Horizontal Scaling of Online Learning in the Post-COVID19 Society: Reflections from Kerala

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Abstract

India's nation-wide COVID-19 lockdown, which began on March 24, 2020, was relaxed in June with the exception of educational institutions. However, the Government of the Kerala state took a decision to reopen the schools as per the regular academic calendar on June 1st through online mode. This massive horizontal scaling drive of online education, named 'First Bell', brought all the research and extension agencies under the General Education Department together with the Kerala Infrastructure and Technology for Education (KITE). This chapter examines the First Bell initiative on the larger back drop of exploring the genealogy of the horizontality and scaling of education in Kerala.

Keywords: Horizontal scaling – socio-political movements - decentralization – online learning

Introduction

The state of Kerala in southern India garnered worldwide attention in April 2020 for its effective tackling of the global COVID-19 pandemic. Though the state was affected severely by the second wave of the virus, initial success in managing the pandemic made the term "Kerala Model," a term used in the 1970s to differentiate Kerala's unique first-world level of socio-economic indices from the rest of India, which was decades away in terms of progress, popular again. Kerala is a small federal state of India situated on the south western coast with a total population of 33,387,677l (Census 2011). It is an increasingly urbanized state, leading the country with it stop position in human development indices. Kerala was also declared the first fully literate state in the country.

The state government decided to start the new academic year, as usual, on June 1, despite the pandemic, in a fully online mode. This momentous shift to online, in the context of COVID in a state with close to 4.5 million students, is the topic of this chapter. We will first briefly trace similar major shifts in the history of Kerala society. Then, we detail the state's

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response to COVID-19 in the education sector after giving a snapshot of the response at the national level. We conclude with a discussion of the road ahead.

Genealogy of Horizontality and Scale

In this section, we delineate the major historical changes in Kerala, which enabled universal access to modern education. We see horizontality as a possibility of change in every momentous historical phase, introduced through institutional reforms and radical ideas. Scaling happens subsequently, through organised interventions and popular participation.

Kerala is historically different from other states in India in human development, particularly in the area of universal literacy and education. The traditional social system of Kerala was caste-based, constituted by endogamous occupational units. Only a privileged few who belonged to the communities in the 'higher order' could access formal education within a rigid hierarchy[1]. Knowledge was circulated and exchanged within the closed circles of lower levels of the social pyramid through the vernacular and oral means, often labeled as "ignorant". Local communities transferred the craft and skills attached to the subsistence technology from one generation to the next. This knowledge asset was appropriated in the local production system controlled by the upper strata of the society. If this was the case a century ago, today Kerala's achievements in human development are widely acclaimed for its advanced position in all the indicators at a level that is comparable to the status of many of the world's advanced economies (Drèze & Sen, 1998), thanks to different kinds of social mobilisation and state actions.

The state was able to offer online education across all segments of its population due to the interplay of government agencies and various other socio-political forces in the past hundred years. The British colonial administration, missionaries and indigenous spiritual and social reform movements played crucial roles in shaping the modern institutional framework for universal education. Nationalist and revolutionary movements of the freedom struggle against the British also became social and political literacy movements, in effect, producing materials for mass consumption by adapting well to the newly created environment of printing and publishing. After India's independence in 1947, a Communist government came into power in 1957 through the ballot box in Kerala, a historic and strange marriage between a revolutionary ideology and an electoral democracy bound by a national constitution. The far-reaching impact it created in a brief period of time was due to the two critical reforms: to redistribute the land and to promote universal education (Lieten,2002).

Early Foundations

Formed as a federal state of India in 1952, based on the commonly spoken language Malayalam, Kerala was formed from north Malabar, middle Kochi and southern Travancore principalities. The British had introduced modern education from the very early 19th century across all these regions They replaced the indigenous system of education, an exclusive opportunity for 'higher castes,' with the universal model. They took various steps like the introduction of an education code a legal reform to liberalise the elite control of education in 1909-10, special help for disadvantaged sections of students, new vernacular schools at all levels and other improvements in order to universalise access (Nair,1976; Tharakan, 1984). Kerala had a higher literacy rate for both sexes than all other districts in the Madras Presidency and also higher than Malabar and that of rest of India[2]. Mass literacy has been acknowledged as a crucial factor in shaping the development trajectory of the state in the later years that is to demonstrate the capability of a society to achieve higher development index in spite of its relatively poor economic growth (Drèze & Sen 1995).

