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An educational calamity

Learning and teaching during the Covid-19 pandemic

Edited by

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Alysha Banerji ~ Margaret Wang

Foreword by

Stefania Giannini, UNESCO

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Despite the extraordinary disruptions the pandemic has caused in education, it has also enabled unprecedented social and technological innovation at the frontline. And at times it made students – usually the recipients in today’s education systems - the engineers of tomorrow’s educational solutions. This book brings together a remarkable set of examples from students for this. What makes these examples special is that they are not merely analytic academic papers, but case studies where students have worked with governments, civil society, and the education sector in the countries most in need to imagine and design solutions, build ownership for them, and help implement and scale them.

Andreas Schleicher

Director of Education and Skills

Organization for Economic Cooperation and Development

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Foreword

Stefania Giannini

Assistant Director-General for Education, UNESCO

I am delighted to see this book published just at the same time as we convene UNESCO's General Conference of Ministers of Education virtually. The reason we are meeting virtually is obvious. We are in the midst of a global pandemic, which has turned all of life upside down, including education.

This book presents the result of the work of graduate students at Harvard, partnering with education authorities in ten jurisdictions to take stock of the educational impact of the pandemic, and to examine options to mitigate and revert such impact. It is a testimony of the power of universities to contribute to society at a time of great need. As a former university president I am keenly aware of the social value of universities and of the importance of their mission to contribute to society through the advancement of knowledge, research and outreach. This book exemplifies the value of integrating these three missions in service of important social goals such as sustaining educational opportunities at a time of crisis.

The impact of this pandemic on education is very serious. It has created a global education crisis that will have damaging consequences. During the last year many schools and universities were shut down, leading to a massive pivot to remote learning on which close to 500 million students missed out altogether. As governments juggled with restrictive measures to contain the virus around 800 million students continued to face major interruptions to their schooling, ranging from across-the-board school closures in 31 countries to reduced or part-time academic schedules in many others. Two-thirds of an academic year has been lost on average worldwide due to COVID-19 full or partial closures.

The UN Secretary-General warned of a generational catastrophe nine months ago – we could well be heading towards it. We're no longer in an emergency but in a "protracted crisis" that is increasingly devastating – not only educationally, but socially, economically and mentally. Stories of increasing child labour, teenage pregnancy, gender-based violence and malnutrition. Accounts of university students suffering from extreme social isolation, desperate poverty and dimmed prospects. The pandemic has exposed how much schools, teachers, and educators matter for society. They were not ready to withstand this shock and need support to heal and build back better.

It is time to roll out a serious educational recovery package. Lost learning is no longer being counted in days and weeks, but in months, in some cases more than a year. The most vulnerable have been hardest hit. The pandemic widened inequalities, amplifying a pre-existing learning crisis.

Setting the world on a more resilient, green and inclusive course will not happen without investing in those who are the custodians of our future.

A recovery package for education centers on inclusion, resilience and transformation. This is about leaving no one behind, bracing for future shocks and gearing teaching and learning to the global challenges of our times.

The first imperative is to reopen schools safely and inclusively, taking every measure to protect the health and well-being of learners, teachers, and educators. For this, the world's 100 million teachers and educators must be considered a priority group in vaccination campaigns. They are frontline workers and the most important actors in the educational recovery. Nor can we let economic constraints and gender norms stand in the way of returning to school. Every school has to prioritize the most vulnerable and disadvantaged learners hardest hit by closures: first by tracking those who are at risk of not returning to school and providing conditional cash transfers to the poorest families; second by ensuring that schools offer catch up and remedial

learning programs; third by boosting school health and nutrition. All these provide strong incentives. This recovery must advance social inclusion and gender equality through education.

The second is to build resilience to future shocks, from health to environmental. This is not only about technology but empowering its users, recognizing the primacy of the human dimension. Governments, public and private partners must step up action to narrow the digital divide, extend connectivity and electrification, develop quality digital learning contents and support teachers to master remote and hybrid teaching. Resilient education systems rely on teachers who are trusted, trained, respected and empowered. The crisis catalyzed innovations and partnerships that the recovery can build upon to create more flexible, collaborative and personalized learning systems.

The third imperative to provide learners with the skills to create a more sustainable, just and peaceful future. Our education systems need to be reoriented around the stakes of the green and digital economy, of the caring economy, the creative economy. They need to give learners the knowledge and mindsets to respond to climate change, the existential threat of our century. They need to build resilience to disinformation that has spiraled during this pandemic. They need to connect learning with real life issues, to foster awareness and responsibility towards our single planet.

The pandemic has laid bare and deepened inequalities in education. The greatest danger lies in not recognizing the power of education to build back more inclusive, resilient and innovative societies. It's not enough to protect education financing; it is suicidal to cut it back. Like our economies, education needs stimulus. And yet, education has been close to invisible in fiscal responses, with an estimated 0.78% worldwide allocated to the sector. Reaching the most marginalized is also not being prioritized, with only one in five countries running equitable finance mechanisms. This is short sighted: investing in education now will save funds later down the line: immediate investment in remedial and catch-up programs can reduce the costs of repairing the damage from Covid-19 by up to 75%. The United Kingdom, the Netherlands and Sweden are among countries in Europe that have provided specific packages to support continuity of learning and skills development. In the United States, the Care Act foresees US\$31 billion in emergency education funding to students, schools, institutions, and states across the country.

The coming weeks and months are a time to get education up and running. Governments and the international community can coalesce around missions to reopen schools safely; train teachers; boost skills development and expand digital connectivity. They agreed on these priorities at the Global Education Meeting in 2020. Now is the time for concrete action. The G7 and G20 have put education and skills on their agendas – this must translate into financial commitment. The Global Partnership for Education is aiming at a replenishment of US\$5 billion plus to support learning in 67 low and lower-middle income countries. This is not big money. Middle-income countries on the verge of economic implosion require funding facilities to shore up their education and training systems. A sluggish growth forecast in high-income countries call for expanded programs to reskill youth and advancing digital inclusion.

Education makes our societies stronger, more prosperous and resilient. Investment in education is the best response to the uncertainty that will grip our world for many months and perhaps years to come. To do justice to the COVID-19 generation, governments and the international community have only one choice: invest in their future now.

This book reaffirms my conviction that universities have much to offer to building back better in education, as we face the current crisis and get ready to face the challenges of the future.

Chapter One

Can universities and schools learn together? Connecting research, teaching and outreach to sustain educational opportunity during a pandemic.

Fernando M. Reimers, Uche Amaechi, Alysha Banerji, and Margaret Wang

The Covid-19 pandemic caused major disruptions to education around the world. Since the World Health Organization declared a pandemic on March 11, 2020, most students on the planet were affected by the interruption of in-person schooling. To mitigate the educational loss such interruption would cause, education authorities the world over created a variety of alternative mechanisms of education delivery. They did so quickly and with insufficient knowledge about what would work well, for which children, and for what aspects of the schooling experience.

Having to create such alternative arrangements in short order was the ultimate adaptive leadership challenge, one for which no playbook existed, one for which solutions would have to be invented, rather than drawn from existing technical knowledge. The nature of the challenge differed across the world and regions, and it differed also within countries as a function of the differential public health and economic impact of the pandemic on communities, and of variations in institutional and financial resources available to redress such impact, including availability of digital infrastructure and previous knowledge and experience of teachers and students with digi-pedagogies and other resources to create alternative education delivery systems.

Sustaining educational opportunities amidst these challenges created by the pandemic was an example of an adaptive education response not to a unique unexpected challenge but to one in a larger class of problems, just one of the many adaptive conundrums facing communities and societies, and that will continue to define our future. Beyond the challenges resulting from the pandemic, other complications of that sort predating the pandemic included those resulting from poverty, inequality, social inclusion, governance, climate change, among others. In some ways, the pandemic served as an accelerant for some of those preexisting difficulties, augmenting their impact or underscoring the urgency of addressing them. Adaptive puzzles of this sort, including pandemics, are likely to continue to impact education systems in the foreseeable future. This makes it necessary to strengthen the capacity of education systems to respond to them.

Reimagining education systems so they are resilient in the face of adaptive challenges of this sort is an opportunity to mobilize new talent and institutional resources. In fact, without new talent and resources we are unlikely to be able to solve these new problems, an extension of Albert Einstein's famous quote that "We cannot solve our problems with the same thinking we used when we created them".

Partnerships between school systems and universities can contribute to those reimagined and more resilient systems, they can enhance the institutional capacity of education systems to devise solutions and to implement them. Such partnerships are also an opportunity for universities to be more deliberate in integrating their three core functions of research, teaching and outreach in service of addressing significant social challenges in a context in rapid flux.

It is fitting that universities should take an active role in trying to be of service to society for various reasons. The first, because it is core to their mission. While the outreach function makes such commitment to societal improvement more explicit, advancing knowledge through research and educating students are also fundamentally about helping society's advancement, albeit perhaps in a longer time frame than the horizon of immediate outreach. These three

functions benefit from the synergies that result when they are well integrated. Unfortunately, the scale and complexity of universities, and at times also intra-bureaucratic politics, often result in poor integration of work carried out in silos. The result is that the total contribution of universities to society may result in less than the sum of the partial contributions they make through each of these three core functions because of negative synergies between them. Connecting the dots is therefore necessary to help the university carry out its mission, including augmenting the value of its contributions to society.

