Case study

Impact Analysis of Education in Emergency in Wangduechhoeling LSS

ABSTRACT :

This paper closely examines the Impact Analysis of Education in Emergency in WangduechhoeligLSS, Bumthang. It also scans the fulfillment of the right to education during pandemic considering the accessibilities and narrowing down the disparities among the children. It includes learning progress of the students, learning gaps and its intervention programs amidst of Covid-19 situation. It extends to the parental involvement and support for children's learning and readiness of the amenities at the national and local levels. It also weighs the effectiveness of the implementation of Education in Emergency at the school level.

Following the central limit theorem, we analyzed thirty percent of the population (180 students and 90 parents) because central limit theorem confirms that even when population is non-normally distributed, the distribution of the sample means will be normally distributed if sample size is equal or greater than thirty percent. The samples were selected randomly. We took account of twenty percent of students and ten percent of parents for the interview. I being the head of the school took the lead role to gather the information from the fields and a core group consisting of supporting staff and teachers collected information, analyzed the data and readied the report

The findings of the study show that 88.8% of students enjoy EiE lessons, 94..4% learn through EiE, 81.6% of parents support their child's learning, 36.6% of students face difficulty in using different learning Applications, 96.6% of students have textbooks with them, 81.1% of teachers assess tasks given in TV, Radio, SIM lessons, 57.7% of students' interest was affected by closure of schools, and 97.7% of students are excited to return to school when it reopens. Additionally, study revealed that only 64% of students have availed 60% special data packages discount opposed to 55.7% who have not availed.

Keywords : Covid-19, Data, Education in Emergency and Report.

INTRODUCTION

1.1 Background and significance of the Study

As the whole world was affected by the COVID 19, Bhutan was not spared. Apart from other spheres of developmental activities and the economy of the country, education was immensely affected, as it became inaccessible to the students due to school closure and lock down.

To navigate the education through the Covid-19 virus, the Ministry of Education has taken sweeping measures to make education accessible for continuity and lessen disparities among the learners. On the other hand, this crisis has been blessing in disguise as it stimulated innovation within the education sector to come up with innovative approaches in support of education and training continuity. The education sector introduced various modalities such as television and radio lessons for the children accessible to these facilities and for those children inaccessible, Self-Instructional Materials (SIM) were developed. As an interim measure, the Dzongkhag Education Office has instantly started implementing the Education in Emergency (EiE) directives and decided to shift teaching, learning and assessment to online. The schools have looked into various means to connect with students and oriented students on installation of Google Classroom App and how to use them for online teaching and learning process.

Wangduechhoeling Lower Secondary School (WLSS) is located on a vast plain with 9.44 acres in the heart of the Chhoekhor valley. To its south is the great Wangdue Chhoeling palace, once the seat of the royal family and to its north lies the majestic Jakar dzong perched on a hillock. Every one passing to the interior of the valley can catch the glimpse of the school.

Wangdue Chhoeling Lower Secondary School was first established in 1991 near Wangdue Chhoeling Dzong in rented buildings to ease the admission pressure of Jakar Jr. High School. It was shifted to the present site on 8th March 1995 as Jakar Primary School. The school was upgraded to a Junior high school in 1998 on the Royal command of His Majesty the King.

At present the school has classes from PP-VIII with 920 students (465 boys and 455 girls) and 50 staff (40 teachers and 10 support staff). The school turned 25 years in 2020 after shifting to this present site and could celebrate Silver Jubilee 2020 by developing Silver Jubilee Memorial Park consisting of Mani Dungkhor, Canopies, 4 Kings Photo stadium and flower garden with contribution from Alumni (old students). Though 2020 was misfortune for the students as the school was closed and had to continue studying online, it was fortunate for the school to come up with wonderful Silver Jubilee Memorial Park successfully completed and inaugurated.

Teaching learning modalities practiced in schools during the pandemic, were Google Classrooms for upper primary (classes 4 to 8) and WeChat for lower primary (PP – 3) mainly. The SIM supplied by Ministry of Education was well taken by children at large irrespective of the purpose to facilitate the children deprived of online classes. Going by the children engagement in learning during closed school, it is impressive to find out about 99% of the children were active in learning addressing the concerns of higher rate of dropouts and repetition. Mobile teaching by the teachers override the factor for effective engagement of the children as both teaching learning and timely assessment are well addressed.

Furthermore, the initiative of the Ministry of Education on the impact study of EiE would place the school at better avenue to assess the effectiveness of its activities during the pandemic. It will also prepare the school to identify the learning gaps and intervene accordingly in future. This study is conducted to find out the impact of the EiE teaching learning process, escalated roles of teachers, parents, government and other key partners for the future preparedness.

1.2 Research Objectives

1. To examine learning progress of the students amidst of Covid-19 situation.

2. To identify the gaps in the learning modalities, coverage, and reach.

3. To suggest appropriate interventions and programs to bridge the gaps.

4. To collect and gather views and recommendations from the teachers, parents and students on the online teachings.

5. To gather information on household factors such as parental support and guidance for learning, access to electricity, television, data packages, and other devices.

6. To meet the mandates and other requirements for the successful implementation of EiE program in the near future.

The rest of the paper is arranged as follows; section 2 discusses related literature. Section 3 presents methodology and data employed whereas section 4 discusses findings and discussions. Lastly, section 5 concludes with a short summary.

LITERATURE REVIEW

2.1 Literature review

Contrary to the rest of the world, Bhutan is blessed under the benevolent leadership of our Great Monarchs not to undergo emergencies due to any circumstances. Bhutan is experiencing Education in Emergency for the first time since immemorial. Covid-19 has put our country to take up Education in Emergency for the continuity and narrow down the disparities in making education accessible to all the children. Stephenson (2010) states that education systems can be affected by four types of emergencies: political, environmental, health and economic crises. Violent conflicts cause political crisis, natural disasters cause environmental crisis, which can be both sudden and slow onset. Increased rates of sickness and death resulting from widespread disease and epidemics cause health crisis.

With the first case of Covid-19 in Bhutan on 5th March 2020, the schools in affected dzongkhags were closed. Following that on 18th March 2020, all the schools were closed as per the government's directive. Bhutan was not fully prepared for such pandemic and

teaching learning process was withheld for some time. Later the Ministry of Education came up with the Education in Emergency approach, mobilizing varied means. Stephenson (2010) states, the "role of education in emergencies" can refer to both the objectives to be achieved through education and the objectives to be achieved by supporting education during a humanitarian emergency". The government could not disengage the children since it has many repercussions in their lives. Stephenson (2010) states that the role of education in emergencies refers to both the fulfilment of the right of access to education during emergencies, and enabling the fulfilment of that right through humanitarian relief activities in sustenance of education implemented through the Consolidated Appeals Process (CAP).

However, Bhutanese Education System staggered in the beginning with commotions amongst the public, students and education sector. As cited in Kuensel dated 28th March 2020, "Following the closure of schools due to the pandemic since March 5 there have been hues and cries among teachers and parents on e-learning in different schools" (Rinzin, 2020). Bhutan was not prepared for Education in Emergency as it did not happen earlier. The Covid-19 response plan of ministry stated that the Education Emergency Operation Centre (EEOC) was activated in line with Education Disaster Response Coordination Mechanism (EDRCM), to respond to Education in Emergencies (EiE) only on 6th March 2020 and the Guidelines for curriculum implementation plan for Education in Emergency was launched only on 26th March 2020 (Ministry of Education, 2020).

Similarly, teachers were not prepared as well for the Education in Emergency teaching methods. The Ministry of Education had to provide trainings to teach online. There were discrepancies of teaching on the levels of the students. Ministry of Education (2020) states that many primary schools' children found Google Classroom unfriendly due to lack of competency and skills to handle. The findings on the usage among the secondary schools was found not uniform. Ministry of Education along with the Royal Education Council and Department of Information Technology has rolled out nationwide teacher preparation on Google Classroom to support students learning and interaction.

It is evidenced that Bhutan did not have curriculum for EiE as the Royal Education Council came up with means to deliver the lessons at the time of pandemic. There was a shift from the classroom teachings to online and other means. Ministry of Education

(2020) elucidates that during emergency, lessons are delivered through television, radio and other social media in key stages and theme based approach. Lessons are delivered through BBS1 and BBS2 supplemented with Google Classroom, YouTube, WeChat and other social media to make accessible to the children. However, many students in the remote parts of the country lacked access to internet. As some parents were unable to afford gadgets, students did not own smartphone or television set for e-learning. That created disparity among the learners and continuity of education declined. It became a worrisome for the Ministry of Education to reach the unreached. Stephenson (2010) elucidates that humanitarian assistance to the education sector has been highly prioritized, not only from human rights and humanitarian perspectives, but also with regard to the future social and economic development of the crisis-affected country.

