# LEARNING DURING THE LOCKDOWN

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A Rapid Assessment Study on the Outreach, Satisfaction and Efficacy of Digital Classes during the COVID-19 closure of Higher Education Institutions in the Indian Himalayan Region





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> This report has been prepared to assess the Outreach, Satisfaction and Efficacy of Digital Education during the Lockdown period across India due to the COVID-19 Pandemic

# **List of Figures**

Fig 1 (a) and (b): State-wise respondents in numbers	13
Fig 2: Urban-Rural profile of the respondents	14
Fig 3 (a) and (b): Gender profile of the sample	15
Fig 4: Course wise profile of the respondents	15
Fig 5: Profile of Income distribution of the respondents	16
Fig 6 (a) and (b): Availability of Personal Smart phone	18
Fig 7 (a) and (b): Availability of personal Laptop/Computer	18
Fig 8: Availability of personal Laptop/Computer	19
Fig 9: Internet Access	20
Fig 10: Internet Access across place of stay	20
Fig 11: Internet connectivity of respondents	20
Fig 12: Data usage per day of respondents	20
Fig 13: Chart representing whether respondents can afford data packs	21
Fig 14: Amount spent per month	21
Fig 15: ISP usage of respondents	21
Fig 16: Bar graph showing whether digital classes are taking place for the three clusters	22
Fig 17 (a) and (b): Methods and modes of interaction	23
Fig 18: Use of Books and additional material	23
Fig 19: Use of Digital Libraries and facilities	23
Fig 20: Satisfaction level of students	26
Fig 21: Gender-wise satisfaction level of students	26
Fig 22: Cluster-wise satisfaction level of students	26
Fig 23: Satisfaction vs. connectivity issues	27
Fig 24: Exam readiness	28
Fig: 25: Connectivity and Efficacy	28
Fig 26: Preference for Blended education	28
Fig 27: Satisfaction vs. Efficacy	29
Fig 28: Overall satisfaction and efficacy	29
Fig 29: Chart depicting number of educators surveyed by state	30
Fig 30: Bar graph with number of educators surveyed by type of institute and role	31

### **Table of Contents**

Preface	6
CHAPTER ONE: Introduction	7
1.1 Global impact of the lockdown on education	8
1.2 Policy landscape, and the pivot to opling learning in India	9
<ul> <li>1.2 Folicy landscape and the pivol to online learning in India</li> <li>1.3 The 'digital divide': Inequities in access to digital learning in India</li> <li>1.4 Barriers to in access in rural India and the Indian Himalayan Region</li> <li>1.5 The need for this study</li> </ul>	0 10 11 11
CHAPTER TWO: Demography	13
2.1 Student profiles and composition of respondent sample	13
2.2 State-wise representation	13
2.3: Place of Residence (Rural-Urban)	14
2.4 Gender Profile of the Sample	14
2.5 Course-wise break-up of the Sample	15
2.6 Income group	15
CHAPTER THREE: Outreach	17
3.1 Hardware Availability	18
3.2 Internet penetration	19
3.3 Data usage and financial aspect	20
3.4 Digital Classes, Apps and Modes of Knowledge Dissemination	22
CHAPTER FOUR: Satisfaction and Efficacy	25
4.1 Satisfaction level of Students	25
4.2 Efficacy of the Digital mode of Education	27
CHAPTER FIVE: Educator Insights	30
5.1 Change in learning in the Himalayan region	31
5.2 Perceptions about Online Learning	31
5.3 Solutions currently deployed by educators in the Himalayan region	35
5.4 Lessons for learning in a Post-Covid world	37
CHAPTER SIX: Conclusion and Recommendation	41
6.1 Production of Digital Content	42
6.2 Outreach of Digital Learning	43
6.3 Satisfaction and Efficacy of Digital Learning	43
Footnotes	45





The Indian Himalayan region (IHR), stretching from the union territories of J&K and Ladakh to states in the North East, with its sparse population, remoteness, extreme climate conditions, inadequate infrastructure and adverse terrain amongst others, poses immense challenges to its young learners in the best of times. The situation has been hugely exacerbated by the current pandemic.

Efforts are being made by educational institutions to provide as much continuity as possible through digital learning but are these delivering the expected learning outcomes? What are the challenges in design, delivery and discovery of these alternative options? Are inequities and gaps increasing due to these? These are some of the questions which need to be answered on the basis of which improvements can be made.

A committed group of Integrated Mountain Initiative (IMI) life members – Dr. Satyadeep Chhetri, Mr. Krishna Rautela and Mr. Amba Jamir have tried to answer some of these questions through a Rapid Assessment for Outreach, Satisfaction and Efficacy of Digital Classes during the COVID-19 closure of Higher Education Institutions in the IHR, in collaboration with another group of young and motivated professionals from IABT Foundation based out of New Delhi. I thank them for this voluntary and timely initiative.

This report is now with you. While answering some of the aforementioned concerns, it raises a new set of issues for higher education and even more importantly for school education. I hope this rapid assessment will be a precursor to a more systematic assessment for digital learning in schools in the IHR which are even more remote, where access to technology is limited and gender inequities are even sharper in a learning-from-home environment.

While technology innovations in education are long overdue, the pandemic has taken the element of choice away and we must adapt. Fortunately, the National Education Policy 2020 has just been launched with a view to bring transformational shifts in preparing our young citizens for the 21st Century. In that context, digital education becomes an important enabler. That puts this report in perspective as an initial fact finder, however sketchy, which can be further built upon.

IMI, as a civil society platform, will continue to bring forward an action-oriented discourse on such evolving issues in the context of the IHR through the active role of its members, state chapters and other stakeholders. We believe that such efforts will better inform our policies and enable more effective action on the ground.

#### **Sushil Ramola**

President, Integrated Mountain Initiative (IMI)

# **CHAPTER ONE: Introduction**

In early 2020, the world as we know it stepped into uncharted territory with the outbreak of Covid-19, a highly infectious disease caused by a newly discovered coronavirus.

Few instances in recent institutional memory over the last century equipped us to deal with an outbreak of such staggering proportions where just within a few months, the virus had pervaded borders across the world, resulting in the declaration of a global pandemic. As of June 2020, there were over 10 million confirmed cases of Covid-19, including more than 500 thousand reported deaths<sup>1</sup>.

Governments have rushed to contain the pandemic, enforcing social distancing measures including restrictions on mass gatherings, mobility including road, air and rail travel, temporarily closing down schools and universities, and suspending activities for all nonessential services. As a result, individuals across the world are losing their jobs- a projected 130 million within India alone<sup>2</sup>.