Horizontal Reform Movements and the New Techno Environment of Literacy

Social reform movements emerged in Kerala in the late 19th and early 20[th]centuries, especially from underprivileged communities that asserted their right to education, as a response to this creation of various inclusive avenues to social mobility. Missionaries introduced and popularized the technology of printing and publishing, as these served an important role in spreading the message of the Bible. Social movements were also beneficiaries of this newly created techno–environment. There was an upsurge in reform movements within various communities of Hindus demanding dignity in general and rights to access various human development avenues, including education, in particular[3].

Strong political movements subsequently emerged in a fight against British colonialism as well as the landlordism of the upper castes. The first was the core Nationalist movement that focused on liberation from the British while the Communist movement carried atwin agenda, that is, not only freedom from the British but also from internal structures of domination like castism and landlordism. Land redistribution and the formation of a united Kerala became the slogans of the Communists in their campaign (Namputiripad, 1984). Communication infrastructure through mass circulation of printed materials was strengthened by both the Nationalist and Communist movements. The people's library movement was part of these larger movements. Local leaders and activists were connected to small libraries and reading rooms in their localities which became public spaces for discussions. Social education proceeded with the collective reading of newspapers and other literature, legally or illegally imported (Nair, 1994).

Big Leap and Its Long-Term Effects

In 1957 Kerala elected the Communist Party to form its first government as a clear manifestation of the majority will to accept the idea of modernity. The first action taken was to issue an ordinance to prohibit the eviction of tenants from their land. It got passed later in the Assembly, with provisions to enable a massive land redistribution that would benefit largely the middle sections in the social hierarchy. Education reforms were the second major action of the government (Nossiter, 1982; Lieten, 2002).

The reforms intended to provide universal primary education and a judicial regulation of school management to ensure quality. The combined effect of land and educational reforms and the public demand for political mobilisation helped advance Kerala's education in the following decades. Literacy rate increases across decades demonstrate this outcome (See Table 1).

Table 1

Kerala's Literacy Growth Over the Years (In %)

Year	Persons	Male	Female
1951	47.18	58.35	36.43
1961	55.08	64.89	45.56
1971	69.75	77.13	62.53
1981	78.85	84.56	73.36
1991	89.81	93.62	86.17
2001	90.86	94.24	87.72
2011	93.91	96.02	91.98

Census 2011 Gov of India

The government-sponsored total literacy campaign in the 1990s needs a special reference here. A program called '*Sakshara Keralam',* a participatory campaign for three million learners, needed around 400,000 instructors, 3,000 master trainers, 2,000 district level trainers, 250 state level key resource persons and 50 state level guides (Kumar, 1993).

According to the Household Social Consumption report on education published by the Ministry of Statistics, the literacy rate in Kerala was estimated to be above 96% in 2018, while the national average stands at 77%. Narrow urban–rural disparities in literacy rates, the lowest dropout rate (nearly zero) between classes 1 and 10 and the near total enrolment in schools among the school-age group should be understood as positive outcomes of a long historical process. Kerala's achievement on the educational front has been widely acclaimed and often referred to as a model (UN/CDS, 1975; Franke & Chasin, 1994).