Educating students, for example, for lives of civic engagement and of productive contributions to society requires helping them understand the world in which they live and supporting them in developing the full range of capacities necessary to engage with that world, including the capacities to contribute to address societal challenges. In that sense, integrating into the university curriculum opportunities for students to engage with societal challenges provides an opportunity to help cultivate the cognitive, intrapersonal, and interpersonal skills necessary for students to become full contributors and participants, rather than spectators and bystanders, in societies facing complex difficulties. Educating students to be creators, makers and contributors while engaging them in service of society is, in short, a meaningful way to make their education relevant. Research can also, at least in some domains, be better appreciated and understood by society when it is carried out in service of pressing societal problems. A focus on meaningful problems can also help bring together scholarship carried out in different disciplines and departments, contributing to advance understanding of the complexity of phenomena too often compartmentalized into the boundaries of disciplinary frames.

Engaging students in collaborations with educators in school systems in the development of solutions to societal challenges is also a way to cultivate collaborative mindsets about social innovation, inducting students in the practice of forms of *new power* relying on the use of participatory networks in contrast to *old power* approaches drawing on top-down initiatives led by large bureaucracies (Heimas and Timms 2018).

An additional reason for universities to jointly mobilize research, teaching and outreach is to communicate to their many constituencies their social function and value. For some years now, appreciation for the societal contributions of universities has been in decline in various countries. In the United States, for example, a survey of the Pew Research organization showed that the percentage of the adult population who sees universities as having a positive impact on the country has declined in recent years, from 60% in 2012 to 50% in 2019. Similar findings were reported by surveys of the Gallup organization showing that between 2015 and 2018, the percentage of respondents who expressed a great deal or a lot of confidence in higher education declined from 57% to 48% (Parker 2019).

In this book we present the results of an approach to integrate research, teaching and outreach to advance the goals we have just described, resulting from engaging graduate students in collaborations with school systems for the purpose of helping identify ways to sustain educational opportunity during the disruption caused by the pandemic. This activity engaged our students in research and analysis, contributing to their education, and it engaged them in service to society. It also generated valuable knowledge. In publishing this book, we are making the knowledge generated because of such collaboration with education authorities public, so that it can be of use to the widest possible number of educators. Collaborations of this kind between universities and school systems can be extended to a multivariied range of areas, from developing curriculum to teach about climate change (Reimers 2021), to enriching the curriculum in other areas or providing direct support to precollegiate students. Similar collaborations are possible in multiple domains and disciplines, not just education: public health, housing, poverty, sustainable consumption, among others.

In these chapters we present the results of the work of a group of our graduate students who assisted education authorities in various jurisdictions around the world during the Covid-19 pandemic in understanding the educational impact of the pandemic and identifying options to sustain educational opportunity during this emergency. This work was done as part of a course on comparative education policy analysis which we taught in the Fall semester of 2020. The course was offered at the Harvard Graduate School of Education, one of the ten

professional schools at Harvard University. Students engaged with education authorities between September of 2020 until January of 2021.

The authors of the chapter of this book, our students, have professional experience in Bangladesh, Belize, Brazil, Chile, China, Colombia, Costa Rica, India, Indonesia, Israel, Kenya, Malaysia, Mexico, Mozambique, Nigeria, Pakistan, Peru, Sierra Leone, Sri Lanka, South Africa, Somaliland, United Arab Emirates, United Kingdom, and the United States.

Prior to beginning their graduate studies, they had worked in a variety of roles in the education sector, including as teachers, teaching assistants, school counsellors, school principals, teacher coaches, education supervisors, education specialists in an education services organization, education consultants, education specialists in ministries of education, project managers, leaders of strategy and research teams, directors education policy analysis units, researchers, education advocates, creative arts directors, sports coaches, special education counselors, university lecturers, partnership managers, industry advisors to education nonprofits, educational entrepreneurs and even a state minister of education.

The course in comparative and international education in which they carried out this work is designed to help students develop policy analysis skills. Students in the course read research focusing on system level education improvement such as curriculum and standards, teacher quality, professional development, leadership, and system improvement. They also learn methodologies to examine education problems, identify their causes and options to address them. These include an approach to policy analysis consisting of identifying the root causes of a problem, selecting a range of criteria to evaluate alternatives, drawing options to address such root causes from existing evidence, projecting the outcomes of such alternatives based on various criteria and then making a recommendation (Bardach and Patashnik 2020). They also study an approach to analyze the process of educational change through five lenses: cultural, psychological, professional, institutional, and political, each of them highlighting different elements of the dynamics of education systems. The cultural framework sees schools as institutions in interaction with other social institutions, such as families and communities, and the change process as the result of negotiation of efforts to change the culture of education among these various institutions. The psychological perspective highlights the role of knowledge on how students and teachers learn in informing change initiatives. The professional perspective focuses on the norms and processes which increase the expertise that guides professional practice. The institutional perspective attends to the alignment and coherence among the various elements and processes of an education system: curriculum, assessment, instructional resources, governance, etc. and the political perspective focuses on the interplay between various stakeholder groups as they advance and negotiate their interests in any effort to transform education (Reimers 2020). Students apply these analytical tools to a variety of problem-based assignments of their choice to help them develop an understanding based on reflection from such application to practice.

In the Fall semester of 2020, students in the course had the option to work with a ‘client’, an education authority open to partnering with them, analyzing the impact of the pandemic on educational opportunity, and helping them identify options to sustain education during the pandemic. Students produced this work in stages, submitting intermediate reports to their client and to the teaching team and receiving feedback and suggestions. Upon completing a final report, they presented it to their clients and at a global education conference, at which leaders of practice in the field of international education and development provided feedback to their work. Finally, we held two separate rounds of discussion of revisions to their final course projects, at which they received additional feedback from their peers and from us. At the end of January of 2021, many of the teams followed up with their ‘client’ to take stock of what had happened to their recommendations and added a coda to their chapters.

The selection of the jurisdictions to conduct the project was made by the students, in most cases because of access to education authorities from preexisting relationships of at least one member of each team of authors. The various chapters discuss the positionality of the authors relative to their client and context studied. Because this work was done during the pandemic, when travel and mobility were severely restricted, most data collection and interviews were done virtually and remotely, and not in person. This was true even for the authors living

in the same city as the client, as social distancing requirements prevented such in-person meetings. Students also collaborated with each other remotely, as the Harvard Graduate School of Education offered instruction online in the academic year 2020-2021 given the restrictions on travel and physical distancing requirements caused by the pandemic. Such remote access may have limited the opportunity for authors to gain access to information via observations or conversations in person with people in the sites they were studying.

The fact that this work was done for a client, in most cases an education authority, induced a particular focus on the framing of the problem students focused on and on the kind of options that could be pursued to address it. The approach to policy analysis we teach in the course includes a clear definition of the problem at the outset, this leads to focusing on the analysis on certain aspects of the challenges of educating during the pandemic, leaving other aspects out. The analysis adopts a point of view centered on the kind of actions governments could take to sustain educational opportunity during the pandemic, rather than examine the impact of the pandemic on children and families in a more open-ended way or from multiple angles. Because the focus is on the impact of the pandemic on the ability of schools to deliver the curriculum the analysis is tilted towards finding actionable opportunities for governments to continue to educate during the pandemic. This particular focus may have obscured other aspects of the educational impact of the pandemic. For example, if there were any positive outcomes resulting from the longer period students spent with their parents because of being at home, for example, those are outside the scope of the analysis of the chapters given their government-centric point of view. At the end of this introductory chapter, we discuss several shortcomings that may result from such a focused approach to analysis. Also, the period covered by the engagement of students with their clients, from September to December of 2020, represents only a fragment of the entirety of the period through which the pandemic influenced education in the countries studied, and their studies focused on the period from the start of the pandemic, in march of 2020 until the end of the year 2020. Clearly, a full account of the educational impact of the pandemic will have to wait until the pandemic is over. The countries covered in the chapters in this book were at various points in the evolution of the pandemic during the period when the studies were conducted, they were also at various points in the school year given various school calendars around the world. At the time the authors of the studies included in this book engaged with these various education authorities, the jurisdictions they studied had attempted different approaches to sustain education during the pandemic, ranging from completely shutting down the schools, with limited alternative arrangements to educate, to creating various modalities for remote instruction, to attempting some form of in-person instruction or hybrid instruction. In that respect, the book is not a comprehensive and complete account of the educational impact of the pandemic in the countries included in the study, but an account of such impact up until September-December of 2020 in those dimensions most relevant to the focus of the analysis as defined by the problem the education authorities sought thought partnerships from these authors.

We present this work done by our students with three goals. The first, because the approach they followed to help governments discern effective ways to sustain educational opportunity during the emergency created by the pandemic may be helpful to other education authorities during the remainder of this pandemic, and in future emergencies. The second, as an invitation to our colleagues in higher education to create opportunities for their students to gain knowledge and skills that empower them to be contributors to the solution of wicked problems as they engage with those problems. We are persuaded that if more universities engaged their students in the collaborations that resulted in the work we present in this book, this would make a meaningful difference to sustaining educational opportunity during this global education crisis. The third, because these studies provide a useful account of the educational impact of Covid-19 in ten jurisdictions, with a focus on disadvantaged students, and of some of the options that could mitigate such impact, and this information may be helpful to governments and those working with them to mitigate and revert the considerable educational loss caused by this crisis. While it is too early to analyze the implementation and impact of many of the recommendations contained in these chapters, some of them include an additional coda that speaks to the ways in which this work was received and taken forth by these clients.

Contents of the book

The chapters that follow examine what happened to educational opportunity during the Covid-19 pandemic in Bangladesh, Belize, the municipality of Santa Ana in Costa Rica, Guatemala, Kenya, in the States of Sinaloa and Quintana Roo in Mexico, South Africa, United Arab Emirates, and in the United States in Richardson Independent School District in Texas.

This first chapter introduces the book and our goals, synthesizing the key findings of the studies included in this book about the impact of the pandemic on educational opportunity and the options to sustain education during the pandemic. We conclude discussing the consequences of the pandemic for educational opportunity.