Mountain-based economies are especially vulnerable, with sectors such as agriculture and tourism having been heavily impacted, leaving many in the region exposed to the threat of poverty<sup>3</sup>. The implications of Covid-19 therefore, go far beyond immediate health concerns and have great bearing on other critical domains such as the economy, employment and education.

This report focuses on the impact of the lockdown on education in particular, with a focus on the transition to digital learning in the Indian Himalayan Region over the last three months (March 2020 to May 2020).



### 1.1 Global impact of the lockdown on education

In response to the global Covid-19 pandemic, countries across the world have shut down schools and higher education institutions. It is estimated that over 1 billion learners have been impacted due to country-wide closures of schools and universities<sup>4</sup>.

In order to minimize the loss of academic learning, institutions have had to devise ways to shift their teaching to a remote format, where learning can be continued even while students and teachers are at home. Factors such as access to internet infrastructure, adapting pedagogies for digital means and the need for face-to-face interaction or hands-on learning in certain fields of study have presented themselves as important considerations during this transition<sup>5</sup>.

While most institutions have shifted their teaching online, giving due consideration to contextual specificities— particularly in terms of access to the internet— has emerged as critical. In some low and middle-income countries, schooling has had to be discontinued altogether due to the lack of internet access faced by students. In some cases, a divide between the students in a class who do and do not have access to the internet makes it difficult for institutions to provide equal opportunities to their students, and has led to a full halt on all learning activities through the course of the lockdown<sup>6</sup>.

### **1.2 Policy landscape and the pivot to online learning in India**

In India as well, students of higher education institutions too have been affected by the crisis. Country-wide closures of educational institutions have deeply impacted the continuity of learning for approximately 30 crore school and university students across the country, with interruptions in face-to-face classes, and delays in university and competitive examinations<sup>7</sup>. This includes close to 10 lakh students<sup>8</sup> enrolled in private and government colleges in the Himalayan region.

Higher education institutions that have managed to shift their learning to online modes continue to be faced with a myriad of immediate challenges. These range from the need to support students seeking academic assistance to job insecurity of employees; to the need for administrators and educators to reinvent their traditional classroom practices and to optimize them for digital means.

Additionally, students from the Himalayan region who had migrated to other parts of the country Country-wide closures of educational institutions have impacted close to 10 lakh students enrolled in private and government colleges in the Himalayan region.

for education have been returning to their homes<sup>9</sup>, where they face inequity of access to internet and digital learning infrastructure. At the same time, particularly in cases where prerequisites such as internet and access to devices are in place, this transition has also presented itself as an

opportunity to explore more innovative and flexible forms of learning, and reimagine education for the future.

The University Grants Commission of India (UGC) has recommended that universities across the country adopt online means to minimize disruption in learning. According to the UGC, universities had completed approximately 60-70% of their syllabus through regular teaching before lockdown measures were put into place.

In its guidelines released in April 2020 during the initial phase of India's lockdown, the UGC emphasized completing the rest of the curriculum and conducting examinations through the use of online modes. Platforms such as Google Classroom, Google Hangout, Cisco Webex Meeting, YouTube Streaming, OERs, SWAYAM Platform and SWAYAMPRABHA (available on Doordarshan Free Dish and Dish TV), were recommended in the UGC guidelines<sup>10</sup>.

The table below presents a brief snapshot of different government initiatives to foster digital higher education:

#### **Content Dissemination**

SWAYAM<sup>11</sup>

A digital platform hosting over 500 courses for students from Class 9 till post-graduation. The courses employ a blend of video lectures, reading material, self- assessment and interactive discussion forums,

	and are available in regional languages.
SWAYAMPRABHA <sup>12</sup>	A group of 32 DTH channels providing 24/7 educational content and exam preparation material for students from class 9 to post-graduation levels.
National Digital Library of India <sup>13</sup>	A platform offering content on a range of subjects and through various formats for primary to postgraduate levels.
e-PG Pathshala <sup>14</sup>	An MHRD initiative being executed by the UGC, providing content of 70 subjects across disciplines. Also has content available in offline mode.
Sugamya Pustakalya	An online platform that makes accessible content available to print-disabled people. The library houses publications across diverse subjects and languages and multiple accessible formats.

#### **Knowledge Sharing and Capacity Development**

Knowledge Management System (KMS) <sup>15</sup>	A platform capturing, sharing, and reusing knowledge.
National Knowledge Network (NKN) <sup>16</sup>	Facilitating the flow of information between universities, research institutions, libraries, laboratories, healthcare and agricultural institutions
Learning Management System (LMS)	As a capacity building tool, LMS facilitates efficient administration of e-learning and training for various government officials both at centre and states/union territories

#### Other

National Careers Service Portal<sup>17</sup> A national ICT based portal has been developed, primarily to connect opportunities with the aspirations of the youth. This portal facilitates registration of job seekers, job providers, skill providers, career counsellors, etc.

While various government initiatives like the above do exist to foster and aid digital learning, there are challenges in implementing the UGC guidelines uniformly across the country, given the disparity in availability and accessibility of digital technology, with some universities lacking the basic IT infrastructure for e-learning and conducting online examinations<sup>18</sup>.

Guidelines released by the UGC in July 2020 have called for the completion of final year examinations through online, offline or blended means by September 2020<sup>19</sup>. This raises essential questions around whether students, particularly from sections with poorer access to technology and having faced greater disruptions in their learning, can indeed be fairly assessed based on these examinations. The preparedness of Himalayan students for these upcoming examinations, in particular, is one of the areas we have sought to explore in this study.

### **1.3 The 'digital divide': Inequities in access to digital learning in India**

The United Nations Development Programme urges the application of an 'equity lens' to crises such as the one that faces us today. The adversities caused by the current situation are likely to not only outlast the pandemic, but also be unequally distributed, with vulnerable groups being the most affected in terms of human development<sup>20</sup>.

With the pivot to digital means for the provision of education, it becomes essential to examine the "digital divide" — a term used to refer to the gap that exists between those with ready access to the tools of information and communication technologies, and the knowledge that they provide access to, and those without such access or skill<sup>21</sup>.

Recent conversations around digitization in India have focused on the surge in the numbers of internet users in India, now second only to China. In fact, at the end of 2019, India stood at 451 million internet users across the country<sup>22</sup> — a boost that has largely been driven by a growing

41% of internet users are school-going or college-going students, which forms the largest pool of internet users in India. availability of affordable devices and data plans<sup>23</sup>. Young people are increasingly going online, with about two-thirds of internet users in India being between the age group of 12-29 years<sup>24</sup>. 41% of internet users are school-going or college-going students, which forms the largest pool of internet users in India<sup>25</sup>.