Horizontal Structures of Local Government Institutions

Another vital factor instrumental in Kerala's development path is effective implementation of the state administrative decentralisation program. With the 73rd and 74th constitutional amendments in India, Kerala is among the few states which successfully devolved power to local self-government institutions which are district, block and village level *Panchayats* (councils) falling under rural areas and Municipal councils in urban areas. The state also devolved around 40 percent of the plan fund to local bodies through a People's Plan Campaign in 1996 (Bandhopadhyay, 1997; Thomas Issac & Franke, 2000). Education is among the 29 administrative functions transferred to local bodies supported by the devolved fund. Functional supervision of the schools was transferred to the Panchayats, which had the capacity to formulate projects for infrastructure development and quality enhancement. With the strengthening of local government institutions, elected leaders at the neighbourhood level became responsible for monitoring the access to education and also the quality of its delivery.

Broad-based structures of elected representatives at the local level are crucial to the success or failure of government schemes. In the village Panchayats, a standing committee on education, with an elected representative as its chairman and one of the head teachers from among the schools in the village as the convener, is supposed to monitor the progress of such schemes and also the quality of material environment of learning. Parent-Teacher Associations (PTA) and Mothers' PTA, an exclusive body of mothers, take care of the day-to-day functioning of the schools.

Proper synergy between state and local levels of government lead to effective local implementation. Especially in the case of the 'First Bell' online education initiative during the COVID-19 crisis, local action helped significantly in identifying families who were without proper facilities and providing them access through the local reading rooms and mobilising other necessary resources.

Pre-COVID-19 Snapshot of the Indian Education Sector

In a country with India's diversity of 1,600 recognized languages and 22 official ones, no national average estimate of any survey can capture and convey the regional variations effectively. With a population of 1.2 billion growing at 1.1% annually, the Indian economy is just over three trillion dollars.

According to the 2019 All India Survey of Higher Education, India has 993 universities, 39,931 colleges and 10,725 stand-alone institutions of higher education. The total enrollment of 37.4 million in higher education translates to a gross enrollment ratio of 26.3% for the age group of 18-23. Interestingly, at the university level the majority (53%) is enrolled for distance

education without physically attending classes on a regular campus. The faculty-student ratio is close to 29 to 1.

At the school level, India has over 1.5 million schools, over 1 million of which are run directly by the government. The school education system has around 9.5 million teachers serving the 248 million students.

The National Survey Sample in 2014 had estimated that only 27% of Indian households had access to the internet, while the accessibility rose as high as 85% among urban youth enrolled in University. However, since 2014 multiple factors, especially the drastic reduction in mobile data pricing due the market entry of Reliance Jio telecom, has changed the scenario with broadband connections rising from 61 million to 625 million. 1 GB data per day costs only $0.26 in India reportedly the lowest in the world. The Internet penetration rate currently is estimated at close to 50%. The National Broadband Mission is working towards providing at least 50Mbps speed internet to all Indian villages by 2020 with a tower density of one per 1,000 and doubling the fiber optic cable route length.

On July 9, 2017 the President of India had launched the major digital initiatives of Swayam and Swayam Prabha. Swayam stands for Study-Webs for Active-learning for Young Aspiring Minds. Developed under the aegis of the Department of Human Resources and the All India Council for Technical Education with the assistance of Microsoft, the platform supports over 2,000 courses geared towards students from Class 9 to post-graduation. The platform has 203 partnering institutions with the majority of the content created by institutes of national importance. By March 2020 Swayam had a student enrollment over 12 million with 6.5 million certifications completed.

Swayam Prabha is the set of 32 direct-to-home television channels powered by India's GSAT-15 satellite. They deliver educational content round the clock geared towards all the school levels and preparatory material for higher education. Four hours of new content is added daily and also hosted at the web portal. The National Digital Library provides free access to 7 million eBooks and the National Academic Depository stores the digital record of the degrees, certificates and diplomas issued.

These digital initiatives helped the nation's education system to cope, by and large, with the COVID-19 crisis while some of the examinations had to be cancelled and others moved online.