Chapter 2 *How can a2i future-proof distance learning in Bangladesh?* presents the results of a four-month consultation with Aspire to Innovate (a2i), conducted between August and December 2020, to mitigate the impact of the Covid-19 pandemic on the Bangladeshi primary school system. Drawing on data from a survey of 400 Bangladeshi teachers, focus group discussions with government primary school teachers, and a review of available data on international best practices, the chapter provides a suite of recommendations to improve access and retention in the short-term context of the pandemic as well as strengthen the long-term digitization of education, first initiated through revisions to the national education policy in 2010.

Chapter 3 *Resiliency in Uncertainty: Sustaining and Strengthening Primary Education in Belize during the Covid-19 Pandemic* discusses the education challenges faced by the Ministry of Education in Belize because of the Covid-19 pandemic. The authors find that the pandemic and significant flooding following hurricanes in the region in November 2020 resulted in the disruption of routine schooling, and increased social isolation and socio-economic vulnerability. If unaddressed, these compounded challenges will likely have long-term negative effects on teaching and learning in Belize. To mitigate these effects, the authors propose recommendations for the development of socio-emotional skills in primary-school teachers and students, including supporting the development of emotional resiliency in students, building strong teacher student relationships, and promoting teachers' own emotional resiliency.

Chapter 4 *Tracking Mental Health Challenges in the Municipality of Santa Ana in Costa Rica* explores the mental health crisis in the municipality of Santa Ana in Costa Rica that developed in response to the Covid-19 pandemic and resulting closure of schools. All schools in Costa Rica closed and students transitioned to virtual learning (in a program called *Aprende en Casa*, which translates as learning from home) on March 16 of 2020. The Ministry of Education created an online learning platform to support students' remote learning and supplemented this platform with limited television and radio programming meant to reach those students without devices that could access the online learning platform. Despite the government's efforts many students experienced isolation-induced mental health challenges. The authors investigated the nature and prevalence of these issues--using direct stakeholder interviews, government and NGO provided data--as well as any efforts to respond to the developing need. The authors' recommendations focused on the potential of Relationship Mapping to help strengthen the bonds between educators and children, in part by identifying and support students' mental health.

Chapter 5 *Promoting Education Continuity by Supporting Teachers in Guatemala During Covid-19* explores Guatemala's response to the Covid-19 pandemic's disruption of teaching and learning. The chapter investigates the *Aprende en Casa* (which translates as learning at home) initiative that relied on a combination of printed materials, tv/radio, and an online platform to support the continuation of teaching and learning during remote learning. Through a combination of desk research about the Guatemalan and comparable contexts, educator surveys and focus groups and interviews, the authors analyzed the efficiency, effectiveness, and impact of the *Aprende en Casa* initiative. The authors then generated and evaluated policy recommendations to address perceived gaps in the initiative. These recommendations focused on developing and supporting teacher capacity and were structured to roll out in three phases that would respond to both immediate/urgent communication support as well as longer-term systemic and structural capacity development.

In Chapter 6 *An Integrated Approach to Education Continuity in Rural Kenya*, the authors propose a policy to improve academic engagement and success for vulnerable populations in rural Kenya, specifically looking at girls living in extreme poverty. An additional outcome this chapter focuses on is gender equity and socio-emotional learning. This policy analysis is done through the lens of a non-governmental organization the Asante Africa Foundation, highlighting ways NGOs can introduce effective interventions in the education sector. The authors conducted interviews with families in the region and Asante Africa staff members, analyzed documents on Asante Africa, and carried out literature review for their policy recommendation. Beyond creating an emergency response for the pandemic, their recommendations emphasize the importance of community-based partnerships and collaboration between NGOs and the populations they serve.

Chapter 7 *Addressing Negative Trends in Attendance and Pre-Enrollment in Schools to Prevent Dropout During Covid-19: The Case of Quintana Roo, Mexico* examines dropouts during the pandemic in this Mexican State. Comparing data on student enrollment just prior to the start of the academic year of 2020-2021 (August of 2020), and attendance during the first week of classes in August of 2020 with enrollments in previous years, the authors estimate dropout rates ranging from 2% to 4.7% in pre-enrollment and an additional 4.5% dropout in attendance during the first week of classes. Dropout is higher at the elementary school than at the secondary school level. They also found considerable shifts in enrollments from private to public schools.

The chapter describes the educational continuity strategy adopted by the State, complementing the national strategy of educating via television and web-based resources with printed instructional materials, and draws on interviews with teachers and in a review of the literature to identify options to address the increased dropout.

The authors identify six alternatives to address drop out, and examine them based on four criteria: effectiveness, cost, feasibility, and equity:

Chapter 8 *Increasing support to learners under the Covid-19 pandemic in Sinaloa, México* focuses on supporting student learning during the pandemic in a context where the national strategy during school lockdown consisted of delivering education via television. The State of Sinaloa had supplemented this official education response with granting teachers the autonomy to replace or enhance the use of TV with strategies relying on the use of textbooks and handouts, assessing learning activities via social media and the use of online instruction.

The chapter reviews literature on education continuity during the pandemic, organizing it using a multidimensional framework to conceptualize educational change (Reimers 2020). From this review, it explores as options to support learning tutoring programs, community learning centers for at risk students, supporting caregivers, and the integration of these three alternatives. It examines these options in terms of four criteria: cost, political viability, mitigation of learning loss, and feasibility. Based on this analysis, the chapter recommends the establishment of community learning centers.

Chapter 9 *South African Curriculum: Infusing Competencies for a Changing World* follows a different strategy than those of other chapters in this book. Their client is the National Education Collaboration Trust (NECT), a key partner with South Africa's Department of Basic Education. At the request of their client, instead of focusing on mitigation of the short-term direct consequences of Covid-19, the authors view the pandemic as an event exposing an existing education problem-- an outdated curriculum that is no longer relevant. Thus, the authors analyze how a curriculum-based policy can seize this opportunity to redefine education in South Africa, one of the most unequal countries in the world with high unemployment rates. Due to this context, this chapter focuses on improving student outcomes in literacy, 21st century skills, and social-emotional competencies.

Chapter 10 *Supporting the Education of People of Determination in the UAE during the Covid-19 Pandemic* explores efforts in the United Arab Emirates to sustain effective learning opportunities for students with disabilities (called people of determination in the UAE) during the Covid-19 outbreak and the ensuing move to remote learning. The chapter focuses on private schools in the UAE where most non-UAE citizens send their children. Prior to Covid-19 the UAE had moved to establish legal requirements for schools to provide equitable learning experiences for people of determination. However, limitations in schools' and parents' technical and financial

capacities have negatively impacted people of determinations' learning experiences, not only during the initial fully remote period of academic learning but also in the current academic year's more flexible approach that offers parents the option of fully face to face, fully remote, or hybrid instruction.

Many of the remote learning options do not completely support the needs of people of determination. People of determination are currently excluded from the fully face-to-face model given the nature of their disabilities and the restrictions posed by face-to-face Covid protocols. After exploring the UAE context, current parent, teacher and school capacity, and relevant successful examples from across the globe; the chapter explores policy options that would improve the learning experiences of people of determination. The authors ultimately propose a "hybrid" policy that would see people of determination receive equitable support and resources.

Chapter 11 *The Effect of the Covid-19 Pandemic on Richardson Independent School District in the United States* focuses on improving student well-being in Richardson Independent School District (RISD), a school district in Texas that serves an ethnically diverse population with a relatively large percentage of poor, limited English proficiency, and at-risk students. Student wellbeing goes beyond academic support; it encompasses all the factors students need to live a happy and fulfilling life, including socio-emotional learning as well as mental and physical health. The authors focus on this outcome based on the theory of change that improved student wellbeing will address pressing consequences from the Covid-19 pandemic: decreased retention, less student engagement, and negative social-emotional statuses. Their policy recommendation is informed by educator and administrator interviews, school data, and literature review.

Impact of the pandemic on education

Nine of the ten studies included in this book all focus on the impact of the pandemic on students who attend public schools, including some of the most marginalized students. Only one chapter, focusing on students with disabilities, focuses on private schools in the United Arab Emirates, which serve non-emirati students. Most chapters focus on countries in the global south. In those settings, the chapters find that the pandemic constrained educational opportunities in multiple ways: limiting student access to school as in-person instruction was suspended, often for very long periods of time, up to a full year. While education authorities created alternative means of education delivery to support some form of education during the pandemic, this was done in haste, with serious limitations of resources, digital infrastructure and previous knowledge and experience of how to teach and learn online. The alternative modalities to educate created in this fashion depended to a much greater extent than in-person instruction on students having parental support and supportive conditions to learn from home. This greater role of home circumstances in mediating access to education augmented equity gaps in educational opportunity.

The various chapters describe how these alternative arrangements produced losses in access to education, consistent access, and engagement with learning, how they resulted in instruction of limited quality and shorter duration than regular in-person instruction, and how remote learning arrangements devised in this fashion limited opportunities for socio-emotional development. The chapters also document how the pandemic and these educational arrangements induced challenges to the mental health of students, how they had negative impacts on teachers, increasing the demands of their jobs, with limited preparation and support. The chapters consistently point to growing educational inequality resulting from this situation. A few of them also identify potential silver linings that resulted from the innovation and creativity demonstrated as educators created alternatives to teach during the pandemic. In what follows we summarize those findings.