Studying the world scenarios on the Education in Emergency, many countries have been affected by disasters, health issues and wars. Burde, Kapit, Wahl, Guven, & Skarpeteig (2016) state that children in genocide-affected areas were of lesser chance to complete their fourth grade and attained a year and a half compared to those in other parts of the country. The impact was heavy on the children who were younger at the time of the genocide (Akresh & de Walque, 2008). In the same vein, Sinclair (n.d) elucidates that following on Freetown attack in early 1999, people were killed, amputated, raped and abducted. They came up with a joint initiative for rapid education response over the period April to July 1999 and initiated in August 1999 by UNESCO's Gonzalo Retamal, working with the NGO Plan International, the Education Ministry, UNICEF and the Federation of African Women Educators (FAWE). Furthermore, Burde, Kapit, Wahl, Guven, & Skarpeteig (2016) state that millions are affected each year by climate-related disasters and earthquakes. It destroys homes, neighborhoods, and schools. In the year 2011 and 2012 alone, more than 450 million individuals faced environmental crises (Blankespoor, Dasgupta, Laplante, & Wheeler, 2010; Laframboise & Loko, 2012).

METHODOLOGY AND DATA

3.1 Methodology

The study focuses on analysing the survey questionnaires developed and circulated by the Ministry of Education, Bhutan. As a part of my study I worked out on how the survey shall be carried out to gather reliable data and information as demanded by the survey questionnaires. I convened meeting with my staff and decided support staff to collect data for fair and reliable date and few teachers for helping me in graphic representations. Upon detail deliberation, the team has decided to select twenty percent of students and ten percent of parents for the interview. The team has essentially decided to analyze for thirty percent of the population because the central limit theorem confirms that even when population is non-normally distributed, the distribution of the sample means will be normally distributed if the sample size is equal or greater than thirty percent.

Once received and referred the questionnaires and other relevant documents attached thoroughly, we have formed a team to carry out random survey for both students and parents. The random selection included diverse group of students such as those students who responded all the time to online classes, who responded sometimes and those who have never responded at all. It has also included those students who reside in the remote areas that have network connectivity issues and other related problems that are likely to be encountered by both parents and students. The study has focused on diverse group primarily to eliminate sampling bias and to offer equal chance of selection with lesser risk of carrying an error while performing data analysis

3.2 Data

This study uses cross-sectional survey data collected from all nine classes covering all the 28 sections fairly under the school's catchment area. The details of the participants i.e., parents and students who were identified for the survey are given as follows;

Table 1 Basic statistics of the respondents

Sl. No.	Class	Sections	Total Students	Total no. of respondents (students) (20%)	Total no. of respondents (Parents) (10%)
1.	PP	4	128	25	12
2.	I	3	91	18	9
3.	II	3	98	20	10
4.	III	3	97	20	10
5.	IV	4	118	24	12
6.	V	3	92	18	9
7.	VI	3	79	16	8
8.	VII	2	73	16	8
9.	VIII	3	89	19	10
10	Total	28	865	180	90

The support staffs in pairs were divided into different catchment areas, well oriented and given questionnaires and designated to carry out the survey for a few days for both parents and students in their community. The surveyors (support staff) have interviewed a total of 180 students and 90 parents from different areas under school catchment area. Once data were collected, they have submitted to me for further compilation and analysis.

. The most of the items in the survey questionnaire as categorical variables (also known as nominal variable)[1] and there the scope of employing multifaceted statistical packages such as SPSS, Eviews, STATA, and R-Statistics are least possible. Based on the nature of variables presented in the questionnaire, I have decided to focus on descriptive statistics rather than inferential statistics. The details of compiled raw data, findings, and consolidated reports of the study will be discussed in the next chapter.

RESULTS AND DISCUSSION

The importance of education is seen in every aspect of life and it is important for the growth of a country. Access to education has been a basic human right and the level of educational attainment has been positively correlated with better lives around the globe. Education in Emergencies may offer immediate physical and psychosocial protection, as well as life-saving knowledge and skills to individuals. If children are provided with better quality education during and after an emergency, then they may expose less frequently to activities that may put them at risk. Education in Emergency may also provide children with knowledge that would increase their resilience and a sense of continuity when everything else is in flux.

This study was chiefly carried out to examine the impact of Education in Emergency (EIE) in Wangduechhoeling LSS, Bumthang. As per the directives of Ministry of Education, we have used a survey questionnaires developed by Ministry. We have constructed categorical scales (rating scales) and dimensions on given survey questionnaires separately for both parents and students as follows;

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[1] Most of the items presented in the survey questionnaire is of categorical variable rather than ordinal and numerical variable. The categorical variables lack intrinsic ordering to the categories thus the scope of performing inferential statistics is minimum.

Table 2 Categorical scales and dimensions for students

Sl. No.	Questions	Response	Categorical scales & dimensions
1	I enjoy EiE online lessons	Yes/No	Yes = %, No = %
2	I am learning	Yes/No	Yes = %, No = %
3	Average hours I spend on online lessons & assignments per day	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
4	My parents can help me in learning	Yes/No	Yes = %, No = %
5	I access lessons on (TV, Phone, SIM, Radio, Video, etc.). You can mention more than one medium.	Types	TV = %, Phone = %, SIM = %, Radio = %, video = %, others = %.
6	If you are using phone, which App do you use the most?	Types	WeChat=%, Messenger=%, telegram=%, Google Classroom=%, None=%.
7	Do you face challenges in using different Apps?	Yes/No	Yes = %, No = %
8	How frequently do you contact your teachers in a week?	Quantitative	Once=%, twice=%, thrice=%, more than 3=%, Never=%.
9	I have all the textbooks with me	Yes/No	Yes = %, No = %
10	Do teachers assess tasks given in TV, Radio, SIM lessons?	Yes/No	Yes = %, No = %
11	How do you clarify your learning doubts?	Qualitative	Expressive
12	What type of support do you receive from teachers?	Qualitative	Expressive
13	What support do you receive from your parents?	Qualitative	Expressive
14	How many hours do you spend reading books/newspapers/magazines/etc. in a week.	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
15	How many hours do you spend on video games and other online games?	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
16	Has your interest in studies affected by school closure?	Yes/No	Yes = %, No = %
17	Will you be excited to return to school when it reopens? (Closed schools)	Yes/No	Yes = %, No = %
18	Did you avail 60% discount data service?	Yes/No	Yes = %, No = %
19	No. of hours you spend supporting your parents in a day	Minutes/Hours	1min-2hrs = %, 2-3hrs =%, 3-4hrs = %, More than 4hrs = %, Never = %.
20	Your overall views on online learning and suggestions	Qualitative	Expressive

Table 3 Categorical scales and dimensions for Parents

Sl. No.	Questions	Response	Categorical scales and dimensions
1	Do you see your child interacting with teachers frequently?	Yes/No	Yes = %, No = %.
2	How long does your child spend time on learning subjects in a day on average?	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
3	How many hours does he/she spend on reading books/newspapers/ magazines, etc. in a day?	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
4	On average, how long does he/she engage on video games & other online games in a day?	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
5	How long does he/she engage in helping the family?	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
6	How long does he/she engage in physical games and activities?	Minutes/Hours	1min-2hrs = %, 2-3hrs = %, 3-4hrs = %, More than 4hrs = %, Never = %.
7	How do you support your child's learning?	Qualitative	Expressive
8	How does your child interact with teachers?	Qualitative	Expressive
9	Do you find online learning effective for your child? Justify.	Yes/No	Yes = %, No = %
10	How much money do you spend on child's learning in a month?	Amount in Nu	An average amount of money spent by parents
11	Your overall views on online teaching and learning & recommendations	Qualitative	Expressive

Based on the categorical scales and dimensions constructed in Table 2 and 3, the response under each item by both parents and students of different schools have been compiled for further exploration. To check whether or not the surveys are partially or entirely completed, the response rate (completion rate) for each item has been calculated as follows;

Table 4 Response rate (completion rate) of the students (RR$_S$)

Sl. No.	Questions	Response Rate (RR$_S$) (RR$_S$ = No. of Students who answered the survey / No. of students in the sample) * 100
1	I enjoy EiE online lessons	88.8%
2	I am learning	94.4%
3	Average hours I spend on online lessons & assignments per day	99.7%
4	My parents can help me in learning	81.6%
5	I access lessons on (TV, Phone, SIM, Radio, Video, etc.). You can mention more than one medium.	99.8%
6	If you are using phone, which App do you use the most?	100%
7	Do you face challenges in using different Apps?	36.6%
8	How frequently do you contact your teachers in a week?	95.7%
9	I have all the textbooks with me	96.6%
10	Do teachers assess tasks given in TV, Radio, SIM lessons?	81.8%
11	How do you clarify your learning doubts?	100%
12	What type of support do you receive from teachers?	100%
13	What support do you receive from your parents?	100%
14	How many hours do you spend reading books/newspapers/magazines/etc. in a week.	100%
15	How many hours do you spend on video games and other online games?	99.8%
16	Has your interest in studies affected by school closure?	99.8%
17	Will you be excited to return to school when it reopens? (Closed schools)	99.3%
18	Did you avail 60% discount data service?	35.5%
19	No. of hours you spend supporting your parents in a day	99.4%
20	Your overall views on online learning and suggestions	100%

Table 5 . Response rate (completion rate) of the parents (RR$_P$)

Sl. No.	Questions	Response Rate (RR$_P$) (RRp = No. of parents who answered the survey / No. of parents in the sample)*100
1	Do you see your child interacting with teachers frequently?	100%
2	How long does your child spend time on learning subjects in a day on average?	100%
3	How many hours does he/she spend on reading books/newspapers/ magazines, etc. in a day?	97.6%
4	On average, how long does he/she engage on video games & other online games in a day?	99.1%
5	How long does he/she engage in helping the family?	98.6%
6	How long does he/she engage in physical games and activities?	99.3%
7	How do you support your child's learning?	100%
8	How does your child interact with teachers?	100%
9	Do you find online learning effective for your child? Justify.	100%
10	How much money do you spend on child's learning in a month?	100%
11	Your overall views on online teaching and learning & recommendations	100%

The overall response rate for both parents and students were calculated and the finding shows that the response rate for all items in the survey questionnaire (as depicted in the Table 4 and 5) are higher than 95%. The higher response rate for each item evidently confirms the reliability of the data for in-depth statistical analysis and scope of producing unbiased population estimates.