Kerala's COVID-19 Response

The first three positive cases of COVID-19 reported in India were in Kerala as early as January 30, 2020. These were students who had returned for vacation from their universities in

Wuhan, China. The state, having successfully dealt with the *Nipah* outbreak in summer of 2018, went immediately on alert in a proactive mode. In February, evacuation flights were arranged for more students who were stranded in Wuhan. Twenty-eight-day quarantine was instituted. The calamity warning issued by the state was withdrawn in February as no further cases were reported among the 330 returnees tested. However, in the first week of March, three positive cases in a family that returned from Italy and did not abide by quarantine rules sent the state back into high alert. By March 10 a decision was taken to close all the educational institutions. While the school year had almost come to a close by then, it was still the middle of the semester in the higher education institutions and universities. The year-end examinations for the lower classes were cancelled. The state wide public exams for Class 10 and 12 were halfway through and the last among them were postponed.

The unprecedented closure and uncertainty of the future forced the education department of the government and all the stakeholders in the education sector into rapid stocktaking and decision-making.

The State Institute of Educational Technology (SIET) of Kerala, under the General Education Department, started functioning in 1999 along with its seven counterparts in other states. The IT @ School Project, launched in 2001 to promote ICT enabled education in the schools in the State, was expanded and became the Kerala Infrastructure and Technology for Education (KITE) in 2017. The VICTERS television channel operated by KITE was the first Complete Educational Television Channel in the country. In 2019, Kerala became the first state in India to declare access to the Internet as a basic right.

Teacher Training

In March 2020, KITE took the traditionally offline information technology (IT) training for schoolteachers, fully online. The training had previously been conducted in three batches in 1,000 locations across the state with 25 teachers and two trainers in each batch. KITE now delivered the same training online in 5 days to 81,000 primary school teachers in 11,274 schools. In the past, KITE had developed a MOOC, titled KOOL (Kite's Open Online Learning) that benefitted 12,000 teachers to complete their mandatory IT training online without sacrificing regular school hours.

The Transition

Kerala has been the leading state in the nation for using Free Open Source Software effectively in its government school classrooms that has reportedly saved the state close to half a billion dollars as it was implemented in 14,000 schools. KITE introduced a customized version

of the Big Blue Button free open source software for video conferencing and online classes. All the textbooks of the syllabus were digitized and posted online for free downloading.

In May, the government issued instructions for maintenance of the IT equipment available in schools during the shutdown. The order revealed that close to 120,000 laptops, 70,000 projectors and 4,500 DSLR cameras, LED screens, webcams and multifunction printers had been issued to each as part of the Hi-Tech school project to the 16,000 government-run and government aided schools in the state.

It was announced that the new academic year would begin fully online on June 1st. The decision immediately opened up the debate in the public sphere about the digital divide in society. Political parties, NGOs, social commentators and media outlets actively discussed the new "Haves and Have-Nots", class separation brought about by the lack of access to digital gadgets and online platforms. The Chief Minister assured the public that the Victers TV channel will would be the main mode of content delivery since television penetration in the state was nearly 100% while reliable broadband access was closer only to 75% despite being declared a fundamental right. NGO groups like RIGHTs unveiled plans for open access support systems for the students from marginalized and underprivileged segments of the society.

Besides the government schools described above, majority of the private sector schools, run by individuals and groups through non-profit entities, that were abreast with the developments in technological pedagogical content creation quickly adapted to the crisis with well-produced short duration content to facilitate anytime, anywhere learning that was supported by live interaction with the teachers in smaller groups.

First Bell

Before launching First Bell, the fully online education initiative to overcome the COVID-19 shutdown, on June 1st the government scrambled to identify those who might be left behind. It was estimated that around 261,000 students, mostly from remote areas in three districts did not have access to cable television. For them, access was arranged through the local libraries and community centers. Transportation was also readied for the students to these newly identified hubs. This was implemented using *Kudumbashree*, the two decades old, 5 million strong women empowerment and poverty eradication program of the state.

The modules for different classes were prepared by different governmental agencies like the State Council for Educational Research and Training, State Institute of Educational Technology and Samagra Shiksha Kendra (SSK) in addition to KITE. The headmasters and teachers were tasked with ensuring that each student had access. They were also instructed to follow up with the students using mobile phones and online chats after each broadcast.