Impact on Access, Attendance, Engagement, and academic learning

The main educational outcome of Covid-19 pandemic has been the negative impact on student access attendance and engagement with learning, a finding consistently reported in most chapters in this book. Likely this will result in considerable learning loss and in student dropout. Student engagement with the academic and social aspects of schooling and learning is predicated

on their regular attendance which is in turn dependent on their access to all aspects of the teaching and learning process. Each aspect of the learning process is necessary, though not sufficient, to support students' academic learning. Students need to show up for classes, ready to learn, motivated to do so, to meet teachers who are prepared, also motivated to teach, to have sufficient learning time to allow each student opportunity to master new knowledge and develop new skills. Regular assessment provides teachers opportunities to personalize teaching strategies and content to their students. Consistent engagement with productive instruction and learning, sustains motivation and continued learning. The opportunity to learn is only as strong as the weakest link in this chain connecting these various elements of the teaching and learning process. If a student shows up, but they are hungry, they will not be ready to learn. If they show up but teachers are not prepared, learning will not be productive. If students engage with schooling but learn little, motivation and engagement will decline.

To be clear, things were far from perfect before the pandemic in terms of this chain of interrelated factors that support productive learning. In fact, there was considerable variation across countries and regions based on, amongst other factors, systemic and structural capacity within schools and communities which were decidedly lower in lower-resourced countries and regions. As a result, poor and disadvantaged children often were concentrated in schools of low quality where opportunities to learn were limited. This situation was so dire that in a recent global assessment of the state of education the World Bank characterized it as a global learning crisis (World Bank, 2018). The Covid-19 pandemic exacerbated the situation in many countries as schools suspended in-person instruction and the site for learning for many shifted from the school-building and classroom to the internet-connected computer or mobile phone, devices that were not broadly accessible to students. Similarly, the gateway to teaching shifted from the classroom to internet platforms, many of which were not adequately designed, resourced, or communicated to the teachers, students and families who were to use them to continue teaching and learning. Examples of the pandemic's impact on access, attendance and engagement abound in several of the chapters, including those examining Bangladesh and Richardson, Texas in the United States.

Diminished Access

There are multiple direct and indirect examples of obstacles to access resulting from the pandemic in the chapters that follow. In Bangladesh and Kenya, a significant percentage of students were either unable (40% in Bangladesh) or less likely (22% in Kenya) to access the digital learning platforms created by the government. The situation was more dire in certain locales. In some counties in Kenya, only 5% of students had access to learning materials. In Quintana Roo between 2% and 5% of students did not pre-enroll in the fall semester. A similar decrease in enrollment was observed in Richardson Texas although campuses serving students with lower socio-economic backgrounds experienced steeper educational declines.

In the UAE, students of determination were put at a significant disadvantage during the pandemic due to students and parents' lack of access to assistive learning devices at home and to their schools' inability to provide the technologies. Moreover, even as schools opened and students began returning to the classroom many students of determination were not able to return due to the nature of their disabilities, thereby prolonging their insufficient access to learning support.

Attendance, engagement, and learning

Even when students were able to access the online learning platforms, attendance was not guaranteed. In Quintana Roo where pre-enrollment in the fall semester had decreased relative to past years, attendance during the first week of class also decreased further by an additional 5%. As previously mentioned even when students could start returning to school many students of determination in the UAE were not allowed to return thus negatively impacting their attendance and access to instruction.

Richardson Texas experienced similar attendance challenges noting that 1900 of their students (roughly 5% of their student population) did not attempt to attend class remotely or in person-- a figure that did not include students that logged in to remote classes but did not

actually attend. Of the students that did regularly attend class remotely a significant number did not participate or even turn on their cameras.

In Santa Ana, Costa Rica interviews and other qualitative data from teachers and caregivers revealed some of the mental health challenges that lead to students' disengagement and found that extended screen time, social isolation from their friends, and problems at home contributed to students' lack of engagement, which in turn negatively impacted their learning (Blackorby, et al; 2004; Masten, et al., 2005). Also underscoring the reality of diminished attendance, the Bangladeshi government, acknowledging the system learning loss due to the pandemic, decided to automatically promote students to the next grade and eliminated exams required for admission to primary and secondary schools.

Impact on socio-emotional development

The shift to remote forms of instruction constrained not just the opportunities for academic learning, but also for the social interactions that contribute to the socio-emotional well-being and development of students. When students meet in-person in schools, many of these opportunities occur naturally as students congregate in school and interact with their peers, in the classrooms but also in the courtyard, engaging in sports or other group activities. Typically, student organized activities supplement the opportunities for social interaction created by their teachers, which are more limited during classes. Existing evidence suggests that many teachers rely primarily on teacher directed instruction and only in very limited ways on cooperative learning and other forms of collaboration in classrooms. A study conducted by the OECD in 2018, surveying the practices that teachers reported using, reveals that the percentage of teachers who engage their students in collaboration is low, compared for instance to the percentage of teachers who present a summary of recently learned content or set goals at the beginning of instruction. On average, in countries of the OECD, only half of the teachers report that they frequently have students work in small groups, compared to 74% who present a summary of recently learned content or 81% who set goals at the beginning of instruction (OECD 2018). This lack of intentionality of teachers in cultivating socio-emotional skills in schools is at the root of recent efforts to broaden the curriculum and of coalition advocating for such broadening of curricular goals (Aspen 2019, Reimers 2020b).

As the rich array of opportunities for social interaction during in-person schooling was replaced by much more limited opportunities during remote learning, the necessity of explicit attention to the socio-emotional well-being and development of students was made more visible. Other studies confirm the challenges created by the pandemic in this domain. In the summer of 2020, Save the Children conducted a survey of children and families in 46 countries to examine the impact of the crisis, focusing on participants in their programs, other populations of interest and the public. The report presenting the findings for program participants—which include predominantly vulnerable children and families—documents violence at home, reported in one third of the households. Most children (83%) and parents (89%) reported an increase in negative feelings due to the pandemic and 46% of the parents reported psychological distress in their children. For children who were not in touch with their friends, 57% were less happy, 54% were more worried and 58% were less safe. For children who could interact with their friends less than 5% reported similar feelings. Children with disabilities showed an increase in bed-wetting (7%) and unusual crying and screaming (17%) since the outbreak of the pandemic, an increase three times greater than for children without disabilities. Children reported an increase in household chores assigned to them, 63% for girls and 43% for boys, and 20% of the girls said their chores were too many to be able to devote time to their studies, compared to 10% of boys (Ritz et al 2020).

The impact of the pandemic, including the disruption of daily routines, social isolation, and for many, increased socio-economic vulnerability, translated into reduced students' motivation, engagement, and learning outcomes. Peer relationships are an important factor in psychological well-being and student-to-student interactions are a key contributor to students' overall connectedness to the school. However, remote learning has diminished opportunities for both peer-peer interaction, and student- teacher relationships. A survey of teachers in Belize revealed that 1 in 5 teachers did not believe their students had meaningful relationships at home.

In Costa Rica, young adults released a song titled “Me Siento Alone” (I Feel Alone) as part of their national campaign #MeSiento (#IFeel) to raise awareness of and destigmatize mental health problems that have proliferated with quarantine orders in place and schools staying closed. Teachers in Costa Rican schools have observed their students caught in reinforcing cycles of poor mental health and learning, where poor academic outcomes perpetuate poor mental health. In turn, students who feel disengaged and isolated are even less likely to participate in school activities that might boost their learning outcomes. Similarly, a survey in Sinaloa, Mexico found that a considerable percentage of students reported lower motivation and increased stress during remote learning.

Given these challenges for socio-emotional wellbeing created by the pandemic, an unexpected silver lining of this crisis may be a renewed and stronger interest in the mainstream inclusion of social emotional health and mental resilience outcomes as part of the curriculum. In this book, several chapters address the saliency of socio-emotional wellbeing and mental health during the pandemic. The chapter on Quintana Roo recommends greater emphasis on socio-emotional development to address the growing rates in dropout from children. The chapter focusing on the challenges faced by students of determination in the United Arab Emirates focuses on the challenges to their socio-emotional wellbeing created by the remote education option made available to them. In Belize, 90% of surveyed teachers reported that they believed it was their responsibility to integrate activities to promote student wellbeing into the remote learning packets. Based on initial research, including the results of the survey and focus group they conducted, the authors of this chapter decided to focus their work on supporting emotional resiliency in students, building strong teacher-student relationships, and promoting teachers’ own emotional resiliency—an approach that was validated both by teachers and the Ministry of Education. Their recommendations cover both immediate interventions and long-term strategies, including the creation of an SEL guide for teachers, virtual in-service training, and incorporating “whole child” learning targets into the national learning outcomes to formalize and integrate a culture of socio-emotional learning at every level. Similarly, in recognition of the importance of strong relationships between all stakeholders to promote SEL, the authors of the chapter on Quintana Roo, Mexico, recommend greater communication between teachers, students, and caregivers. For Costa Rica, authors detail a three-step process, to map socio-emotional needs among students, ensure that students are paired with faculty and staff, and provide staff the training necessary to ensure that they can meet students’ needs.

Impact on teachers

Several of the chapters in this book discuss the impact of the pandemic on teachers. In Richardson, Texas, teachers reported re-adjusting curriculum and engagement strategies several times during the start of the school year. The shift to remote learning meant that even more experienced teachers were spending time re-visiting their teaching materials, and preparing them for online, rather than in-person, delivery. Teachers were also spending more time contacting students and families to hand out required printed materials, as well as to check in on students who were absent or otherwise disengaged from class. Given decreased substitute teacher availability, many teachers found themselves stretched even thinner by taking on additional teaching responsibilities. Compounding the stress of additional responsibilities, the shift to video conferencing and text-based communication meant that teachers also felt increasingly isolated from their colleagues and their students.