4.1 Analysis of Student's Questionnaire

4.1.1 Inferences of categorical data (students)

This study consists of twenty items. Out of twenty items in the survey questionnaire, nine (See Appendix A.1) has been identified as categorical variables (nominal variables). The data for all nine items collected from different sections were tabulated and the detail statistical analysis has been carried out as follows.
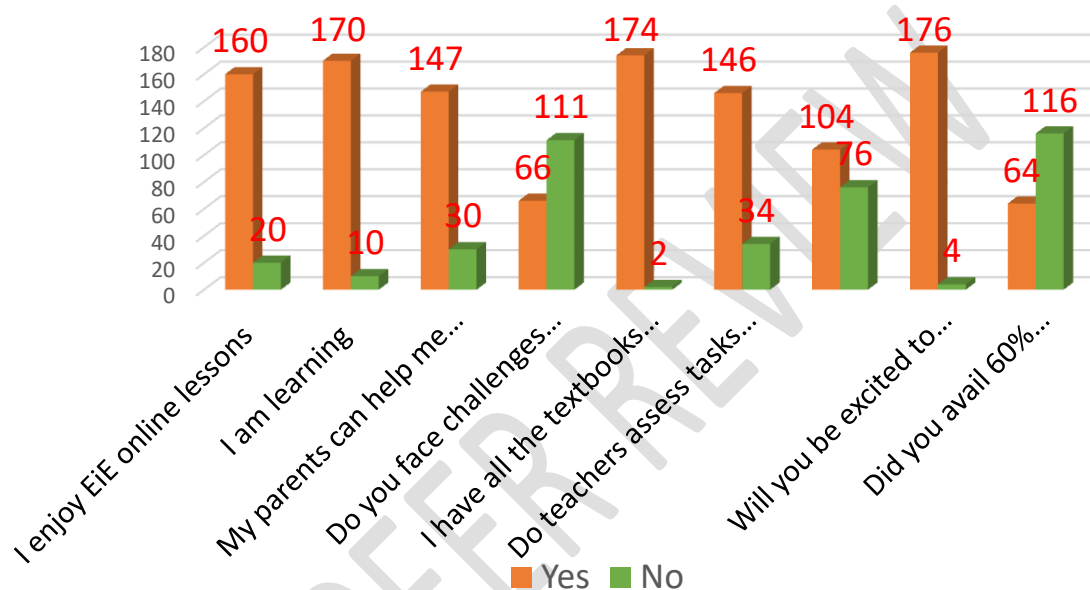

Figure. 1 Categorical Variables (students)

In Wangduechhoeling LSS a sample of 180 students were surveyed and 88.8% of them enjoy EiE online lessons as opposed to 11.1% who do not prefer online lessons. Following are some of the reasons stated as to why students say they enjoy online lessons or not.

Table 6 . Scenario of online lessons

Yes	No
Interesting and fun	Difficult to understand
Get more knowledge	No smartphone
Easy to get answers from internet and siblings	No clear explanation
New experience (self-exploration)	Network problem
Modern Teaching-learning style	Data consumption
Full support from parents	Difficult to adapt to new style of learning
More attention from the teachers	

More opportunity to clarify doubts	

The study suggests that students of WLSS enjoy EiE online lessons. It is also worthwhile to note that 11.1% of the students who do not prefer online lessons are due to 'Difficult to understand' and 'No smartphone'. 94.4% of students responded they are learning and 81.6% of the parents support them in learning. 95% of the students have all the textbooks and 81.1% of their works were assessed. There is no significant difference between those students who face challenges and the ones who do not face challenges in using such Apps.

The finding reveals that 96.6% of students' interests in studies have been affected by the closure of the schools. The students have a sense of excitement to return to schools. The data shows that 64.4% of students have not availed 60% special data package. The primary reasons stated as to why students have not availed this service are; no idea/do not know how to register, parent's number has been registered, no proper network and no smartphone. All the items in this category have positive response from the students except for availing 60% special data package.

4.1.2 Inferences of Numerical data (students)

The remaining seven items have been categorized as the numerical data (constructed rating scales and dimensions). The data for all seven items collected from different schools were charted and the statistical analysis has been carried out as follows.

a) Average hours spent on online lessons and assignments per day

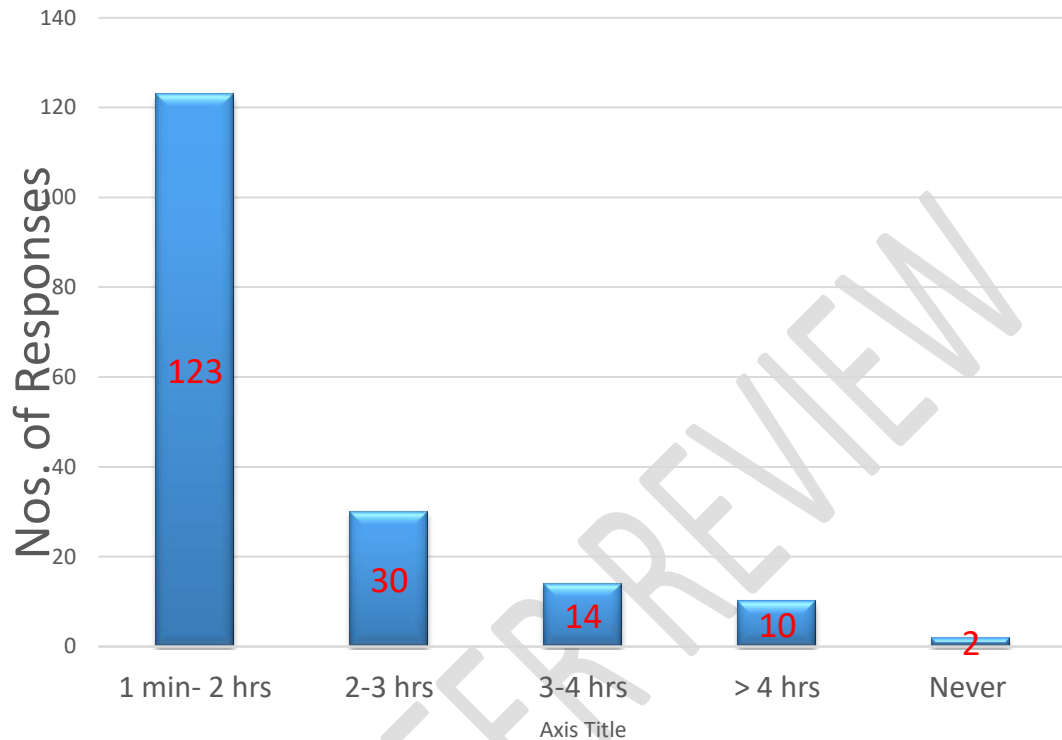## Average hours spend on online lessons & assignments per day

Figure. 2 Average hours spent on online lessons

Figure. 2 clearly illustrates a trend. There is drastic decrease in number of students as the number of hours' increase. 68% of the students spent only within 2 hours on average on online lessons and assignments per day. Whereas only 7.7% of students spent 3 to 4 hours per day on online lessons. 1.1% of the students appear to spend no time at all on a daily basis for the online learning. This requires further study as to ascertain whether they do online lessons on a weekly or monthly basis, or other time intervals.

b) Mediums of lessons

I access lessons on (TV, Phone, SIM, Radio, Video, etc.). You can mention more than one mediam
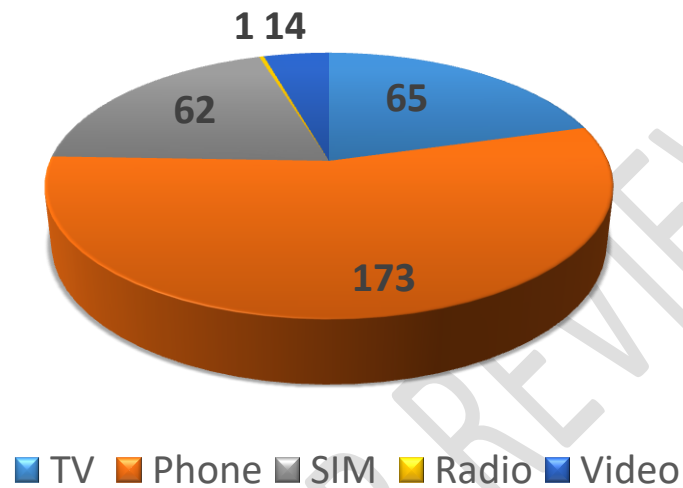