This increase in internet users has also been true for rural India, which now has almost the same number of internet

users as urban India. However, in this narrative of the spread of the internet, it is essential to consider that these are absolute numbers. Given that there is a sizable disparity in the distribution of India's population, with 67% living in rural areas, access to the internet is not as equitable as it appears to be<sup>26</sup>.

Illustrating this, a recent report on the digital divide in the Hindu Kush Himalayas points out that this disparity widens along already existing axes of inequality. This is true for the current status of education in the region as well— online classes are available to those who can afford internet services at home as well as the required computer hardware and software, while those who cannot are left out of the learning process, resulting in increased learning gaps along pre-existing socioeconomic divides<sup>27</sup>.

### **1.4 Barriers to in access in rural India and the Indian Himalayan Region**

Currently, the penetration of the internet in rural India only stands at about 36%, creating a digital divide between rural and urban populations. This gap is even more pronounced for the most marginalized communities in the country as well as for rural women. Only 16% of women are connected to the mobile internet, with this gender difference being even greater in rural parts of the country. Overall, 800 million people across the country are believed to be impacted by inaccessibility to the internet<sup>28</sup>.

This sudden reliance on technology for access to basic amenities such as education— which has previously been an equalizer— deepens existing inequalities and makes it harder to break the intergenerational transfer of disadvantage<sup>29</sup>. When education no longer carries the potential for upward social mobility, marginalized groups may see increased dropout rates. In regions with higher son preference, females from financially vulnerable backgrounds are at a particularly high risk of being pulled out of schooling by their families<sup>30</sup>.

#### **1.5 The need for this study**

Students across the country have been affected by the sudden disruption of learning. With a view to being better prepared for situations such as this in the future, the UGC has issued guidelines to adequately train faculty so that 25% of the syllabus can be completed through online teaching even once social distancing measures are eased<sup>31</sup>.

This move towards embracing online learning methods can be treated as an opportunity for providing quality learning to youth even in remote mountainous areas. However, this necessitates a careful understanding of the ground realities of such a pivot as well as the adoption of an 'equity lens' to ensure that no youth is left behind. The large digital divide faced by those from rural and financially vulnerable backgrounds is especially pertinent in the context of the Indian Himalayan region, which is approximately 70% rural (going up to as high as 90% in Himachal

Pradesh), and poverty is high<sup>32</sup>. Furthermore, given the unique context of the Himalayas, where the region's geography, biodiversity and livelihoods are intricately linked, the need to carefully consider the specific requirements of its inhabitants has been previously recognized<sup>33</sup>. Nevertheless, while working on this study, we have encountered a dearth of existing information on the challenges and opportunities for digital learning in the Indian Himalayan region.

Through our surveys with 598 youth as well as

The large digital divide faced by those from rural and financially vulnerable backgrounds is especially pertinent in the context of the Indian Himalayan region, which is approximately 70% rural.

qualitative responses from educators across the Indian Himalayan region, we aim to capture voices that have so far been largely excluded from existing literature. We view this publication as an important step towards designing policies that are better informed, contextually appropriate, and better suited to the needs of Himalayan youth in a post-Covid world.



# **CHAPTER TWO: Demography**

In this section, we provide a brief description of the respondent profile for this survey. Through this survey, we were able to capture a diversity of voices and apprehensions from various groups.

Additionally, this survey aimed to document multi-faceted challenges related to the teachinglearning process during this transition from brick-and-mortar teaching pedagogies to the 'digital' or 'online' model of higher education.

### **2.1 Student profiles and composition of respondent sample**

This survey has been able to capture the voices of 598 individuals from across the Indian Himalayan states. There has been fair representation from all post-secondary higher education levels in India, be it undergraduate courses, post graduate programs, M.Phil and PhD scholars, or students who have been preparing for engineering, vocational, medical or other competitive exams. This report has been able to draw comparisons by way of percentage of the student sample, to aid a proper assimilation of the perception levels and existing inequalities that the survey was intended to capture.

### **2.2 State-wise representation**



Fig 1 (a) and (b): State-wise respondents in numbers

The largest number of respondents for this survey were from Sikkim, Nagaland, Uttarakhand, and Meghalaya, as compared to other mountain states and Union territories. Given this discrepancy in terms of responses received, the data received has been analysed after dividing the states into three distinct clusters:

#### Cluster 1 (C-1)

Eastern Himalayan states (Arunachal Pradesh, Nagaland, Manipur, Mizoram,

#### Cluster 2 (C-2)

Middle Himalayan states (Sikkim and Darjeeling Kalimpong

#### Cluster 3 (C-3)

Western Himalayan States and Union territories (Uttarakhand, Himachal

# **Chapter Two**

Cluster 1 (C-1)

...Meghalaya and Tripura)

...Hills of West Bengal)

237 responses

306 responses

Cluster 2 (C-2)

Cluster 3 (C-3) ...Pradesh and Ladakh 55 responses

We did not receive any responses from Jammu and Kashmir.

This method of clustering also takes into account the mobile and internet zones prevalent in the different regions. Both Clusters 1 and 2 fall under the same mobile and internet zone. Cluster 3 has 3 distinct mobile and internet zones. However, because of the geographic closeness of the territories, they have been clustered together.

### 2.3: Place of Residence (Rural-Urban)



Fig 2: Urban-Rural profile of the respondents

Figure 2 depicts the break-up of respondents based on their current place of residence. It is interesting that both rural and urban groups have been represented equally in the total sample, comprising 37% each of the total number of respondents. In Cluster 2, the number of rural respondents is much higher than their urban counterparts, while in Cluster 1 and Cluster 3 the number of respondents from urban areas is much higher.

### **2.4 Gender Profile of the Sample**

It is a fairly proportional ratio of respondents as per gender representation, distributed well across the three clusters. Figure 3(a) depicts the overall gender profile of the respondent sample whereas Figure 3(b) provides the cluster-wise break-up of respondents according to gender.

# **Chapter Two**



Fig 3 (a) and (b): Gender profile of the sample

### **2.5 Course-wise break-up of the Sample**

The respondents for this survey, as illustrated in Figure 4, were uniformly spread across various courses that constitute the higher education scenario in India. In order to accommodate students that have completed their degree-level studies and are currently preparing for various competitive exams, an additional category of "Others" has been added in the survey. This includes those enrolled in professional courses such as Law and Management as well.