Based on their survey of teachers in Guatemala, the authors of that chapter found that only 63% of educators knew about online teaching resources offered by the Ministry. Instead, 90% of the teachers reported that they were creating their own guides and communicating with small, siloed groups of colleagues. These findings, of the relatively individualized approach to remote teaching echoes the results of a survey of 441 teachers in Bangladesh. Though 355 teachers reported actively teaching through the lock-down, only 55 participants reported receiving training or development for using online learning tools. 155 teachers reported using their personal Facebook pages to teach, in place of the government provided remote learning platforms.

While teachers around the world have done a commendable job in individually rising to meet the challenges of the pandemic, these examples point to a need for centralized support, distribution of resources, and monitoring and evaluation to provide teachers much-needed support during this difficult and sudden transition, and to ensure that educational interventions are comprehensive, cohesive, and equitable.

Impact on equity gaps within countries

School closures amidst a global recession and health risks have disproportionately impacted vulnerable populations. According to a report from the OECD on the impact of Covid-19 on equity, students from “low-income and single-parent families; immigrant, refugee, ethnic minority and Indigenous backgrounds; with diverse gender identities and sexual orientations; and those with special needs suffer by being deprived on physical learning opportunities, social and emotional support available in schools and extra services such as school meals” (OECD, 2020). Therefore, there are projections that Covid-19 will exacerbate existing equity gaps within countries. For example, researchers have estimated learning loss in the US for white students by June 2021 to be four to eight months compared to six to twelve months for students of color; this is just one example of how marginalized communities are disproportionately affected by Covid-19 (Dorn et al, 2020). The following chapters in this book confirm the pandemic’s negative impact on equity within different countries, each focusing on specific vulnerable populations.

The chapter about Costa Rica emphasizes the risks for dropping out, learning loss, and mental health issues for marginalized students by referring to studies tracing the relationship between special education students and expulsion rates due to emotional disturbances (Blackorby, et al., 2004). In addition, they highlight the barriers in adopting SEL programming for low-income communities with limited resources, especially considering a virtual platform. For students with disabilities, the chapter on UAE reports on the lack of opportunity to attend schools during Covid-19 due to the higher risk of infection. In addition, with the growing reliance on remote learning, students with disabilities have greater challenges and may require assistive technology that families are not prepared to support. The chapter examining the impact of the pandemic in Richardson Independent School District in Texas shows that while student enrollment declined 5% overall, the decrease was 25% for schools with low socioeconomic students.

The chapter on rural Kenya looks specifically at gender equity. This has been a salient topic in the discussion of equity gaps due to Covid-19, especially considering the decreased likelihood of girls returning to school from this educational discontinuity. For girls, the chapter on rural Kenya analyzes the barriers to re-enrollment and widespread learning loss due to poverty, discriminatory attitudes, and regressive practices. These concerns are supported by their qualitative interviews with education leaders as well as previous studies on the effects of Ebola on girls’ re-enrollment rate. UNESCO (2020b) reported that the number of girls out of school tripled after the disruption of schools in Liberia, Guinea, and Sierra Leone post-Ebola. These chapters do not analyze the effect on equity for every vulnerable population. However, collectively, they tell a story of how the pandemic has exposed inherent inequities within countries that will be persistent due to the changing landscape of education.

Also impacting equity were the ripple effects of the pandemic on the economic conditions facing the poorest families. The South Africa, Kenya, and Richardson Texas chapters describe how economic conditions led to both increased youth unemployment (South Africa) and increased demands on lower-income students’ time (Richardson, Texas) in the form of household traditional responsibilities such as taking care of siblings and older relatives and additional demands created by Covid-19 such as helping younger siblings with their online learning.

The Kenya chapter describes how economic conditions often increased the reliance of students’ families on food aid and basic learning materials. Between increased unemployment, lack of resources and increased obligations at home the pandemic created inhospitable home conditions that directly and indirectly constrained students’ engagement with learning. Indeed, the Costa Rica chapter found *relational problems with household members* to be a significant cause of

depression and anxiety for many youth during the pandemic--concerns with direct impacts on students' engagement and learning.

Sustaining Educational Opportunity during the pandemic

The primary focus of the chapters in this book, reflecting the terms of the engagement of the students in the course with their partners in education systems around the world, was in identifying and evaluating options to sustain educational opportunity during the pandemic. The options examined, and ultimately recommended, are specific to the challenge identified by the government that students had partnered with as well as to the context. In that sense, we should not assume these options could be automatically transferred across contexts. However, we hope the options examined in the book, and summarized in this section, would be valuable to education authorities around the world as the need to devise ways to educate students in the ongoing challenging context created by the pandemic continues.

The policy options presented in the chapters in this book include some at the school and others at the system level. At the school level, the chapters include options to streamline and reprioritize curriculum, providing greater emphasis to the socio-emotional support of students, using more appropriate technologies and using them more effectively, supporting teachers with opportunities to develop new knowledge and skills to effectively teach their students in this context, including using remote teaching, fostering teacher collaboration, and focusing explicitly on the students who need most support to maintain equity.

At the system level, the chapters emphasize the role of information systems and technology to monitor student access, engagement, and learning, to identify students at risk and provide appropriate support and to deliver educational content effectively and facilitate student interaction while in-person instruction is interrupted. Also, at the system level the chapters prioritize creating professional development opportunities to support teachers, supporting effective leadership, promoting partnerships between schools and other organizations to promote innovation, and maintaining a focus on equity.

Curriculum-academic

The curriculum-related recommendations in this chapter provide alternatives that can be adopted at the system and school level. At the system level, these include focusing on supporting schools with the highest dropout rates (Chapter 7- Quintana Roo) and establishing community learning centers to provide students with additional academic support (Chapter 8- Sinaloa). Within schools, these cover streamlining curriculum, so that content is prioritized according to significance, relevance, and utility (Chapter 7- Quintana Roo), and integrating age-appropriate protocols and activities to develop SEL competencies, including communication skills, and mindfulness (Chapter 9- South Africa). Chapter 10 (UAE) focuses specifically on the needs of students with disabilities, recommending a hybrid model where students could receive in-person instructional support from specially trained instructors in socially distanced settings, on a few days of the week.

Technology/Information Systems

Sustaining educational opportunity during the pandemic created new requirements to keep track of student access, engagement, and learning; and to communicate with parents, students, teachers, and staff. Just as important, content delivery platforms became critical as a distribution channel. However, existing information systems and technology platforms were inadequate to meet those needs. Most countries' educational systems responded with a mix of technological and physical alternative monitoring and delivery systems to support the continuation of teaching and learning in remote contexts.

However, many of these responses proved inadequate in reaching students across geographic and economic conditions, particularly in rural and lower-income contexts. Moreover, many of those responses that were able to reach children and families proved inadequate in keeping the students engaged, let alone learning. Consequently, many of the policy

recommendations presented in the different chapters focused on improvements to governments' information systems and technological responses.

A number of the recommendations focused on how governments could improve their information systems to support the monitoring, distribution and evaluation of teaching and learning amidst the crisis. The Bangladesh chapter recommends creating a centralized evaluation and monitoring system that spans across platforms. This system would complement a nation-wide assessment and support digital-divide mapping that would better represent the lack of educator and learner access to technology. The Quintana Roo chapter emphasizes the value of developing an early warning system that could identify students who are not attending, have dropped out or are at risk of dropping out. Finally, the Guatemala chapter recommends making the governments' resource/educational website more user accessible--through better design and creation of an app that would be accessible to more people and would help teachers and families access government resources that support student learning in remote and hybrid contexts.

Other recommendations focused more specifically on how school-level technology could help teachers be more effective instructors in the remote context. The Bangladesh and Guatemala chapters' recommendations included directly providing capacity-building resources and professional development to support remote teaching. In Richardson, Texas platforms to support teacher collaboration for skill-building and resource-sharing were included in the recommendations. Sometimes the teachers needed more than access to resources and professional development; they needed to be able to reliably connect with their students. The Costa Rica chapter proposes a novel school-based student access and engagement tracking system based on a community-developed networking map. The map would track teacher-student relationships and student engagement and help teachers more effectively support students' socio-emotional needs. In Guatemala and Bangladesh, the authors recommended formalized a government-supported WhatsApp-based (Guatemala) or SMS-based (Bangladesh) platforms to help teachers build and maintain communication lines with students and families. These channels would improve on informal and inconsistent communications channels previously patched together by educators and families to facilitate the delivery of educational materials.

The school-level policy recommendations were not all focused on building teacher capacity, however. Many of the recommendations directly targeted students and families. Indeed, the WhatsApp-based platform recommended for teachers in Guatemala was also designed to help families. Moreover, the design of the network would require collaboration between schools, families, and local governments. Similarly, the Guatemala chapter recommends an overhaul of the government's website that provided resources and professional development as a way to improve access and usability for students and families. Monitoring technologies were also deemed essential to helping governments and schools understand and support student's well-being and engagement during the pandemic. The authors of the chapters focusing on Richardson, Texas, and Kenya recommended digital monitoring systems to track students' wellbeing and provide teachers and schools with the necessary data to devise relevant and responsive supports and interventions.

Teacher professional development

The pandemic shifted the delivery method for education from in-person to remote settings, instigating a need for teachers to develop their digital skills. However, beyond this, these chapters propose integrating professional development on how to teach new content since the pandemic also changed what should be taught. For example, the chapter on South Africa recommends designing short, two-day annual direct Early Grade Reading training sessions for the proposed shift towards competency-infused curriculum within schools. Furthermore, they also recommend providing literary coaches, monthly visits, and small-group training sessions continuously throughout the year. Similarly, because the chapter on Quintana Roo proposes socio-emotional tutoring programs, they also recommend implementing professional development to train teachers on how to build relationships with students and deliver content in remote settings. To combat the widening education inequality gaps, the chapter on UAE

proposes that some teachers be specifically trained to support special needs students and support them with assistive technology.