Figure. 3 Mediums of Lessons

The data suggests that 96.1% of the students in WLSS use phone to access lessons. The next preferred means to access lessons is through television that accounts to 36.1% followed by SIM, Video and Other means. The least popular is through Radio (0.5%).
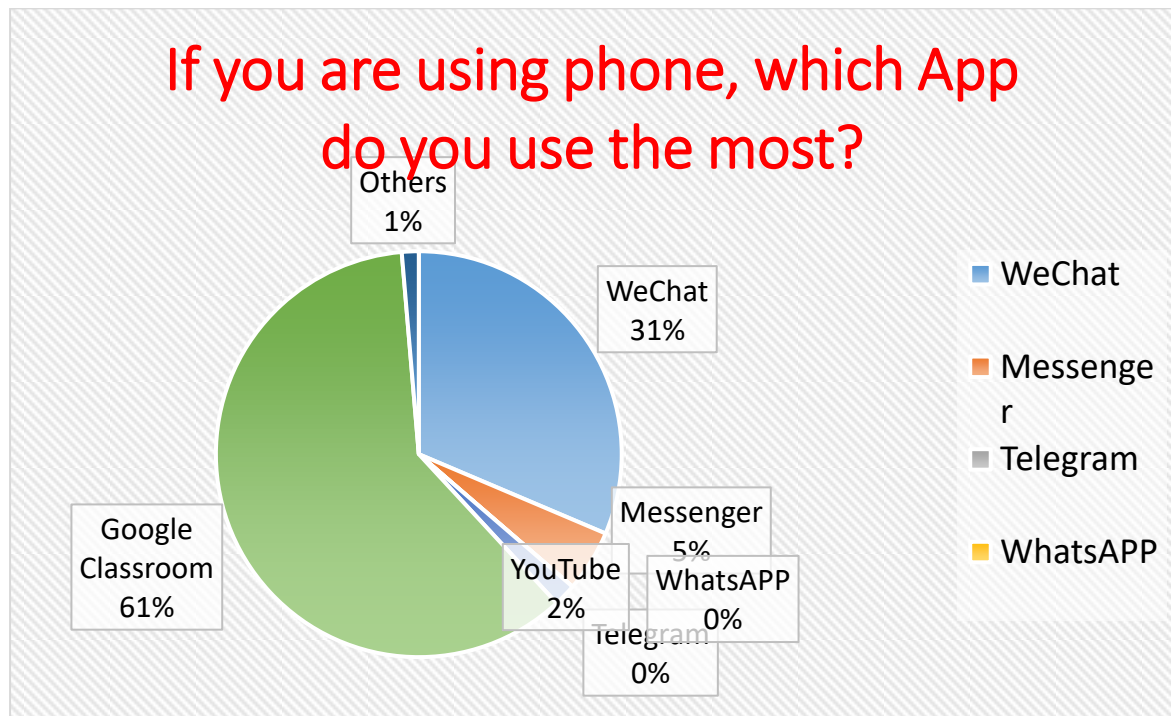
c) The most used Apps

Figure. 4 The most used Apps

Figure. 4 depicts that the most used App by the students is Google Classroom (61%) followed by WeChat (31%) and Messenger (5.5%). Most of the students have stated that WeChat is more user friendly for them.

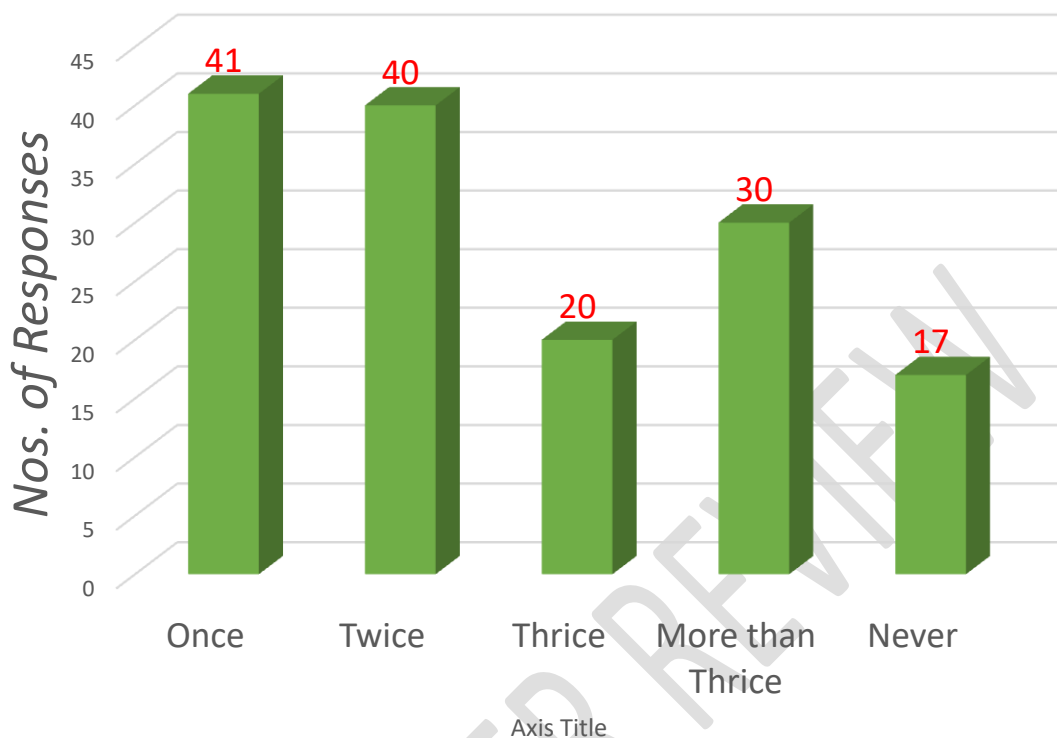**d) Frequency of students interacting with their teachers in a week**

Figure. 5 Frequency of students interacting with their teachers in a week

22.7% of the students contact their teachers only once in a week and only 16.6% of the students contact their teachers more than thrice in a week. The study shows that 9.4% of students do not contact their teachers in a weekly basis. The study showing large number (9.4%) of students never contacting their teachers in a week is of concern for both parents and teachers. The result also suggests for building strong cooperation and equal responsibility of teachers and parents in educating children.

e) Number of hours spent reading in a week

How many hours do you spend reading books/newspapers/megazines/etc. in a week.

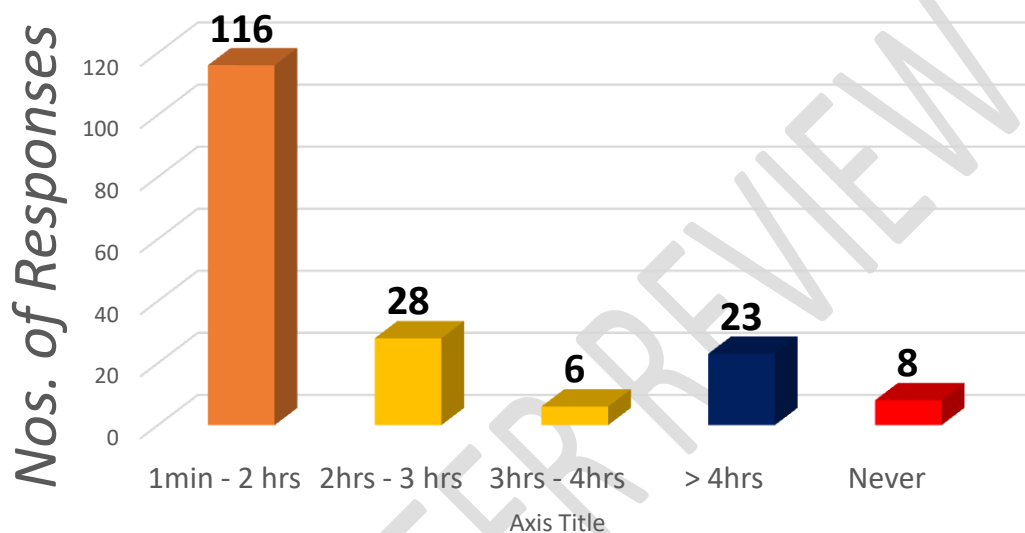Figure. 6 Number of hours spent reading in a week

There is a clear trend, as the number of hours increase the number of student decrease. 64.4% of the students read about only 2 hours in a week which is a huge variance from 12% of students spending more than 4 hours a week. 4.4% do not even read on a weekly basis. The data clearly expresses a poor reading habit amongst students of WLSS during closed school.