Course wise breakup (%)

Fig 4: Course wise profile of the respondents

### **2.6 Income group**

Overall, respondents were fairly spread across various income groups. The maximum number of respondents (almost 75.4%), however, reported incomes of under INR two lakhs per year. Only a small section of respondents (about 6.7%) report incomes of above INR 10 lakhs per year and above.

If we compare this with the overall income distribution across the Indian Himalayan Region, this distribution is fairly representative of the overall scenario found within the region itself.

# **Chapter Two**



Fig 5: Profile of Income distribution of the respondents

However, there are some interesting insights that we are able to gather from this particular survey. While Cluster 3 (the Western Himalayan region) scored the lowest in terms of "Income below 2 lakhs", it scored the highest in all three other categories. Inversely, while Cluster 2 (the Middle Himalayan region) scored the highest in terms of "Income below 2 lakhs", it scored the lowest in all three other categories. Whatever the case, the disparity in income between the two regions is significant. Except for Cluster 2, the gap between those "below 2 lakhs" and the other higher income groups seems relatively skewed.

This disparity in income levels could be quite

The average income of families in the Himalayan region will have a bearing on their ability to procure digital technology and gadgets needed for learning.

important from the perspective of digital learning as well. Notes from recently held webinars and remarks from experts in the academic field have revealed that this sudden transition from physical classrooms to digital modes has also brought about the necessity of incurring additional expenses to either buy hardware (such as devices) or pay additionally for internet connectivity as well.

It follows from this that the average income of families in the Himalayan region will have a bearing on their ability to procure digital technology and gadgets such as personal tablets, smartphones, laptops or computers. This will be a critical factor which will decide whether a particular student will be able to access this new mode of knowledge dissemination or not. Furthermore, a family with more children may require more than one device as online classes for different children could take place at the same time.

Compatibility between available hardware and the requisite software leads to further challenges as well. A number of institutes may have introduced customised Learning Management Systems (LMSes), where a particular platform could be required. As such, when Android versions are used for such software, there is a possibility that these programmes may not run on Windows platforms or iOS enabled devices. This will largely make it compulsory to buy a certain type of device as advised by that particular institution.

### **CHAPTER THREE: Outreach**

India is a growing economy where internet penetration still hovers around 64% and the availability of smartphones is just about 24% as per the Pew Research Center<sup>34</sup>. According to NSS data of 2017-18, only 11% of the population has access to personal laptops or computers.

Given this context and the circumstances brought about by the Covid-19 pandemic lockdown, we wanted to find out the percentage of respondents from Indian Himalayan states with access to personal phones, laptops and computers as education through remote or digital means is based on the availability of such devices.

Internet connectivity was one of the major factors in the overall dissemination of knowledge through digital classes. Further, internet connectivity in mountainous regions has always been an important issue. Unlike the plains where a tower, if placed strategically, can cover large distances, the dynamics of steady internet availability is highly compromised in mountainous terrains as one side of the hill could have good internet connectivity whereas the other side could have blind spots.

The dynamics of steady internet availability is highly compromised in mountainous terrains as one side of the hill could have good internet connectivity whereas the other side could have blind spots. Based on the income strata distribution as described in Section 2.5, we also assessed data usage and expenditure patterns related to data pack purchases. The survey also attempts to ascertain the nature of data connectivity provided by PSUs such as BSNL vis-a vis private operators so as to assess the governmental response as an ISP in this sector.

Photo credits : Akshat Vats

### **3.1 Hardware Availability**

#### 3.1.1 Smartphone availability among respondents

One of the prior necessities that facilitate digital classes is the availability of appropriate gadgets with students. In Figure 6, it is notable that 81% of survey respondents have personal smartphones as against 6% that do not have personal smartphones. This is quite a variation from the Pew survey which puts the availability of smartphones in India at 24%; but one must also remember that 41% of internet users are students and they form the largest pool of internet users in India. The data collected here is from students and therefore not comparable to that of the PEW research.



Fig 6 (a) and (b): Availability of Personal Smart phone

#### 3.1.2 Personal Laptop/Computer Availability



Laptop/ Computer Availability (%)

Fig 7 (a) and (b): Availability of personal Laptop/Computer

Figure 7 is a representation of the respondent sample based on the availability of personal, shared or no laptops or computers.

When it comes to devices other than smartphones, personal laptops or computers are available to only about 11% of the population as per the Pew study. However, it is interesting to note that amongst the respondents of this survey, a whopping 43% have access to such devices which are personally owned. However, this could be considered as a discrepancy considering the fact that many who do not have such devices might not have been able to participate in the online format of the quantitative version of this survey.

In 2019, the state of Sikkim distributed laptops to all students from Class XI onwards. This could be the reason for the high availability of this personal device for Cluster 2 as well as the variation in overall figures, as Cluster 2 has the maximum number of respondents in the overall survey.



Fig 8: Availability of personal Laptop/Computer

It is interesting to see that there is very little variation in availability of personal laptop and computer availability when compared across genders, as seen in Figure 8. In fact, the availability of these devices is higher for females than for males, which could be taken as a positive indicator explaining the low levels of gender discrimination in the Himalayan region.

### **3.2 Internet penetration**

Internet connectivity was one of our primary concerns as a research objective during the survey process as it was a basic necessity through which digital or online knowledge dissemination was based on. Given that internet penetration and smooth data transmission are necessary requirements for online or digital modes of education, Figures 9 and 10 illustrate both these issues. What we can ascertain is that though 37.8% of our respondents are from rural areas (see Figure 2), Figure 10 shows that the problem of internet connectivity becomes more pressing in the rural areas of the Himalayan region.



#### Internet Issues in Urban, Semi-urban, Rural Areas (%)



#### Fig 9: Internet Access

Figure 11 depicts cluster-wise connectivity across the sample. Of the four variables, "Continuous" and "Fair" have been clubbed as Good, and "Problematic" and "No Internet" as Bad. On an average, overall internet connectivity seems to be good with 80% reporting the same. There are, however, pockets within both urban and rural areas where the internet connectivity is not good enough for online mode of study.

#### Fig 10: Internet Access across place of stay





Fig 11: Internet connectivity of respondents



#### **3.3 Data usage and financial aspect**

Another important aspect that needs to be taken into consideration is the amount of data usage and its associated costs. Figure 12 profiles the amount of data transfer that was required per day during this period. Figure 13 ascertains the affordability whereas Figure 14 profiles the cost associated in buying these data packs per month during these times.

These figures clearly indicate that maximum data transfer on a daily basis would be around 500MB to 1 GB. What we can also ascertain is that it is very unlikely that those institutes which had less than 500

MB data transfer per day had conducted interactive sessions during the digital classes well considering the average daily usage in other institutes that we have seen .