In addition to teacher professional development, the shift towards depending on technology has also opened the opportunity for teachers to collaborate more effectively. The chapter on Richardson, Texas recommends an online platform for teachers across the district to share best practices and encourage effective teamwork between teachers. Furthermore, the chapter on Costa Rica proposes that staff and faculty partner to develop strategies for disengaged students in addition to working with child psychologists. The chapter in the UAE also pairs their policy recommendation of teacher professional development with collaboration among different educator roles. The partnership between these specialty teachers supporting students with special needs and general classroom teachers would be supported by a school's Covid-19 task force. Overall, these recommendations show the continuous need to integrate professional development as well as the opportunity for more collaboration, spurred by the pandemic.

Beyond ensuring teacher professional development and collaboration at the school level, the policies also emphasized a long term, systemic change to support teachers. Utilizing a professional perspective on education, they focus on “structuring the roles of education practitioners so that practice can be informed by expert knowledge and help generate expert knowledge as a driver of change” (Reimers, 2020). The SABER Framework developed by the World Bank also recognizes teacher professional development as a key policy lever for governments to ensure education outcomes such as enrollment, completion, and student learning (World Bank, 2013). For example, the chapter in Guatemala recommends that in the long term, teacher education policy should be reformed to integrate ICTs and deeper learning pedagogies in both pre-service and in-service professional development. Similarly, the chapter on Bangladesh proposes distributing a Digital Teaching Best Practices Guide that includes strategies for direct contact with students and parents in addition to providing online digital training courses rolled out by the Ministry of Education. Lastly, the chapter on Kenya proposes using NGOs to help with system-level changes in providing teacher professional development and community workshops. Asante Africa, an NGO that served as their client, had already established teacher professional development that has affected over three thousand schools. As such, there is an opportunity to look towards NGOS to also enact system-level changes to provide teacher professional development.

Beyond the pandemic. Did the pandemic create conditions for any positive changes in the future?

While the pandemic disrupted education it also created the opportunity to reimagine what education could be. For example, technology is being utilized to innovate blended learning, teaching materials are being shared globally, and virtual classrooms are removing barriers for teachers to learn from each other and collaborate. In addition, the World Bank (2020) has released a report called “Realizing the Future of Learning” on the premise that the pandemic response “has opened a window of opportunity for educational systems to move to a path of accelerated progress.” These opportunities include technology, teacher professional development, and parent & community involvement.

Community partnerships are an integral component of many of the recommendations in these chapters, reflecting the importance of collaboration between various stakeholders that is required for the successful delivery of educational interventions. Community stakeholders in Guatemala play an important role in mapping out a nodal network for a comprehensive WhatsApp communication system. The authors of the chapters on Bangladesh and Quintana Roo both recommend communication campaigns to increase local knowledge about the benefits of remote learning, influence mindsets on the importance of remote attendance, and provide information about specific learning platforms. Where students have dropped out of school, community partners can be essential to understanding their contexts and supporting them in re-enrolling in school. In this vein, the authors of the chapter on Asante Africa recommend a multi-level intervention to identify and define barriers to re-enrollment of

students, including through community workshops. Multi-national agencies like UNICEF are also seen as potential partners, in contexts like Belize, where existing relationships may be leveraged for additional resources, as well as financial and technical expertise.

On a larger scale, education leaders were forced to reassess the purpose of education, given the diminished capacity for delivery of the alternative arrangements created they had to ask: what matters for students at the end of day? The Department of Basic Education in South Africa prioritized this question due to consistent school closures and resultant learning loss. With the incentive to trim an outdated and already ineffective curriculum, the chapter on South Africa identifies an outcome of Covid-19 as an opportunity for South Africa to improve early grade learning by integrating competencies needed for the 21st century.

Discussion and conclusions

In discussing what was learned in the studies included in this book we should first acknowledge the shortcomings of these ten studies of education during the crisis created by the Covid-19 pandemic. The studies are based on the period until the end of 2020, nine months into the global pandemic. They were also conducted within the constraints the pandemic imposed: accessing information remotely, based on interviews, the review of available evidence and quick surveys. The analyses were framed in response to problems facing education authorities, and this sharpened the focus while at the same time constraining it. The findings presented in this chapter are interesting both in what they reveal, and in what they conceal, in what is left unaddressed. Clearly, there are limitations to analysis that is carried out to serve the narrow interests of policy makers, as was the case in these studies.

One of those blind spots is the fact that the chapters do not address the nature of intergovernmental relations between agencies (health and education) and levels of government (national, state, and local) which are essential for coherent policy, particularly during an unexpected public health crisis. Arguably, education responses in many of the jurisdictions examined in the book were playing catch-up game with decisions made by politicians and by public health authorities, rather than coordinating with them.

Another blind spot of these chapters concerns fiscal capacity to address these challenges, touched upon only indirectly in highlighting the importance of addressing cost as a criterion to compare the alternatives examined in these chapters. Obviously, the pandemic caused a severe economic shock, directly as it slowed down economic activity as businesses closed, and indirectly as governments had to absorb, on short notice, the costs to address the public health emergency. Less fiscal resources to fund an adequate strategy of education continuity most certainly constrained the space within which education authorities had to generate alternatives, yet this important topic is not explicitly addressed in this book. Furthermore, the pandemic's role in increasing dropouts may diminish education funding in contexts where such funding is based on enrollments, as mentioned in the chapter examining the case of the United States. As that chapter explains, in Richardson Independent School District, a 5% decrease in enrollment could translate into more than 10 million US dollars in lost revenue in State funds next school year.

Another subject missing in this book is the gendered nature of the impact of the pandemic. That it did not figure more prominently in the framing of the problems that education authorities sought from the authors of these chapters is revealing. Given the gendered nature of the teaching workforce, the many forms of educational marginalization shaped by gender, and the gendered norms that govern the distribution of household chores and of child-rearing in many societies, it is conceivable that the educational impact of this pandemic had multiple gendered dimensions. It may have disproportionately affected women, who make up a large share of the teaching workforce, many of whom may also have been disproportionately impacted by the burden of supporting their own children now learning at home. For students, it is easy to imagine that girls were disproportionately impacted in having to negotiate the new demands of learning at home with greater responsibilities to the household or to siblings. But these topics are not explicitly addressed in the chapters in this book, although the chapter on Kenya does mention the unequal barriers that girls and boys face in ordinary times to access

education and the follow up of this team with their client revealed that the organization implemented their recommendations using a gender-equity lens.

The blind spots in this book may also include possible silver linings, as the narrow focus resulting from the framing of the problems of interest to education authorities diverted the studies away from them. Perhaps parents developed greater knowledge of their children because of the time they spent together during the confinement period. As a result of the greater time for interaction with their children they might have even become better parents during the crisis. Children may have also learned valuable things from the extended time they spent with parents and other relatives, perhaps emotional bonds with their families were strengthened as a result. Maybe they all learned to appreciate their teachers and school peers more, because of missing them. Plausible as these silver linings may be, none of them appear in the analysis, because the framing of the problems that anchored the policy analysis provided a different focus.

These shortcomings notwithstanding, there are some clear benefits resulting from the findings presented in this book. The first is greater knowledge of the way in which the pandemic impacted some dimensions of education in ten different jurisdictions. Given how limited knowledge has been about the educational impact of the crisis, limiting the ability of education authorities to make decisions based on evidence, there is real value in the work of our students in advancing what is known. While this book focuses only in ten jurisdictions, we can only imagine how rapidly evidence to tackle this crisis would become available if only a fraction of the more than 30,000 institutions of higher education around the world engaged some of their students in work of the sort illustrated by this book.

The second benefit is that the education authorities who served as the clients of the authors doing this work seemed to have appreciated their thought partnership. There is perhaps an important message to universities around the world in this. In a situation of great need, small actions can make a big difference. Given how limited institutional capacity is in many education systems, there is obvious value in augmenting that capacity with partnerships with other institutions, such as was done in this case. Maybe the pandemic has created an opportunity for more intentional partnerships between universities and school systems, which can be part of a reimagined education infrastructure, with greater capacity to face the adaptive challenges that in all certainty await us.

Finally, our students learned valuable professional skills from engaging in helping address a public education crisis and, most importantly, they learned that they could make a difference to solving problems that matter. Given that the goal of universities is to educate students to be citizens and leaders, to step up to serve society, a crisis such as the one we are facing offers a unique opportunity to contribute to that goal.

We now turn to discussing the findings of the chapters in the book.

The ten studies in this book consistently highlight that the Covid-19 pandemic seriously disrupted educational opportunity. In addition to the disruption of physical and mental health of students, and the increased individual and collective trauma and vulnerability, it did so principally as governments implemented social distancing measures to contain the spread of the virus and students and teachers were unable to meet in-person to teach and to learn.

This enormous challenge was faced by many teachers and systems with extraordinary commitment to trying to continue teaching and learning in the absence of adequate infrastructure to support online learning and lacking adequate skills and experience to continue learning online. These alternative systems, quickly put together, were at the same time an expression of the capacity for improvisation, for innovation, of educators and education administrators, but also of the limitations of such an approach to provide adequate substitutes for in-person instruction. The evidence available in the chapters in this book is that those systems provided very limited opportunities to learn, and that these deficiencies were greater for marginalized students and students with disabilities.