f) Number of hours spent on video games or other online games
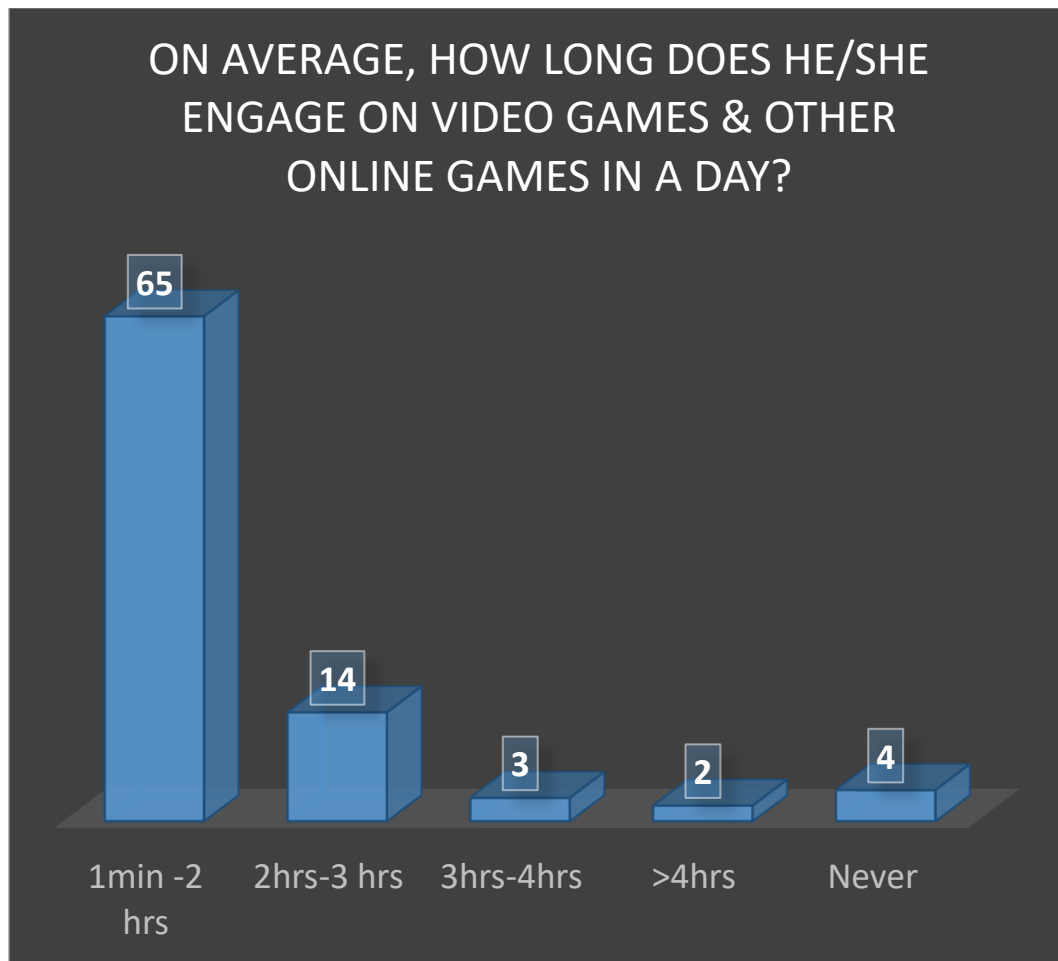

Figure. 7 Number of hours spent on video games

4% of students do not play video games or other online games. 14% of students spent about 2 hours on video games and there is sharp decline in number of students spending 3 hours or more. The habit of spending long hours playing video games or other online games is not very prevalent.

g) Number of hours spent supporting parents in a day

No. of hours you spend supporting your parents in a day
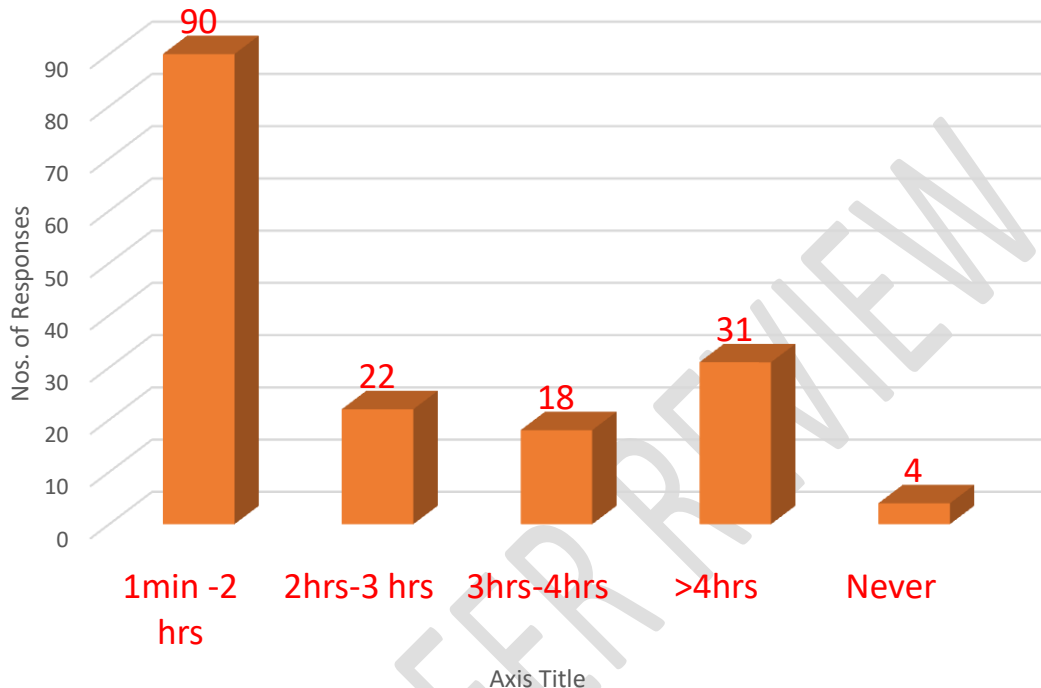
Figure. 8 Number of hours spent supporting parents in a day

Primary hours spent by students in helping their parents in a day is about 2 hours. Closely followed by 31% of them spending more than 4 hours daily rendering support to the parents. The data suggests that significant number of students support their parents at home, as opposed to 4% of them not rendering any form of support to their parents.

4.2 Analysis of Parents Questionnaire

4.2.1 Inferences of categorical data (Parents)

This study consists of eleven items. Out of eleven items in the survey questionnaire, two have been identified as Categorical Variables. The data for both items collected from different schools were tabulated and the detailed statistical analysis has been carried out as follows.

Figure. 9 Categorical variables (parents)

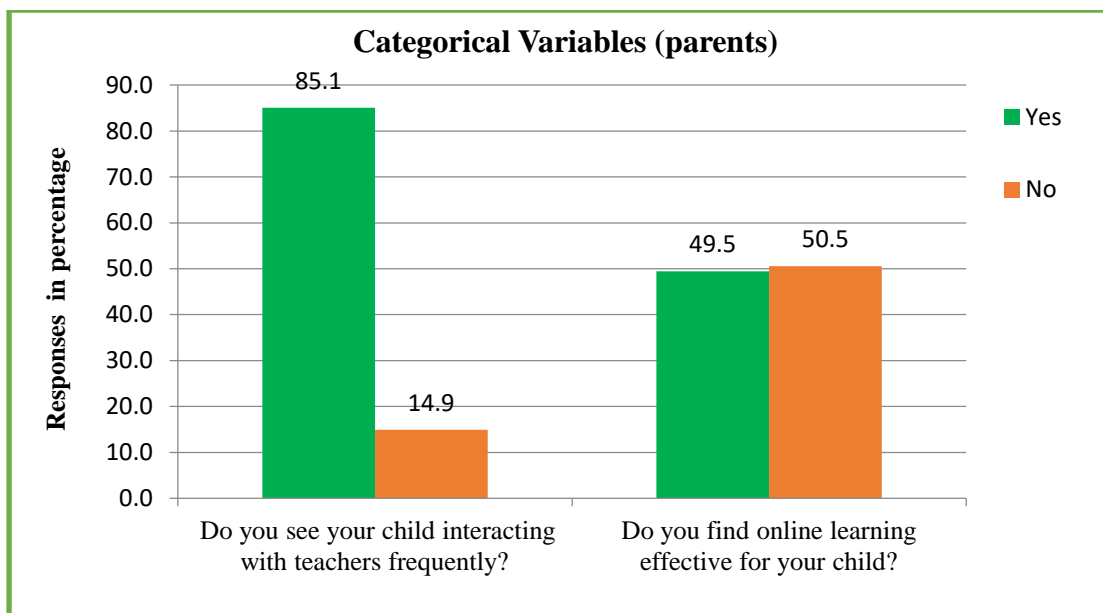Out of 90 samples collected, the study revealed that 85.1% of parents responded that their children interact with their teachers even when schools are closed. Some of the popular mediums that students used are WeChat and Phone call. Although learning was initiated using innovative ways to ensure that their child continue to learn yet 14.9% of parents revealed that their children are still facing serious problem interacting with their teachers due to poor financial background and high data package consumption. Some parents share their concern about having only one mobile phone which needs to be shared among four children.

50.5% of the parents were not happy with the online teaching. The reasons shared by them are: 1) Not having devices, 2) Expensive data packages, 3) Child not able to understand as they were not used to it, 4) Poor network connectivity, 5) Household chores, 6) Parents being uneducated, 7) Child becomes addicted to games and 8) Parents not prepared for home learning. However, 49.5% of parents are of the view that online teaching is effective as their child gets opportunity to explore information with more innovative method.