The broadcast timetable was from 8:30 am to 5:30 pm Monday through Friday in half an hour to two-hour slots for each class. For Class 10 and 12, there were repeat telecasts in the evening; for other classes repeat was during the weekends. The first two weeks were considered a trial run with the same programs repeated each week.

On June 1st, 4.1 million students tuned in to the Victers TV channel and its YouTube channel. Their teachers interacted with them before and after each intended broadcast segment. Worksheets were provided to students from Class 1 to 7.

The first day's classes went viral. The content delivered by some of the teachers amassed millions of views on YouTube. They became media sensations overnight. As with any viral content, there were certain instances of cyber bullying and comment box abuse, which were immediately dealt with by the state police Cyber dome. As of August 2020, the Victers YouTube channel hosts over 1,000 class videos, over 1.5 million subscribers with several videos clocking over 500,000 views including from the USA and Europe as well. The Android app of the channel had over 2 million downloads. KITES website was supporting 27TB of traffic daily. Tamil and Kannada medium videos were also uploaded to support the bilingual students in the districts of the neighboring states of Tamil Nadu and Karnataka.

June 2nd, however, brought the tragic news of the suicide of a Class 10 girl allegedly depressed because the lack of access to online classes. Belonging to a poor family, the television set at her home was beyond repair. The incident reignited the discussion about the digital divide. The state government, non-governmental organizations, charitable institutions, political outfits, celebrities and even individuals spontaneously came together for a massive social drive in the following days. Thousands of television sets and smart phones were donated. By mid-June, the state education minister announced that only 2,800 students remained without access out of the initially identified 261,000 students. For these students, laptops from their nearby schools were arranged through the teachers. The government also announced 75% financial support for those students seeking to buy a new TV. Different schools did home delivery of the textbooks as well for those without gadgets for the digital versions.

Adivasis, the tribal communities of Kerala, constituting around 1.5 percent of the population, are the ethnic minorities of the state who don't satisfy the State's widely appreciated parameters of human development and often speak a different dialect than that used in the schools. Experts see the social exclusion as a common marker regarding their status in education, economy and politics. Dropping out is a major problem among the tribal children due to various cultural and economic reasons.

The Samagra Shiksha Kerala (SSK-Comprehensive Learning Kerala) introduced online lessons for Class I students in six tribal dialects for the first time and telecasted through the KITE Victers channel. SSK roped in tribal mentors and volunteer teachers for implementing this project. Resource persons from the respective communities translated the lessons into their dialect. Tailor-made content was also locally created through workshops. It has been running successfully in all the tribal regions in the state and SSK plans to step up the program to higher classes and also in all tribal dialects[4].

The Higher Education Sector

The tertiary institutions including Universities and Colleges had switched to online education by April 2020 for the reminder of the semester that was cut short by the COVID-19 crisis. The Minister for Higher Education who is also a Professor of History at the University of Calicut inaugurated the program with his live lecture on a history topic.

Faculty in the roughly 1,300 colleges in the state that has 13 universities catering to close to one million students started using various internet platforms for live online classes as well as audiovisual content delivery beginning in June. In a survey by the Kerala Technological University, it was found that 90% of the students have access to the Internet. Those with connection problems or device issues were asked to seek support from the college nearest to home as travel restrictions were in place.

The Road Ahead

The question of the digital divide that COVID-19 laid bare in the educational context has spurred both the state and the national governments into rapid implementation of the broadband access policies. Digitization of textbooks and 'anytime, anywhere' accessible multimodal content has unshackled education from the classroom walls. Teachers have transformed themselves into learners of technological pedagogy. The deeper involvement and scrutiny from parents has added an unexpected facet that brought pertinent discussions about the quality and quantity of our "learning systems" into the public sphere.

In July 2020, the Government of India introduced the new National Education Policy (NEP), fully revised for the first time since 1992. It outlines drastic changes in the schooling and higher education structure over the next 10 years. Online education has been highlighted not only as a backup but also as a path to affordable, accessible education. India's premier engineering college, the Indian Institute of Technology, Chennai, has already announced a fully online Bachelor's degree in Data Science.