While none of the chapters in the book provides direct assessments of learning loss, because those were not available in the countries which were the focus of the analysis, evidence on accessibility, attendance and engagement to the alternative arrangements that were deployed makes it likely that the current generation of students will not have learned, during the periods when schools were closed, what the curriculum expected that they should have learned. It is

certainly the case that even in ordinary times too many children learn little in the systems examined in this book, the *learning crisis* predated the pandemic (World Bank 2018). But the interruption of schooling has likely worsened this crisis and will possibly lead many students to drop out of school.

In this sense, the evidence in this book helps to recognize the value of the in-person school, with all its well-known shortcomings. But the inability to put in place more robust forms of remote teaching and learning underscores also the fragility of the existing institutions of education. Fragility in their lack of preparedness for a contingency of this sort, in not having built an accessible and robust infrastructure of technology-enabled education and in not having helped students and teachers develop the skills to learn independently and online. Fragility also in the deficient institutional capacity to put in place rapid systems of data collection, monitoring, and analysis to keep track of the children, to assess access, engagement, and learning, to support the design and improvement of these innovative arrangements with information and knowledge. While the capacity for creative improvisation is to be celebrated, there is little virtue in knowing that during this pandemic education systems were flying blind and that in many cases teachers were left to their own devices, without adequate support from leaders and administrators.

The education crisis documented in the chapters in this book makes visible also the vulnerabilities which many students around the world experienced, aggravated by the health and economic effects of the pandemic. They include lack of access to technology and devices, to time and a quiet place to study, to support from parents or to the focus and concentration which are possible when living without stress or hunger. As the opportunity to learn became more dependent on support from parents, disparities widened in the effective opportunities to learn facing children from different condition.

Educational opportunity is always, of course, a function of the interaction of family and social advantages with the opportunities afforded by the institutions of education. The many shortcomings of the institutions of education which too often sort poor children into schools of poor quality in which they do not learn much of relevance have been well documented (World Bank, 2018). But when those schools shut down for a long time during the pandemic, this made visible that despite those limitations those schools still served as a commons, as an institution that can level the playing field, relative to the alternative opportunities students have to study at home, which was the only option many students had during the pandemic.

These chapters, most focusing on low and middle-income countries, all document exceedingly long periods of suspension of in-person instruction. That governments in the countries examined in this book chose to keep schools closed for so long is surprising given how quickly governments realized the deficiencies of the alternative arrangements that had been put in place to sustain education and given the lack of evidence suggesting schools were places contributing to the spread of the virus. The chapters do not explain why national governments, or local education authorities, made this choice to keep closed for so long. By the end of January of 2021, UNESCO estimated that globally, schools had completely closed an average of 14 weeks, with the duration of school closures extending to 22 weeks if localized closings were included (UNESCO 2021). There is, however, great variation across regions in the duration of school closures, ranging from 20 weeks of complete national closings in Latin America and the Caribbean to just one month in Oceania, and 10 weeks in Europe. There is similar variation with respect to localized closures, from 29 weeks in Latin America and the Caribbean to 7 weeks in Oceania, as seen in Figure 1. By January of 2021, schools were fully open in only 101 countries (Ibid).

There are, along with this education crisis which summarizes the preponderance of the evidence available in this book, a few signs that some good things happened. They seem so few and dim, however, that characterizing them as silver linings or bright spots might be too much of a stretch. We will call them dim spots, until further evidence becomes available that warrants upgrading them to the status of silver linings.

One of these dim spots is that, in spite all odds, educators managed to put something in place to keep some semblance of education during a time of crisis. This reveals admirable professionalism and commitment to their students. The past year provided teachers as well as students an immersion in the use of technology to communicate and teach. Unfortunately, it

was sink or swim, as in-person instruction succumbed to the realities caused by the pandemic, by deficient health policies and by insufficient societal demand and education leadership and capacity to sustain in-person instruction.

Another dim spot is that these cases document considerable efforts on the part of teachers to communicate with parents. That we should find this surprising, or a cause for celebration, is as much a recognition of a small victory in the calamity as it is an indictment of school systems that operate with such detachment from communities that we should celebrate that the pandemic gave teachers and parents an opportunity for mutual recognition and collaboration.

Still a third dim spot are the many forms of teacher collaboration, most supported by technology, which were essential to sustain whatever semblance of education was retained during the last year. If anything happened in education during this dark period it was because teachers made it happen, and they made it happen largely because they were able to collaborate with peers, within their schools and across schools. This response was illustrative of the new power of networks, more important when the old power of bureaucracies proved unable to address a context turned upside down.

We can only hope that this pandemic might in fact lead to a renewal of a commitment to education, not just to repair the damage and loss that took place during the crisis, but to help address preexisting deficiencies. Perhaps after this long night is over, we will return to schools more committed to supporting all children so they can thrive. Perhaps we will be more intentional in educating whole students, attending to their socio-emotional skills as well as to their cognitive development. Perhaps we will recognize the importance of providing all students access to technology and connectivity, and the skills to use it well. Perhaps we will transform schools so that the work of teaching benefits from true collaboration among teachers, and where teachers are supported to develop the skills essential for professional practice, including the skills for digi-pedagogy. Perhaps education systems will develop the capacity and build the systems to build more resilient schools. And perhaps societies will recognize that to do this requires funding and will commit the essential resources to rebuild education systems, rather than further compound the damage caused during the pandemic starving them of resources. Perhaps... perhaps... perhaps.

However, what is certain at this time in March of 2021, based on the analysis presented in this book, is that in the countries examined in the ten chapters that follow, the last year produced a remarkable collapse of educational opportunities to learn, robbing the current generation of students of the opportunities to gain the same skills that their counterparts were able to develop the previous year. Unless effective efforts to correct such loss are put in place soon, the future for those students, and for their communities, will be less hopeful than it would have otherwise been. Only time will tell how such loss translates into other, perhaps much bigger, challenges for society. It is our hope in publishing this book that we may be able to act to prevent such global tragedy.

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Chapter Two

Future-proofing digital learning in Bangladesh: A Case study of a2i

Philip Bell, Mohammed Hosain, and Stephanie Ovitt

Summary

Bangladesh's digital education ecosystem has been tested to its limit during Covid-19. In response to the pandemic, Aspire to Innovate (a2i), the government's innovation unit, created new online learning platforms and strengthened existing ones. This article charts the project carried out by the authors to support a2i in turning their short-term progress on digital learning platforms into a long-term and sustained strategy. Based on insights from a mass survey of teachers in Bangladesh, our policy recommendations include a strategic communications program, teacher development for digital teaching, the use of SMS content and the creation of a monitoring and evaluation system.

Introduction

We aim to address the question of how the use of digital education platforms in Bangladesh can be strengthened and sustained over the long-term. 'Sustainability' in this context implies that the platforms are widely used by students (access is high), that students are encouraged to stay on the platforms to learn (retention on platforms is high) and that they improve over time in response to the needs of students (there is high capacity for system-strengthening). This was the major challenge that Aspire to Innovate (a2i), a government innovation agency, asked us to resolve in order to strengthen the Government of Bangladesh (GoB) response to Covid and their education provision going forward. This four-month project involved a consultation with a2i, around their work in providing digital education tools and platforms for The Ministry of Primary and Mass Education. GoB has emphasized the digitization of services in almost every public sector through Vision 2021 and 'Digital Bangladesh'. Since 2010, when the national education policy was last revised, integrating technology into the education system has been a GoB priority.

Specifically, this research details the authors' work for a2i to recommend methods for ensuring the digital education platforms (including EduHub, MuktoPaath, Ghore Boshi Shikhi Facebook page, Sangsad TV, and Radio) are used sustainably over the long-term for all students. Based on a review of evidence on the issues with Bangladesh's digital learning, meetings with a2i and focus group discussions with public school teachers and parents, a set of survey questions for further exploration was produced. The survey results were used to narrow the focus of the literature review and to lay out the potentially available policy options. Finally, the trade-offs involved in a2i's recommended policy response were evaluated.

Impact of Covid-19 on Primary Education in Bangladesh

It is hard to overstate the impact of Covid-19 on the education system in Bangladesh. The Ministry of Health confirmed the first cases of Covid-19 in Bangladesh on March 8th, 2020 (GoB, 2020). On March 16th, the Ministry of Education announced educational institutions' closure for two weeks (MoE Press Release, 2020). As of February 2021, the lock-down remains in effect, and schools remain closed. Of the 18 million primary students in the country, around 75% are enrolled in government-run schools (Abdullah, 2020). Bangladesh is also home to a sizable informal education sector run by various NGOs, serving roughly 1.7 million students, which has also been affected by lock-down measures (GoB, 2020). As a result,

millions of students are relying on distance learning measures put into place by the government to continue their education.

Interestingly, it was noted in a focus group discussion that some madrassas have been operating in-person, and, at least in several instances, students have transferred to attend in-person classes. The government has decided to auto-promote students to the next grade for the coming year and has confirmed that admission to primary and secondary schools next year will be done through a lottery system instead of admission exams (Abdullah, 2020). The temporal dynamics of the situation prompt us to consider the medium-term possibility of schools opening sporadically over the next six months and the possible exit from the Covid-19 pandemic in the event of mass vaccination.

Problem Definition

a2i's immediate problem during the pandemic was that millions of students were without access to education. While 13% of the Bangladesh population used the internet in 2019, according to the World Bank, only 5.6% of households have access to a computer (World Bank, 2019). 56% of households have access to a TV, but only 0.6% of the population have access to a radio (although more may be able to access radio through their mobile phones) (GoB, 2020). While 92% of families in the lowest wealth quintile do have access to mobile phones, only 19% of the total population have access to a smartphone (World Bank, 2020). Indeed, mobile phone usage is widespread, and it should be noted that there are phone contracts equivalent in volume to 99% of the population in Bangladesh (DataRe Portal, 2020). a2i's platforms use internet, Facebook, TV, and radio. However, due to these structural limitations, the combined total output of all digital platforms will not reach at least 40% of the total students.