4.2.2 Inferences of Numerical data (parents)

The remaining six items have been identified as the numerical variables. The data for all six items collected from different schools were charted and the statistical analysis has been carried out as follows.

a) **Average hours spent on learning subject**

How long does your child spend time on learning subjects in a day on average?
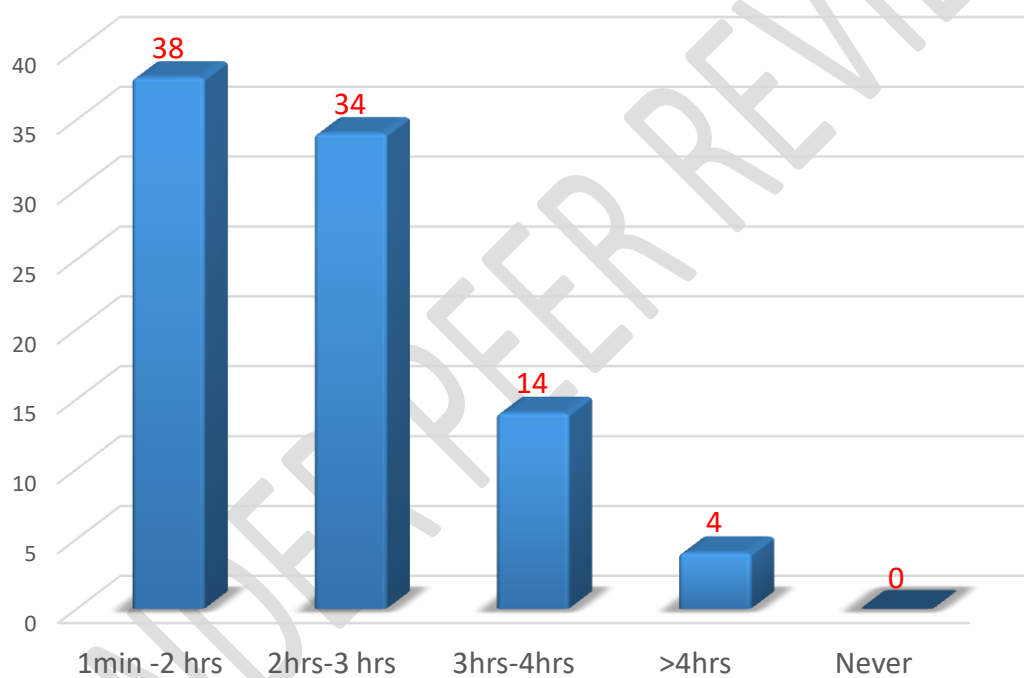

Figure. 10 Average hours spent on learning subject

38% of the students study the particular subject at least 1 to 2 hours, 34% study the subject 2 to 3 hours, 14% study 3 to 4 hours and 4% study the subject more than 4 hours. It is very exciting to discover that only 0% of students never study.

b) Hours spent on reading books/newspaper/magazines etc. in a day

Hours spent on reading books/news paper/magazines etc. in a day

(Y-axis: Responses in percentage; values: 80.0, 60.0, 40.0, 20.0, 0.0)

1min -2 hrs: 64.4
2hrs-3 hrs: 7.9
3hrs-4hrs: 3.7
>4hrs: 8.8
Never: 10.8
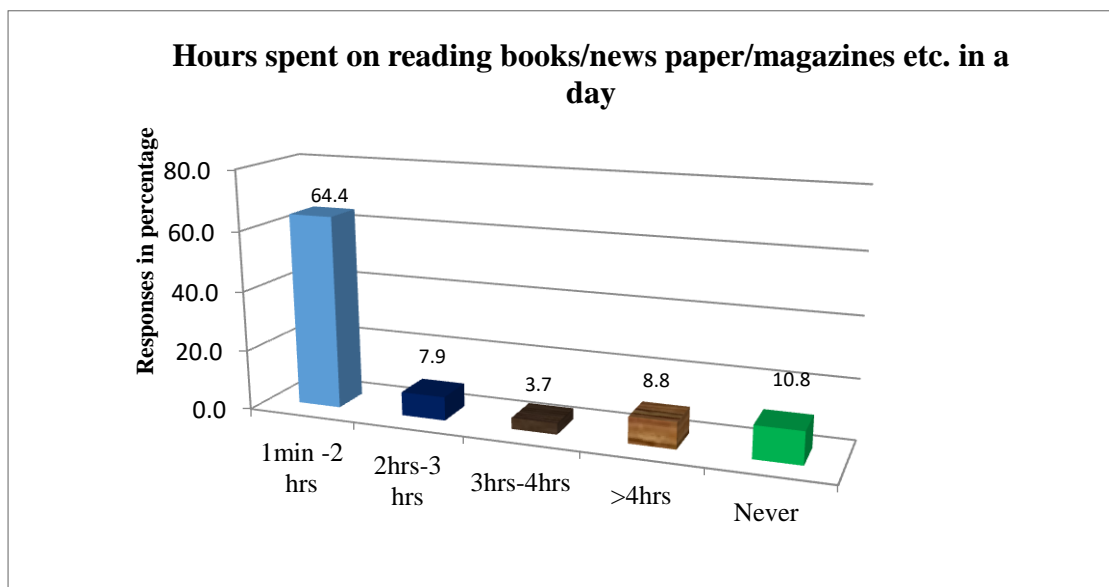
Figure. 11 Hours spent on reading books/newspaper/magazines etc. in a day

As indicated in Figure 11, 64.4% of the students read 1 to 2 hours in a day, 7.9% read 2 to 3 hours, 3.7% read 3 to 4 hours and 8.8% read more than 4 hours. 10.8% of the students do not read at all. The study shows that large number (10.8%) of students do not read any of the materials listed in the survey questionnaire and this finding may have high correlation with number of hours' that students help their parents in carrying out household works. The finding of the study suggests for further in depth analysis of parent's support for their child's learning using more logical statistical tools.

c) Average hours engaged on video games and other online games in a day

Average hours engaged on video games and other online games in a day

Category	Response in percentage
Never	7.9
>4hrs	5.7
3hrs-4hrs	7.9
2hrs-3 hrs	15.4
1min -2 hrs	56.9

Respones in percentage
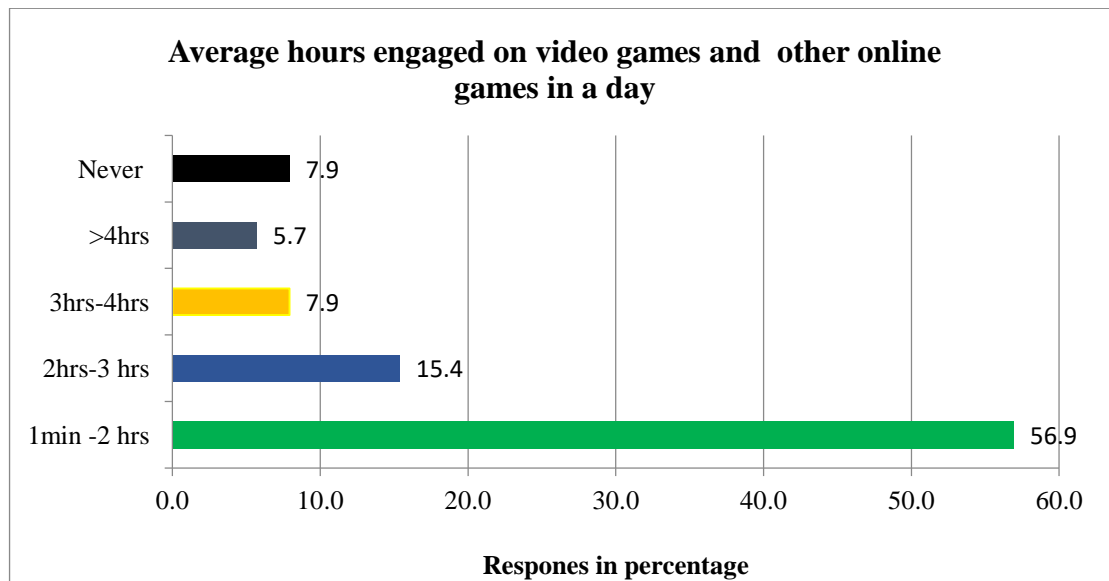
Figure. 12 Average hours engaged on video games and other online games in a day

59.9% of students spent 1 to 2 hours on video and other online games in a day. 15.4% spent 2 to 3 hours and 7.9% spent 3 to 4 hours. The figure 12 vividly indicates that 5.7% of the students spent more than four hours and 7.9% of the students never play online games.

