities and making it as close to the practical experience.

3.7 Emotional difficulties experienced by children

The incidence of feeling of isolation has been represented in figure 4.

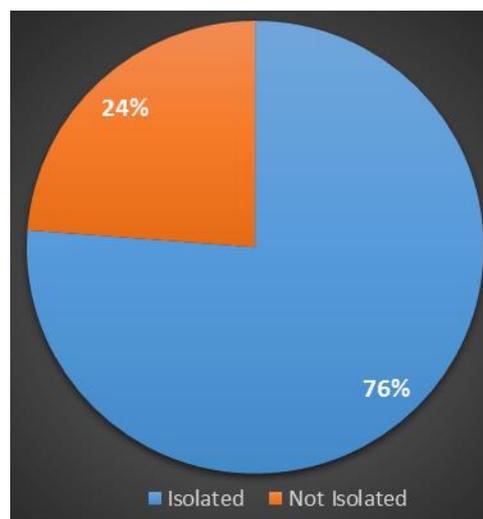


Fig 4: Feelings of isolation among students

Peer interaction is one of the major factors that aids in the social development of an individual on enquiring the students on opportunity for peer interaction 81 per cent responded that they do not get an opportunity for peer interaction and 76 per cent had developed feelings of isolation during the pandemic period. These factors indicate that the lack of social interactions had adversely affected the mental health status of the students. Pandemic has definitely taken a toll on the mental health of everyone irrespective of gender and age group and the lack of fruitful interaction is a major contributing factor to this. Group activities which can be completed through online medium can be given which will improve the relations and promote conversations between students.

3.8 Effectiveness and involvement of the students

Figure 5 indicates the involvement of students in online class.

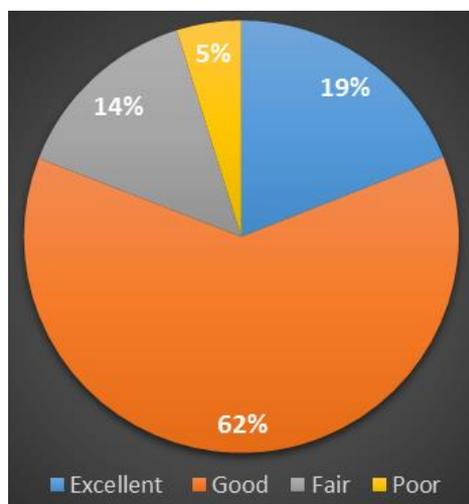


Fig 5: Involvement in online classes

Eighty-five per cent of the students preferred offline education, 10 per cent preferred online mode of education and five per cent preferred hybrid mode of education. With regard to involvement in class, 32 per cent rated their involvement as good, 19 per cent as excellent, 14 per cent as fair and 10 per cent had poor involvement during class. Online mode of education was very effective for 19 per cent of the respondents, moderately effective for 67 per cent and ineffective for 14 per cent. The results indicate that the medium moderately effective for most yet the overall preference is for offline mode of education as students believe that it is more effective and they can be more involved in the learning process.

4. Conclusion

The pandemic definitely had affected all the sectors which had an impact on human beings and primarily the educational sectors had to undergo several modifications to adjust to the situation. The online mode of education which was adopted as part of this has definitely impacted the student's educational outcome. The inadaptability to this system is very evident through the issues pointed out by the students themselves yet much studies have not been conducted on this circumstance which makes the current study even more important. A self-prepared questionnaire was prepared for the conduct of the study which covered major aspect which can impact the academic progress of a child.

The study environment which is of prime importance during online classes was studied and the results indicated that students were distracted during online classes and external sounds during the class were the major source of distraction. With regard to assistance provided by the teachers, students responded that they were provided necessary assistance by teachers and they did utilize the class hours to clear their doubts however a decline was observed regarding the level of casual interactions between teachers and students. Students reported that they have difficulty in sustaining their attention for long duration during online classes. It was observed that a mixture of four types of learners were present amongst the respondents and the effectiveness of virtual education were not the same for all. Respondents said that academic pressure has increased due to virtual mode of education and individualistic attention was not given to the students during online classes. However, teachers are giving lighter home works which may help to ease the situation. The inability to respond was another issue that the respondents pointed out. A lack of peer interaction was observed due to online mode of

education which has resulted in development of feeling of isolation amongst most of the students. The level of involvement in online classes was reported as good by the students however the general preference is for offline mode of education and study materials. The present study has pointed out many difficulties that the students are facing due to online mode of education and necessary interventions can be planned ease the mentioned difficulties.

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