A quick market survey regarding the data required per month for attending such digital classes via the internet tells us that students would have to afford around Rs. 150-200/- per month for internet connectivity. We did not need to include any question on the need for students to print resource material as the lockdown has closed down all such facilities. If this were to also be included, then there would be a manifold increase in the cost of running such programmes in the future from the perspective of the learners.





Fig 13: Chart representing whether respondents can afford data packs

Fig 14: Amount spent per month

Further, when full-fledged digital courses are run, there is also a need to boost facilities in the college vis-à-vis interactive boards, such as Jamboard or Cisco boards. It would also necessitate the development and maintenance of websites and paid apps for running these courses smoothly as most courses cannot run on free apps perennially. There is a strong market indication that as usage goes up, the cost of such infrastructure could also substantially rise.

Figure 14 profiles the presence of internet service providers and their usage in the Himalayan region. The survey has been able to ascertain that the maximum usage is from private operators. The usage of BSNL as a service provider is quite low at 4%, which shows that the role of government-backed PSUs as a service provider has been greatly reduced. In order to make it



Fig 15: ISP usage of respondents

credits : Doriay Namaail (Dom

#### **3.4 Digital Classes, Apps and Modes of Knowledge Dissemination**

A number of modes of knowledge transfer were reported through the survey. Dissemination of knowledge and learning materials took place by way of email, audio or video file exchanges, Google Classroom, meeting apps like Zoom and Webex or social media apps like Facebook.

Figures 15 and 16 depict the most preferred mode of education dissemination for the students. A majority (94.3%) preferred WhatsApp for interaction. This also describes the way in which



Fig 16: Bar graph showing whether digital classes are taking place for the three clusters

data transfer has happened. What we have accrued from ground level interactions with some students and educators is that for a novice (educators) with the digital interactive platform, WhatsApp was used for mainly transferring PDF hand-outs, recorded video lectures or may be even for video conferencing in groups. What also stands out is that most of the apps and modes that are commonly being used are not designed specifically for education via online modes. To curtail the huge data transfer needed, specific dedicated mediums would be required for data crunching of big files. Further to make learning more interactive, white-boarding with audio facilities on digital boards would be required for proper understanding of a lecture. Serious thought in this regard needs to be given if any higher education institution is seriously considering transitioning to a dedicated online mode of education even post the lockdown period in days to come.







#### Fig 17 (a) and (b): Methods and modes of interaction

Another thing that we wanted to assess was the use [and availability] of e-resources other than the printed learning materials and books. Fig 16 and 17 profiles the use of books etc other than the study material provided by the teachers through the digital mode of disseminating knowledge. We see a low availability of only about 26% who have e-resources such as e-books



and materials with them as additional material for study in their institutions. Further, the students were always made aware of the digital resources available at the Inflibnet website or a digital library maintained by the Government of India which has been giving free access to a host of books and journals. But it is disheartening to see that even after making them aware regarding the availability of such digital resources and digital libraries, only around 9% of the students made good use of it. Fig 17 depicts this. There may be various reasons for student not accessing these e-resources provided by the Government of India and some publishing houses which we are not able to assess through this survey.

Learning During the Lockdown July 2020

# **CHAPTER FOUR: Satisfaction and Efficacy**

One of the primary reasons for conducting this survey was to assess the overall satisfaction level of students in response to online learning initiatives taken up by the colleges and various higher education institutions they were enrolled in.

Quite evidently, this shift from delivering education in regular classrooms to digital classes took place suddenly and caught everyone by surprise. Teachers had to improve their own digital literacy and learn new ways of disseminating knowledge using various apps and tools. On the other hand, students as well were caught unawares with little understanding of how to deal with this new model of education.

#### **4.1 Satisfaction level of Students**

Fortunately, in spite of these sudden changes, on the whole students seem to be satisfied with the efforts put in by their educational institutions. Respondents were asked to rank their satisfaction on a scale of 1-5 (with 1 being Not Satisfied to 5 being Highly Satisfied). Figure 18 depicts the overall assessment of students where 60% of students expressed a high sense of satisfaction with the efforts (ranked at 4 and 5); 20% were just fine with it and another 20% (ranked at 1 and 2) stating that they were not satisfied.

We also wanted to assess the various cross-cutting parameters captured through the survey in



order to understand the satisfaction level across different sub-groups. One of the first parameters we assessed was the gender-wise satisfaction level. Figure 19 profiles the gender-wise satisfaction level among respondents. We found that females on average were more satisfied than their male counterparts with this mode of education.







The second kind of analysis carried out was to understand the cluster-wise satisfaction level of the sample. Figure 20 depicts that Cluster 1 shows a fair satisfaction level in this regard while Cluster 3 shows a high level of satisfaction. The reasons behind this could be varied. One of the main reasons that can be ascertained is that Digital education might have been taken up more seriously in Cluster 3 vis-à-vis Cluster 1.



Fig 22: Cluster-wise satisfaction level of students

The other reason could also be that the proportion of rural respondents is higher in Cluster compared to Cluster 3, where internet connectivity has been more continuous and less problematic. Further, urban respondents have been higher in number in Cluster 3 as compared to Cluster 1 which could have brought out this fact. However, if the number of respondents from Cluster 3 would be higher, probably the overall satisfaction level would have been the same across the Himalayan region.

It was also necessary to ascertain the satisfaction level of students based on their reported connectivity issues. There were always apprehensions regarding the quality of connectivity which could lead to low motivation to continue studying through digital modes. Further it was also necessary to ascertain the connectivity vis-a-vis satisfaction levels of students. Figure 21 depicts the Satisfaction level vs. internet connectivity. Here again we have made two groups based on the reported satisfaction level.



Figure 21 clearly indicates that 57.3% of the students had reported poor satisfaction due to internet reception. This number drastically diminishes to 40.3% for students with good connectivity. 59.7% of the students with good connectivity were highly satisfied with this mode of education. This amply illustrates that the quality and effectiveness of online education is as dependent on the quality of internet connectivity as it is on the quality of curriculum or pedagogy.

This initiates a new debate as to whether there is a requirement for the Right to Internet if the new normal of Digital or Online education becomes a mandate from the educational bodies of the country.