d) Hours engaged in helping family in a day

Hours engaged in helping the family in a day

Category	Percentage
1min -2 hrs	56%
2hrs-3 hrs	15%
3hrs-4hrs	9%
>4hrs	16%
Never	4%
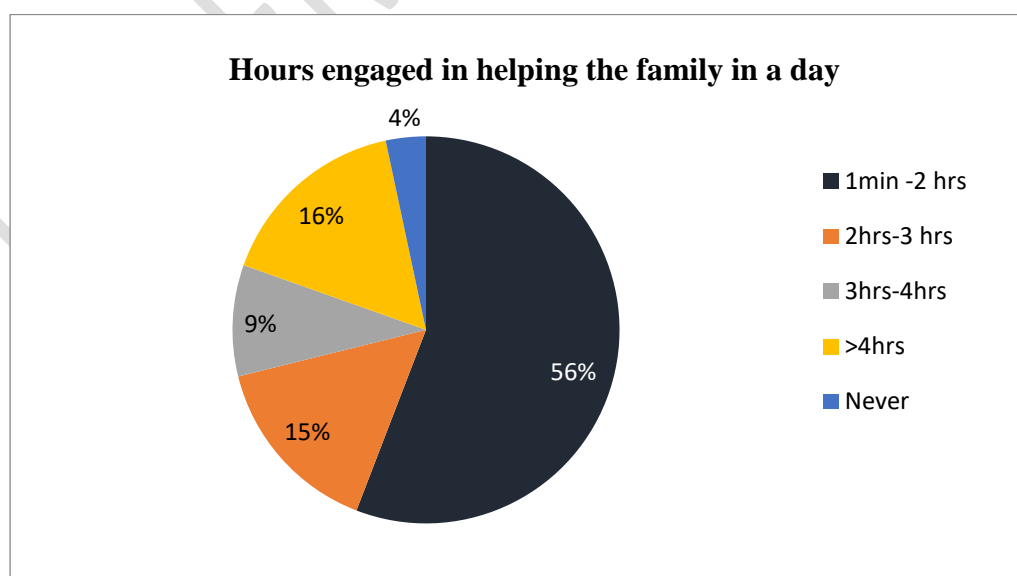
Figure. 13 Hours engaged in helping family in a day

The figure. 13 shows that the preferable hours spent helping parents is 1 to 2 hours which is of 56%. 15% of the students help 2 to 3 hours closely followed by 9% helping 3 to 4 hours and 16% help more than 4 hours. Significantly small number of the students (4%) do not help their parents in a day.

e) Average hours engaged in games and physical activities in week
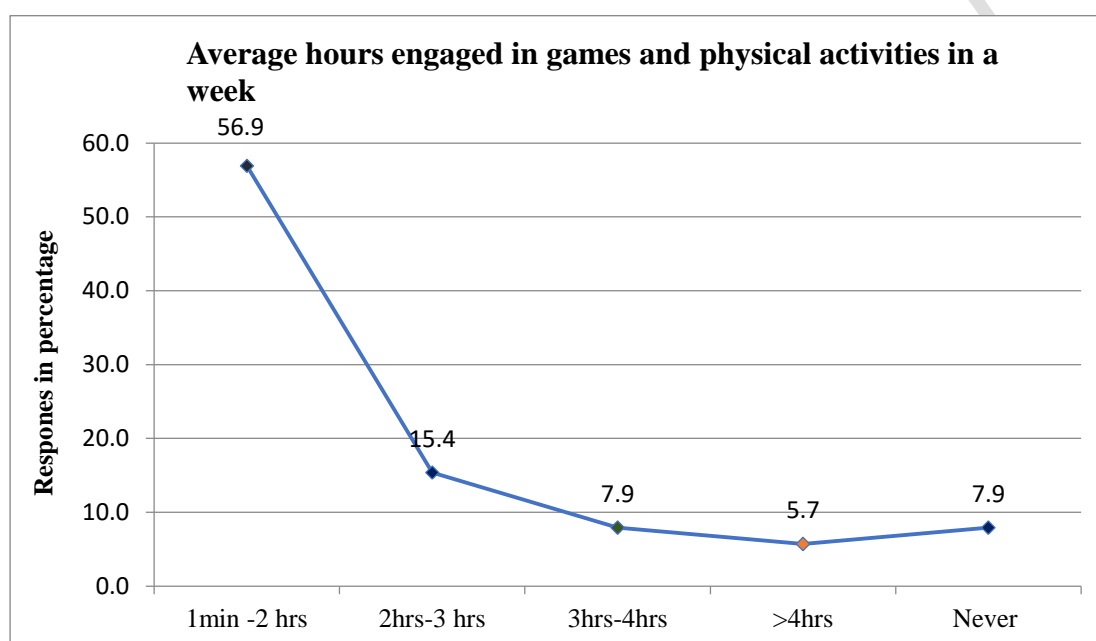
Figure. 14 Average hours engage in games and physical activities in week

The figure. 14 clearly shows that as the hours' increase, number of students engaging in games and physical activities decreases drastically. 56.9% of the students spent only within 1 to 2 hours on games and physical activities in a week. Whereas only 15.4% of students spent 2 to 3 hours, 7.9 % of the students spent 3 to 4 hours and 5.7% more than 4 hours. The findings of this study show that 7.9% of the students have never engaged in games and other physical activities. Thus, it is concern for both parents and responsible authorities to explore further.

f)   Money spent on child's learning in a month

The data were collected on the money spent by parents on their child's online learning in a month. On average Nu 458.5 has been spent on their child's online lessons, which amounts to Nu 5,502 in a year.

4.3 Open Ended Questions (Qualitative data)

The survey questionnaire also encompasses some open ended questions for both parents and students. As qualitative responses are richer and more in-depth than those of its quantitative counterparts, there is high chances of generalizing the findings. Thus, to avoid generalization and to ensure objective (not subjective) interpretation of the findings, the study has employed bucketing method to analyze the qualitative responses. The basic Bucketing approach involves following steps; 1. Reviewing data, 2. Information categorization (buckets), 3. Sub-categorization of buckets, and 4. Summarizing major trends and patterns.

4.3.1 Open ended questions for Parents

1.   How do you support your child's learning? (Question 7)

Step 1: Reviewing data – all responses of this question has been thoroughly read and appraised to get general understanding of the response.

Step 2: Information categorization (buckets) – after going through all responses of parents, the responses were categorized into major buckets based on reoccurring trends and repeating patterns as follows;

i.   Major Buckets (most repeated information); a. Providing phones/recharging data, b. Giving advice/encouraging/reminding/guiding EIE lessons, and c. Providing time.

Step 3: Sub-categorization of buckets – the responses were also categorized into minor buckets based on lesser repeating patterns as follows;

i. Minor buckets (less repeated information); a. Collaboration with teachers, b. Exemption from household works, c. Providing meals on time, d. Seeking help from educated ones, and e. Helping home works.

Step 4: Summarizing major trends and patterns – after all responses were reviewed, examined, and assessed comprehensively by categorizing into different buckets, the study has revealed providing phones, recharging data, giving advice and guidance on EIE lessons as the most preferred means opted by parents to support their child's learning. Apart from key findings mentioned above, some parents also support their child's learning by collaborating with teachers, exempting from household chores, seeking helps from educated ones and by guiding to do homework on time.

2. **How does your child interact with teachers? (Question 8)**

Step 1: Reviewing data – all responses of the question has been carefully read to understand the nature of response.

Step 2: Information categorization (buckets) – after going through all responses of parents, the responses were categorized into major buckets based on reoccurring trends and repeating patterns as follows;

i. Major Buckets (most repeated information); a. Phone (WeChat/Google Classroom), and b. Cluster teaching/mobile teaching.

Step 3: Sub-categorization of buckets – the responses were also categorized into minor buckets based on repeating patterns as follow;

i. Minor buckets (less repeated information); a. Home visit by teachers, b. Going to schools, and c. Personal call.

Step 4: Summarizing major trends and patterns – after all responses were thoroughly examined by categorizing into different buckets, the study depicts using of mobile Apps such as WeChat, Google Classroom, and cluster teaching (or mobile teaching) as most frequently used modes of interaction by children. The study also revealed that home visit by teachers, going to schools, and making personal calls to teachers as supplementary modes of interaction by their children.

3. Your overall views on online teaching and learning and recommendations (Question 11)

Step 1: Reviewing data – all responses of this question has been carefully read to comprehend the concept and the nature of the response.

Step 2: Information categorization (buckets)- after going through all responses of parents, the responses were categorized into major buckets based on reoccurring trends and repeating patterns as follows;

    i. Major Buckets (most repeated information); a. Teachers visiting learners, b. Learning is not effective, c. Major issues with data package, and d. Challenging for illiterate parents to guide their child.

Step 3: Sub-categorization of buckets – the responses were further categorized into minor buckets based on repeating patterns as follow;

    ii. Minor buckets (less repeated information); a. Affects child's eyes, b. Makes children lazy, c. Network problem, d. Engaged in online games and e. Helpful during such situations (Covid-19 pandemic and lock down).

Step 4: Summarizing major trends and patterns – Upon examining and assessing the major repeating trends, the study shows teaching through visiting learners' place as very encouraging and positive practice. However, the results also suggest that online teaching and learning is not effective as face to face classroom teaching and learning. The lack of financial supports for data package and illiterate parents (to guide) are found to be other major challenges of online teaching and learning. Some parents are also worried about the effects of online classes on children's health and wellbeing.

4.3.2 Open ended questions for Students

This study consists four open ended questions (qualitative data) and each item was categorized and analyzed using bucketing method as follows;

Step 1: Reviewing data – all responses under each questions were thoroughly read, reviewed, and examined comprehensively to get general concept of the responses.

Step 2 & 3: Information categorization (buckets) and sub-categorization of buckets.