Despite these rapid and concrete changes, it is reasonable to conclude that the complete replacement of conventional systems with online modes of education will not happen in the near future in Kerala. The existing socio-political system is also structured around the offline mode of schooling with interests of the parents, organized teachers' unions and private management that converge in favor of conventional practices. For many working parents, schools serve the purpose of day care space as well. Education has transformed over the years as a wealth creation business and the powerful interests associated with the investments would resist any of the fundamental structural changes that obstruct their profits. Nevertheless, COVID-19 has undoubtedly broken new ground in the concept and practices of the learning process. In spite of initial resistance, the conventional system had to accommodate the changes due the demand from students, parents and teachers and the pro-active role of the state government. Both the private and public systems responded effectively and adapted well to the pandemic induced disruption.

In Kerala, educational institutions lose a good number of working days each year due to natural calamities and political disturbances like general strikes, student protest, floods, torrential rains etc. Online learning becoming an institutionalized practice points to the new post-COVID-19 possibility to minimal loss in learning hours.

Reaching the have-nots is another important outcome of this movement. Kerala has already initiated delivering classes to tribal children in their own languages. This can be broad-based to other similar vulnerable sections in other parts of the country as included in the trilingual model of learning advocated by the new national policy. Kerala will undoubtedly take this initiative forward in getting education to the corners of the region untouched by the light of 'renaissance and modernity' since these issues have been the dominating state discourse since the last century.

A most desirable shift in the paradigm in the long run could be the embedding of education through enhanced learning experiences at the center of environmentally integrated human life. From this standpoint technology will be re-invented as a deeply humanizing enterprise. Our hope is that Kerala will take this cue from its unbridled spirit exhibited in the past century through all its humanizing movements as well as the present relentless fight against this historic pandemic.

Notes

1. In a traditional sense, castes in Kerala are endogamous social groups based on occupation and a social hierarchy affiliated to an ideology of purity and pollution according to the broader division of Hindu order of Indian society known as 'Varna'

System (for a summary on Caste in Indian history, see; Banerjee Dube, 2010). Robin Jeffery has written extensively in the context Travancore region of Kerala about how education became accessible to the 'lower' communities with the activities of Missionaries and the comprehensive reforms introduced by local rulers under British supervision and how religious minority like Syrian Christians emerged as powerful communities through modern education (Jeffrey,1976).

2.   William Logan, who served as District Collector of Malabar made a reference about the 'mass ignorance' in the villages of Malabar. He was pointing out the absence of modern education and the world view among the masses (Logan, 2000).

3.   A major phenomenon observed in the late colonial period across Kerala was emergence of social reform movements in the society at large, but with special reference to the backward and marginalized communities. Historical writings acknowledge three kinds of reasons for these movements, one is colonial education, the second is Christian missionaries and third is religious movements based on traditional humanitarian values (Sarkar & Sarkar, 2008). It was in Kottayam in 1811, as part of his evangelical mission, that the Rev. Benjamin Bailey, who is considered the father of modern Malayalam printing technology, established the first printing press in Kerala with British administrative support. 'Rajya Samacharam', the first journal in Kerala, was published in 1847 by the German Basel Evangelical Mission from Nettur, Thalassery in Malabar. The legendry Sree Naryana Guru (saint teacher) of Kerala made the famous proclamation "unite through organization, civilize by education" to his own Ezhava community members, which became an inspiring slogan for all other 'lower caste groups' also to start mobilizations for education. He founded an organization called Sree Narayana Dharma ParipalanaYogam [SNDP] in 1903 and also started a journal,'Vivekodayam'. A broader social awareness movement based on reading and writing influenced other leaders like Ayyanakali, Poykayil Appachan, Sahodaran Ayyappan, Vagbatanandan who became the catalysts for larger societal reformation to follow (Isaac & Williams, 2016).

4.   Interview with Dr.Kuttikrishnan A.P (State Project Director), Samagra Shiksha Kerala

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