Fig 23: Satisfaction vs. connectivity issues

### **4.2 Efficacy of the Digital mode of Education**

It is very difficult to ascertain the efficacy of the method of teaching-learning employed during this lockdown period. One way of ascertaining the efficacy is whether the students are ready for appearing for their Term-End examinations based on this method of digital education. So, we asked the students if they were feeling ready to appear for the Term-End exam at the end of May 2020. This would give us a fair idea as to whether this mode of knowledge dissemination was good enough for them to make them confident enough to appear for the Term-End exam in this unusual abnormal circumstance. Fig 22 depicts the overall percentage of the responses that have been accrued from their perception levels of understanding the course material disseminated through the digital mode.

There was an overwhelming number of respondents (44%) who have communicated their disapproval for appearing in the upcoming Term-End exams based on the digital mode of education alone. However, 56% of students have shown a good response regarding the effectiveness of this mode of study. This is heartening for the Higher Education institutes which have taken up digital modes of education seriously. It seems that with low or limited digital

resources, the faculties have been able to get their act together and have been successful in making good progress in transferring knowledge to the students even during this crisis.

It was also important to ascertain efficacy of the digital mode as per available internet connectivity.







As we saw in Figure 21, the satisfaction levels of the students were greatly affected by the availability of smooth and continuous data flow. In this case, too, we see that continuous internet has greatly affected the efficacy of the programmes. Figure 23 tells us that when the internet flow was good and continuous, efficacy was almost 59.8%. This is quite similar to what we have seen in Figure 21 depicting Satisfaction levels of students.

One more way to ascertain whether a programme has been effective is to ask the students if blended education in the future should be continued. Figure 24 broadly explains that the maximum number of students have vouched for the blended mode of education except for a small percentage of 14% A majority of students have opted for the blended model of education dissemination.

which has said that this mode of digital education was not useful for them.

A majority of students have opted for the blended model of education dissemination. Almost 44% of the students have opted for 10-25% of online content and methodology whereas 24% have

Fig 26: Preference for Blended education

even said that the blended mode could have 25-40% of digital content and medium. This has reensured faith that the digital mode has been effective to quite a good amount considering that this mode was rushed into as a fire fighting strategy to keep education going by the teachers in a crisis situation.



Fig 27: Satisfaction vs. Efficacy

Fig 28 : Overall satisfaction and efficacy

It is not necessary that a programme is effective, even if the satisfaction level is high, and vice versa. Figures 24 and 25 assess these variables. But in this case, it has been found that when the satisfaction level was high, the efficacy of the programme has also been high as shown in Figure 24. Figure 25 however indicates that even with lower satisfaction levels, the programme has been presumably effective taking into consideration the percentage of students who have opted to provide in affirmative to appear for their term end exams based on the online mode that was suddenly thrust on them due to the pandemic.

This said, it is for us to assume that with growing acceptance of digital learning platforms in our regular and traditional educational courses, there will be an increase in the expectation level of students themselves. In this scenario, it will become imperative to reinforce existing capabilities and draw up a more systematic methodology of knowledge dissemination through digital platforms to ensure continued learning efficacy and student satisfaction.

# **CHAPTER FIVE: Educator Insights**

To better understand the perspectives of educators in the Indian Himalayas towards online learning, questionnaires were administered with a total of 17 educators from 4 different states. This was done through a mixture of telephonic interviews and self-administered online questionnaires, which collected data on how educators in the region have adapted their learning during the lockdown, perceived challenges and advantages of online learning, and any recommendations for the future.

We received responses from 17 educators from Sikkim, Meghalaya, Mizoram and Uttarakhand, with the highest representation being from Sikkim.



#### Fig 29: Chart depicting number of educators surveyed by state



The educators are a mix of teachers and administrators from schools (primary and secondary), colleges and coaching centers. The sample consists of 15 male and 2 female educators.



Fig 30: Bar graph with number of educators surveyed by type of institute and role

#### **5.1 Change in learning in the Himalayan region**

During the lockdown, educators have taken their teaching online, with WhatsApp being the primary tool used. Other popular platforms include Google Classroom, YouTube and Facebook. Multiple educators reported using a combination of platforms to deliver content and engage with their students.

Creating lecture videos and existing videos available online are popular forms of content among the teachers, along with sharing notes, worksheets and assessments.

### **5.2 Perceptions about Online Learning**

5.2.1 Challenges of online learning:

#### a. Lack of access and inclusion:

Poor internet connectivity is a common challenge faced while delivering online learning to students in the Himalayan states. Teachers were unable to opt for more interactive teaching tools such as video calls and had to instead rely on lower bandwidth options such as sharing PDFs of notes and links to resources. For students living in very remote locations, they were unable to even receive this content. A school teacher spoke about being unable to make any contact at all with

"They have the network to have full video classes in the plains, they can have a fixed schedule like at school. But this is not possible in the mountains."

- A school principal from Pithoragarh, Uttarakhand, highlighting the unique challenges of online learning in mountainous regions Photo credits : Ethana Ralte

some of her students due to their lack of connectivity and the inability to travel to them during the lockdown. In cases where the teachers lived in more remote locations, they were unable to send

regular content to their students, sometimes having to walk long distances to reach a spot from where they can successfully send learning resources to their students

Student access to a device was another challenge that came up, particularly for younger students from lower socioeconomic backgrounds. In households where there is only one device that students share with a working parent, they often need to wait until late in the evening or a holiday to have access to it. One teacher also mentioned that parents largely associate mobile usage with entertainment such as online games, and not with learning. Because of this, they can be averse to their children using mobile devices.

"Most lower socioeconomic families have keypad mobiles. Now, they have been forced to buy expensive phones for their children. They are already unemployed because of the lockdown, but it is a compulsion."

- A secondary school teacher from Pithoragarh, Uttarakhand

The costs of internet data required for engaging in online learning was also highlighted by an educator as a key challenge that makes it difficult for students with limited financial means to participate.



"Poor network coverage and unavailability of an android phone or laptop by some of the students is a big disadvantage. Apart from that, learning is mostly one-way traffic."

- A school teacher from West Khasi Hills, Meghalaya



Student background emerged as playing an important role in their access to good internet infrastructure and hardware. Students from rural and remote areas, and those facing financial vulnerability lack the same access as their peers. When schools and colleges go online, these students are disproportionately disadvantaged, and are to a great extent excluded from the learning process.

#### b. Pedagogical challenges

Both assessing and ensuring student understanding of the learning material was also expressed as a challenge of online learning, in the absence of face-to-face interaction and the opportunity for immediate feedback.

"The biggest disadvantages are the network problem, not mentioning the inability of students to grasp the things taught through online classes."

- A school teacher from East Khasi Hills, Meghalaya

"Interactive classes where a teacher could access in real time about the students grasp of the concept are now completely absent."