Questions	Major Buckets (Most repeated information)	Minor Buckets (less repeated information)
How do you clarify your doubts? *(Question no.11)*	1. Parental help. 2. Help from relatives/friends/brothers/sisters. 3. Through mobile and cluster teaching.	1. Internet (google) 2. Through call/contact with teachers.
What support do you receive from your teachers? *(Question no. 12)*	1. SIM 2. Guidance during mobile teaching/cluster teaching. 3. Providing notes.	1. Allow to clear doubts through call. 2. Extension of assignment/homework due date. 3. Clearing doubts in google classroom.
What support do you receive from your parents? *(Question no. 13)*	1. Mobile phones 2. Data package 3. Encourage to attend classes in TV.	1. Advice/guide in learning. 2. Reminds about google classes. 3. Allow to visit friends place for discussion.
Your overall views on online learning and suggestions *(Question no. 20)*	1. Not effective like classroom teaching. 2. Difficult in learning. 3. Mobile phones and data package problem.	1. Easy to access from internet/google. 2. Network problem.

Step 4: Summarizing major trends and patterns – after assessing all responses comprehensively, the study revealed that most of the students clarify their doubts by seeking help from their parents, siblings, friends, relatives, and through mobile/cluster teaching. There are also some students who choose/opt google (internet) and teachers to clarify their doubts. SIM, guidance, and notes on each topic are some of the main supports that majority of students have received from their teachers besides allowing them to clear their doubts through calls, Google Classroom, and extending due date of their assignments and homework. The study has also revealed that providing mobile phones, data packages, and encouraging to attend classes on television as three top most support that they have received from their parents during Education in Emergency.

Furthermore, most of the students have faced difficulty in learning online and inaccessibility to mobile phone and data package have been other major challenges for them. Few responses have mentioned poor network connectivity as supplementary challenges of online classes.

CONCLUSION

Bhutan is blessed to have visionary leaders to give distinct identity to our country mainly in pursuit of peace and happiness. Over the decades, education has been the panacea to move our country forward politically, culturally, intellectually, socially and environmentally. The Royal Government of Bhutan continues to magnify education as an engine of growth in the nation building process. However, of recent, Bhutan has been affected by the pandemic and the education system has been impacted as well.

The findings of this study has augmented our understanding of the impact of Education in Emergency in Wangduechhoeling LSS, Bumthang. The core group has taken the required time and efforts to bring out a vivid picture of the overall impact of the Education in Emergency. The study shows that 88.8% of students enjoy EiE lessons, 94.4% learn through EiE, 81.6% of parents support their child's learning, 36.6% of students face difficulty in using different Apps, 96.6% of students have textbooks with them, 81.1% of teachers assess tasks given in TV, Radio, SIM lessons, 57.7% of students' interest was affected by closure of schools, and 97.7% of students are excited to return to school. Additionally, study revealed that only 64% of students have availed 60% special data packages discount opposed to 36% who have not availed.

The finding of the study also shows that an average hours spent on online lessons and assignment by students in a day is two hours and majority of the students (88.7%) use mobile phones to access lessons. The most used App was Google Classroom (61%) and most of the students interact once (22.7%) in a week with their teachers. The study also shows that 64.4% of students spent one to two hours reading books/magazines/newspaper, etc. against 4.4% of students never read. Unexpectedly, the study depicts that 17.2% of students support their parents for more than four hours in a day opposed to 2.2% never support their parents. On the whole, parents (50%) have concluded that the online teaching learning is ineffective for their children.

The Recommendations listed below are the actual realities that has found out from the data compiled and analyzed;

1. Questions need to be very specific to generate clear-cut findings. For example, our findings would have been robust if questions have been prepared using some Likert scale with values such as strongly agree, agree, neutral, disagree, and strongly disagree, etc. If questions have been constructed using dimensions, then we would have been also able to find the central tendency for our analysis. Some questions have not been specified whether it is in a day or in a week.

2. Need uniform and user friendly medium of instructions for online classes.

3. Teachers must be well trained and students well oriented in the application of the online Apps.

4. Teach and educate students on positive and constructive use of electronic gadgets.

5. Impart parenting skills to engage students more productively.

6. All levels must have separate curriculum unlike clubbed curriculum so far to ease the learning.

7. Government to supply electronic gadgets to needy students.

8. Impart time management skills to children.

9. Timely assistance and provision of needful directives and instruction to ensure 100% learning happens for all the students.

10. Incorporation of visual aids and audio files to enhance better learning.

11. The schools must ensure proper documentation and record filing of students so that tracing them would never be a problem to contact them in near future.

12. Adequate learning materials must be in place for the students.

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APPENDIX A

1. Categorical variable (students)

Q. No.	Items	Shortened
1	I enjoy EiE online lessons	Lessons
2	I am learning	Learning
4	My parents can help me in learning	Parents support
7	Do you face challenges in using different Apps?	Apps
9	I have all the textbooks with me	Textbooks
10	Do teachers assess tasks given in TV, Radio, SIM lessons?	Assessment
16	Has your interest in studies affected by school closure?	School closure
17	Will you be excited to return to school when it reopens? (Closed schools)	School reopen
18	Did you avail 60% discount data service?	60% data service

APPENDIX B

1. Data collected for students.

<table>
<tr><td colspan="10" align="center">**WLSS** Impact Analysis of Education in Emergency (Questionnaire to Students)</td></tr>
</table>

SL.No	Items								Remarks
		Yes				**No**			
1	I enjoy EiE online lessons	160				20			180
2	I am learning	170				10			
Items		**1 min- 2 hrs**	**2-3 hrs**	**3-4 hrs**	**> 4 hrs**	**Never**		**Invalid**	
3	Average hours I spend on online lessons & assignments per day	123	30	14	10	2		2	
Items		**Yes**				**No**			
4	My parents can help me in learning	147				30			
Items		**TV**	**Phone**	**SIM**	**Radio**	**Video**	**Other**		
5	I access lessons on (TV, Phone, SIM, Radio, Video, etc.).	65	173	62	1	14	0		
Items		**WeChat**	**Messenger**	**Telegram**	**WhatsApp**	**YouTube**	**Google Classroom**	**Others**	
6	If you are using phone, which App do you use the most?	70	11	0	0	4	135	3	
Items		**Yes**				**No**		**Invalid**	
7	Do you face challenges in using different Apps?	66				111		3	
Items		**Once**	**Twice**	**Thrice**	**More than Thrice**	**Never**		**Invalid**	
8	How frequently do you contact your teachers in a week?	41	40	20	30	17		32	
Items		**Yes**				**No**		**Invalid**	
9	I have all the textbooks with me	174				2		2	
10	Do teachers assess tasks given in TV, Radio, SIM lessons?	146				34			
Items		**Qualitative**							
11	How do you clarify your learning doubts?								
12	What type of support do you receive from teachers?								
13	What support do you receive from your parents?								
ITems		**1min - 2 hrs**	**2hrs - 3 hrs**	**3hrs - 4hrs**	**> 4hrs**	**Never**	**Invalid**		
14	How many hours do you spend reading books/newspapers/megazines/etc. in a week.	116	28	6	23	8	1		
15	How many hours do you spend on video games and other online	124	12	8	9	37	0		

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ITems			Yes			No			
	games?								
16	Has your interest in studies affected by school closure?			104			76		
17	Will you be excited to return to school when it reopens?			176			4		
18	Did you avail 60% discount data service?			64			116		
ITems		1min -2 hrs	2hrs-3 hrs	3hrs-4hrs	>4hrs	Never	Invalid		
19	No. of hours you spend supporting your parents in a day	90	22	18	31	4	15		
Items				Qualitative					
20	Your overall views on online learning and suggestions								

APPENDIX C

1. Data collected for parents.

B Impact Analysis of Education in Emergency (Questionnaire to Parents)									
		Wangduechhoeling LSS							
Sl.No.	Items	Yes			No				Remarks
1	Do you see your child interacting with teachers frequently?	76			14				
	Items	1min -2 hrs	2hrs-3 hrs	3hrs-4hrs	>4hrs	Never	Invalid		
2	How long does your child spend time on learning subjects in a day on average?	38	34	14	4	0	0		
3	How many hours does he/she spend on reading books/newspapers/ magazines, etc. in a day?	69	4	3	2	4	8		
4	On average, how long does he/she engage on video games & other online games in a day?	65	14	3	2	4	2		
5	How long does he/she engage in helping the family?	58	9	9	2	9	3		
6	How long does he/she engage in physical games and activities?	59	15	8	2	4	2		

	Items	Qualitative							
7	How do you support your child's learning?								
8	How does your child interact with teachers?								

	Items	Yes			No				
9	Do you find online learning effective for your child?	45			45				

	Items	An average amount of money spend by parents							
10	How much money do you spend on child's learning in a month?	2300	2500	549	1500	2500	6500	2000	
		4999	1799	3849	1200	3699	699	299	
		1300	3100	2100	3000	1200	1300	699	
		2400	1699	3400	1050	1500	1400	3699	
		3099	4549	1500	2849	1999	1000	5500	
							Average:	919	

	Items	Qualitative							
11	Your overall views on online teaching and learning & recommendations								

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