- A college professor from East Sikkim

It was also felt that certain subjects and concepts in particular, such as laboratory and other practical work require in-person engagement. Other challenges that were mentioned were that students lack any guidance with their studies at home and rely to a large extent on their teachers for their learning. Additionally, keeping students engaged and interested in online learning over a sustained period was also pointed out as a challenge, as they may tire of it over time

#### <u>c. Educator-specific Challenges:</u>

Switching to a new medium of teaching was a challenge for some teachers in the region, who expressed the need for training.

"A big problem for most of the teachers in rural Meghalaya is that they are computer illiterate. Hence, e-learning is a big challenge for them."

- A school teacher from West Khasi Hills, Meghalaya, stressing the need for providing training to teachers

The most common challenge found was that of converting their lesson plans into videos. They expressed difficulty in learning to conceptualize the videos and record them well. A professor from Sikkim also mentioned that editing, managing and transferring files is a technical skill that educators were not yet familiar with.

"Sitting at home and making videos is challenging. I need someone to record them or need to have a good quality front camera. The sound needs to come out well, and if I miss out on anything, I need to record the video again"

- A school teacher in Almora, Uttarakhand

Some educators also reported that the pivot to online learning led to an increase in their workload, having to now spend time on preparing study material that is compatible with their new online medium of teaching. Checking and grading assignments that have been submitted in a PDF format was also felt by a teacher to be tedious, particularly when the number of assignments is high.

At the same time, it may be worth noting that a senior secondary teacher from Uttarakhand reported that creating video classes is less time consuming for him than teaching in a classroom, explaining that a concept that could take him hours to cover in class can now be explained in a ten-minute video. This possibly reinforces the need to develop the capacity and comfort of teachers who are less familiar with creating such content.

"Converting all my lectures to e-Lectures [has been a challenge.] Normally, I would teach 80-100 hours of classroom teaching for a 100 marks semester course. Now converting this whole 100 hours lecture is a Herculean task."

- A college professor from East Sikkim

#### 5.2.2 Advantages of online education:

The most commonly perceived advantage of online learning is the ability for students with good internet connectivity and a device to access learning content on-demand from anywhere, therefore

affording the learner and teacher more flexibility in terms of time and place. It was mentioned that during the lockdown, online learning was, despite its challenges, a good way of ensuring that atleast some learning was taking place.

A few educators felt that with online learning, students felt more free to ask questions, and had access to a variety of content and better learning experience.

### 5.3 Solutions currently deployed by educators in the Himalayan region

The sudden pivot to online learning has pushed educators in the region to innovate and employ various solutions to address the needs of their students. These are described below:

#### 5.3.1 Access and inclusivity:

In order to reach students who may not have access to network or a device, alternative media were employed by some teachers, including engaging with students and parents over telephone calls when they do not have access to WhatsApp. At one school, once lockdown restrictions had been eased, the principal left hard-copy worksheets at a photocopy shop and asked students to pick them up from there.

#### 5.3.2 Facilitating two-way interaction:

A critical challenge faced in many forms of online education is that it inhibits the two-way communication afforded by classroom teaching. Some teachers have been able to introduce video call classes over platforms like Zoom and Google Meet. One administrator mentioned that their school has successfully introduced 'circle time', where students talk about how they're feeling and any concerns they may have.

In situations where engaging over video call has not been possible, teachers mentioned collecting responses and questions from students over WhatsApp and comments in YouTube, and in turn clarifying any doubts through formats such as voice notes or in subsequent video lectures.

Additionally, in order to check for understanding, teachers have tried to continue with assessments in some form. This includes asking students to submit assignments and worksheets over WhatsApp and introducing tests over platforms like Google Forms.

Photo credits : Yatharth Roy Vibhakar

#### 5.3.3 Holistic learning and student wellbeing:

A school administrator highlighted the importance of ensuring student wellbeing and socioemotional progress during this trying time. Their school has introduced weekly 'circle time', where students virtually share their thoughts and any concerns. During this, teachers monitor the students' social and emotional wellbeing.

The school is also continuing with extracurricular competitions and events even during the lockdown period, through sharing photos and videos of student participation.

This need for prioritizing student wellbeing was echoed by other educators in the sample as well.

"Such a pandemic situation is not normal hence priority should be given towards health, both mental and physical. Academic should be given a second priority"

- College professor from Aizawl, Mizoram

### **5.4 Lessons for learning in a Post-Covid world**

The current lockdown period has signalled the need for a more adaptable education system in the Himalayan region. Educators highlighted the requirement to continue with some form of online learning even once the Covid-19 pandemic is abated, and, leaning towards a blended learning approach, recommended combining both classroom and online education. This was felt, both to ensure we are better equipped to deal with similar unforeseen situations where learning may need to go online, as well as to better harness the advantages of technology-infused learning for student outcomes. One teacher from Pithoragarh, Uttarakhand emphasised the need to recognize the importance of having multiple mediums of teaching as different students learn differently.

"Digital learning/teaching is here to stay. We need to adopt a mixed/hybrid system of teaching from now on. Technology to be part of the education system. Tabs and the internet to be part of students' life just as books and copies. ICT has to be the front line of education."

- A school administrator from East Sikkim

#### 5.4.1 Key factors for success in online education

Through the responses of the educators, two key components — internet access and student autonomy— emerged as playing an essential role in the success or failure of online learning.

#### a. Internet Access

As discussed earlier, access to reliable and fast internet as well as conducive devices are integral to online education. Poor internet was seen to impede students from regularly accessing learning materials, thereby creating a gap between youth in rural, remote areas and their peers. Additionally, these constraints have made it challenging for educators to introduce the various interactive online tools available for creating an enriching learning experience. "Seamless content delivery is possible if the network is good," explained an administrator at a professional college in East Sikkim

#### b. Learner Autonomy

In distance education literature, more autonomous learners have been shown to be more comfortable with less dialogue, receiving instruction through more highly structured course materials, and comfortable with finding information and making decisions for themselves about

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what to study, when, where, in what ways, and to what extent. Less autonomous learners, on the other hand, require more dialogue and guidance with managing their learning<sup>35</sup>.

Across the educators we surveyed, learner autonomy was believed to play an essential role in the effectiveness of online learning. It was felt that while online learning has its advantages, students can lack the sincerity and focus required to leverage them. Learning from a mobile device brings with it a number of distractions such as social networking and games which can deter students from focusing on their studies. This was especially felt to be the case for students who are lower on motivation and require the structure of a classroom and fixed schedules.

Students who are self-driven and hold themselves accountable for their learning, on the other hand, are more likely to be able to overcome the obstacles of learning through online means and in fact, benefit from it.

"With online study, students have an attitude of "we will watch it later", or they will lie down and watch the videos, and end up falling asleep. This is not an impactful way of teaching. They need to sit properly in a chair and study. If they do this, then even

### though they are learning through the internet, it is okay."

- A teacher who runs an IAS coaching center in Nainital, Uttarakhand

#### 5.4.2 Other recommendations

Educators made various recommendations for changes that can be implemented to be better equipped for situations such as these. Their recommendations have been compiled in the table below:

#### **Provision of online tools and a uniform system**

• Remotely accessible content

- Uniform lesson plans with materials (video or audio)
- Free access to E-books and e-content via a depository or online library.
- More customised user-friendly online platforms and tools for conducting classes, sending materials, assessments and conducting tests.

- A low-cost platform where there can be separate classrooms, and teachers can connect with students and address questions
- Common platform where in the subject based videos and learning materials is made available by the experts of the field
- Development of a system for conducting online exams.
- Generation of efficient student attendance monitoring systems
- Common hardware for communications, for example tablets can be made compulsory for online classes.

#### Access to good quality internet

• There was a suggestion for regulating pre-paid service providers, and the minimum speed they need to provide.

#### **Capacity building**

- Training to teachers on e-learning
- Workshops to orient teachers and students to technological tools, especially in education
- Decreased workload for educators and students
- Poverty alleviation schemes to benefit students from lower income backgrounds
- Opening schools with fewer students, putting in place an 'odd and even' class system for social distancing
- Prioritizing mental and physical health and wellbeing in such times

### **CHAPTER SIX: Conclusion and Recommendation**

Based on the insights gained through this survey, it is evident that the ongoing digital classes being attended by students across various post-secondary higher education courses did not begin in a planned manner as the closure of institutions due to Covid-19 was sudden.

It may be ascertained that there were a number of inherent challenges related to the digital mode of dissemination of study material which may impede progress towards learning outcomes for students. Higher education institutions have been pivoting towards the digital way of education at the present moment, but it cannot be simplistically referred to as 'Online Learning'. While online learning has added new dimensions to remote learning models that already exist, such as correspondence courses, many digital tools and applications related to online learning have not been used as much in the majority of higher education institutes.

For instance, while Facebook and WhatsApp have been used for learning, these are designed as social media and communication platforms rather than learning tools. Similarly, while applications such as Zoom, WEBEX, Hangouts and MS Teams are well suited for online classrooms, these are used more often for meetings rather than for education purposes.

Further, due to this sudden shift brought forth by the lockdown, there is a lack of availability of good cameras for recording in studios or even using Smartboards, Jamboard and CISCO whiteboard. Webinar sessions have not been used due to a lack of the necessary hardware or



# **Chapter Six**

even effective hardware such as iPads and tablets. Rather, most of the online learning studied through this survey has taken place using smartphones enabled with cameras.

Though there has been quite an appreciable satisfaction level amongst students, yet the efficacy levels have been lower for obvious reasons. It is also a fact that some of the students have not been able to connect to this digital mode of education due to erratic internet signals or even no signals at certain pockets in remote areas or rural areas.

What does come to the forefront is that there is still time to further strengthen this methodology of teaching-learning process via digital mode in the next six months which will make the students ready for the Term-End exams (tentatively in July) as per the UGC (University Grants Commission) guidelines on examination. As per some general guidelines of UGC (UGC Guidelines on Examinations and Academic Calendar for the Universities in View of COVID-19 Pandemic and Subsequent Lockdown dated 29/04/2020) Sections 2, 3, 4, & 7 stress upon the fact that every institute should develop virtual classrooms, video conferencing facility and other digital modes of teaching facilities and teaching staff should be well trained with the use of technology. Further, in order to overcome such challenges in future, 25% of syllabus should be completed through online teaching and 75% syllabus through face to face teaching.

A general set of recommendations can be put forward for the Himalayan states. These recommendations have been organized in three stages: Production of content, outreach, and satisfaction and efficacy.



### **6.1 Production of Digital Content**

• Increased focus of digital content creation for Higher Education students:

- There has been massive work done by many of the Non-Governmental agencies in creating content for schools. But very little has been done for Higher education institutes.
   Perhaps it is time to engage more academicians to develop content tailoring it to the need of the state or the University.
- A unified content preparation can be done in order to improve the delivery.
- Optimizing content for various formats:

# **Chapter Six**

- Centralized creation of content optimized for various formats, including those that require lower bandwidth. An example of this is Pratham's intervention for school going children, which creates separate versions of its content for delivery through WhatsApp and SMS, based on what would be most optimal for that medium<sup>36</sup>.
- Vernacular content also needs to be developed simultaneously for greater impact.
- Considering varying levels of autonomy of learners:
  - Designing content in formats that consider the varying levels of autonomy of learners. Learners who are low on autonomy may benefit from more personalized interaction through video and telephonic calls, while self-directed learning platforms may be suitable for more autonomous learners.
  - The Learner-Centric Model<sup>37</sup> (LCM) developed by scholars at IIT Bombay encourages the use of short, asynchronous and interactive content such as audio clips which hold the attention span of learners, while also requiring lower bandwidth. :

### **6.2 Outreach of Digital Learning**

- Ensuring equal access to infrastructure:
  - Right to Internet is strongly recommended to enhance the capability and internet penetration for the smooth conduction of online classes. The private players do not often operate in remote area, in this regard the state should ensure that PSU's like BSNL must play a vital role in enabling the outreach.
  - Cheaper devices or special discounts should be availed by students in procuring devices for enabling access to hardware.
- Leveraging mass media to reach a wider population:
  - Television channels like Swayam and Swayam Prabha should come out with more innovative and interesting content to further strengthen the digital learning initiatives of the Higher Education institutes.

### **6.3 Satisfaction and Efficacy of Digital Learning**

- Provision of Learning Management Systems:
  - Colleges should be enabled with free or affordable Learning Management System

# **Chapter Six**

software for better and accurate collation of students' classes and proper monitoring from a centralised system of the Higher Education institutes .

- Capacity building of teachers:
  - The Higher Education institutes should take a lead role in training their faculties for online mode of knowledge transfer. These trained faculties can become trainers for schools for wider access at Secondary and senior secondary levels.
- Understanding individual requirements of students:
  - Utilize the classes for problem solving or delving much deeper into the content as per the requirement of the students.
  - Given the possible psychological implications of a crisis such as this, provision of socioemotional support by educators to students through regular interactions and monitoring of student wellbeing is essential. This could also play a role in anticipating and minimizing dropouts.

Learning During the Lockdown July 2020

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