Survey Findings

Our survey (available in English and Bangla) received 441 responses from teachers. It was administered by a2i and aimed to identify digital learning trends and explore how teachers are using distance learning platforms.

155 survey participants had used their personal Facebook page to teach, which was the most common platform used, followed by Zoom, the Ghore Boshe Shikhi facebook page, Muktopaath and Sangsad TV. However, the most common method participants used to access the internet was through smartphones (318 participants), compared to 109 participants who used their home internet. Most respondents indicated that they have access to several different technological devices, such as laptops (372), smartphones (417), and televisions (267). The most common means by which participants contacted students and parents was via phone (195) compared to visiting their homes (133), sending messages (123), and putting up posters (48). Most participants reported that between 0 and 50% of students were learning online, although there was wide variation. Only 2 participants reported that over 95% of their students were actively taking part in online learning. Furthermore, most indicated that they felt comfortable being on video to teach; and respondents, in general, felt their spouses were supportive of them teaching online, a promising indicator for incorporating digital teaching sustainably into the education system. The question about spousal support was included on the recommendation of the focus group because spousal support may influence access to the appropriate technologies or comfort teaching on video, especially given evidence that women may suffer from higher rates of digital exclusion in Bangladesh (Rashid, 2016).

Another critical finding of the survey is that respondents are eager to engage in teacher training, although only 55 participants reported having received training or development for using online learning tools. 355 respondents reported that they have been actively teaching throughout the lock-down, compared to 47 who had not. However, the survey revealed disparities in knowledge of different platforms. For example, 78% of respondents indicated that they had never heard of EduHub, did not have a good understanding of what is, or how to use it.

Literature Review

Sensitization and information campaigns

The effectiveness of information campaigns to promote learning and effective use of digital education infrastructure has been demonstrated in Randomized Control Trials across 12 countries (Banerjee et. al., 2020). Indeed, there are some common features across the most successful implementations of these programs. One consistently important characteristic of successful information campaigns is providing information of the ‘income-earning benefits of education’, especially if the benefits are not understood or are not prominent in peoples’ minds (Banerjee et. al., 2020). Secondly, it is critical that the information provider should be trusted, and that the information can be disseminated to students or parents through several channels (text messages, videos, parent’s meetings, report cards, educators.) Lastly, according to Banerjee et. al (2020), the students or parents should have the means to act on the guidance they are being given through the information campaign.

Similar findings come from studies demonstrating that SMS can be a particularly effective channel for informational campaigns to improve attainment both during Covid-19 and after. When a similar intervention was used in Chile to inform parents of learning resources this increased attainment among the treatment group by 0.2 standard deviations (Allende et al., 2019) five years after the intervention.

Educators’ capacity development

Our survey and focus group discussions suggested that teacher training is a major area where more support is needed. Not only did teachers report that they wanted training, but only 55 of the participants had had digital teacher training. A recent study on virtual training for educators in South Africa found that virtual training can be highly effective in preparing teachers to teach with digital technologies, even when the teachers were not familiar with new technologies (Kotze et al., 2018). Bangladesh could leverage Teachers’ Portal and MuktoPaath—two prominent online teacher education platforms—for professional development programs. Multilateral agencies and donor support have been a crucial part of the education recovery strategy for many nations. Uganda’s government has implemented a coordinated effort with the Belgian Development Authority to support the National Teachers’ Colleges for online training to boost ICT skills and computer-based learning (Joynes, et al., 2020). Given the lack of easy access to the internet, Bangladesh can also look to Rwanda, where mobile SD cards preloaded with resources are being utilized for remote continuous professional development for the teachers. GoB can leverage these experiences to customize different intervention strategies to build teacher capacity moving forward.

Scaling Access

There are phone contracts equivalent to 99% of Bangladesh’s population (DataRe Portal, 2020). Therefore mobile-based education offers a significant opportunity to scale the impact of existing platforms, especially Sangsad TV. International studies during the Covid-19 pandemic suggest that mobile-based assessment and education can significantly impact learning. For example, a recent study in Botswana (Angrist et al., 2020) showed that text-message based content and questions improved student numeracy outcomes significantly. This impact was doubled when it was paired with a phone call from an instructor talking the student through the learning materials. Indeed, in Edo State, Nigeria, formative assessment quizzes using QR codes have been successfully implemented (EdoHome, 2020). These recent examples provide strong evidence that this could be a viable option in Bangladesh. Indeed, evidence from the survey carried out by the authors suggests that WhatsApp programming or programming through SMS would be a viable option for the Ministry.

Analogously, to maximize the use of online resources currently offered, it may be essential to reduce the cost of internet access for educational resources through zero-rating. Electronic textbooks and providing academic certification for distance learning courses may increase access and incentivize learning in the long-term. However, as technological infrastructure improves in

the future, the balance between high-tech and low-tech solutions can slowly shift toward high-tech (OECD, 2020). Indeed, the use of mobile education provides far more scope to ensure that interventions are targeted to a particular learning level. Targeting at the right level has been found to be highly effective in driving attainment in India, Ghana, and Zambia (Bannerjee et al., 2016).

System access and monitoring

Hardware shortages present a bottleneck to scaling access to educational resources. One approach to this challenge was used in Guinea's Ebola outbreak, where UNICEF disseminated radios in rural communities. A cost-effective way to do this is to provide teachers with hardware to maximize their contact with students. However, it may be more important to lower barriers to internet use or phone use for teachers by offering free internet data toward select education websites, known as Zero-rating. This is already widely used in middle and low-income countries, for example in Zimbabwe's 'Econet Zero'. Government's incentives for zero-rating vary, including compelling companies to provide data for free and drawing on 'Universal Service Funds.' (Chuang, 2020).

Monitoring and evaluation are critical system-wide capacity assets. (World Bank, 2020) Among other countries, Peru has successfully implemented a Monitoring and Evaluation dashboard, which was initially populated with data from a mass survey of teachers and parents. Indeed, this feedback and user data on engagement with the different learning platforms were used to develop content. (World Bank, 2020)

Policy Alternatives

Criteria for Assessing Policy Recommendations

As we considered different alternatives to support the strengthening and futureproofing of digital education in Bangladesh, we selected three criteria that are particularly relevant to examine our alternatives. These criteria were drawn up in consultation with a2i.

- Access— in what ways does this intervention support the expansion of access to education for students?
- Retention— in what ways does this intervention support the goal of retaining students in the education system, both throughout the pandemic and in returning to schools?
- System-strengthening— in what way does this intervention support the strengthening of the education system as a whole or the distance learning systems in particular?

Recommendation 1: Conduct an information and Sensitization Campaign.

Survey data and teacher focus group conversations indicate that learners, families, and teachers may not be aware of the distance learning tools and platforms available, implying that not all students who have the technology to access distance learning are doing so. Furthermore, the platform of EduHub has not been announced or otherwise publicly disseminated, and teacher recognition of the platform is relatively low. Finally, a major concern highlighted by a2i was the retention rate of students—girls in particular—both during distance learning and in school reopening.

Therefore, a campaign that draws attention and sensitizes learners to the platforms available and provides information on the benefit of utilizing these platforms could boost access and learning. As mentioned above, emphasizing the economic benefit of learning is an important ingredient in ensuring that information campaigns translate into retention and learning gains. (Banerjee et. al, 2020)

The information campaign could be strengthened through support from NGO Partners, other ministry departments and through leveraging the use of SMS as a communication channel. The creation of a digital learning cartoon character could effectively champion digital education platforms and reach young people. A precedent for this is the widely recognizable character 'Meena' created by UNICEF in the 1990s.

Recommendation 2: Teacher development for digital teaching

While most respondents in the survey stated that they received some form of teacher training, only 27.46% reported that they received training focusing on remote or digital teaching. Similar findings were repeated during a focus group discussion with teachers. Their responses highlighted that currently available ICT training has been insufficient for their needs and they expressed uncertainty about the effectiveness of the current remote learning intervention, often citing their lack of knowledge and confidence in remote teaching as one of the primary reasons. Given this, we propose creating and distributing a Digital Teaching Best Practices Guide, including strategies and expectations for direct contact with students and parents.

Secondly, as found in the South African and Ugandan contexts, online digital training can be highly effective. Therefore, in line with the needs teachers expressed through our survey, we recommend providing an online digital teaching course for teachers. Specifically, survey participants expressed particular interest in accessing training about how to leverage smartphones for teaching.

While an information campaign will rapidly increase the effective use of platforms, the use of resources to encourage a change in mindset over digital education will only have long-term impacts, if students find the quality sufficient to merit retention. Indeed, using NGO partners to deliver the campaign may be useful in the short-term for scaling the campaign quickly. However, if GoB is to have control over the nature of the campaign then it may be necessary to ensure that it is rolled out by the Ministry itself. The major assumptions here are that the NGO partners will be willing to take part and changes in information will lead to changes in behavior.

A potential trade-off might be that linking education to income in messaging may encourage a long-term view of education from an economic perspective, which may lead to a short-term and deterministic understanding of the benefits of education. Another concern that should be considered is that relying on NGO and other partners to disseminate information could involve a loss of control over the direction of the campaign.

Another trade-off is that best-practice guidelines for teaching digitally may hamper creativity—however, our assumption is that this will have a relatively small impact, and therefore any trade-off will not be significant. For the short-term purposes of enhancing education in the event of schools remaining closed, the most effective option is providing support for teachers to contact students (in the form of easier access to phones and reduced network rates (Alternative 2.b)) However, a long-term approach to enhancing the use of digital technology to improve teaching is to use MuktoPaath to provide a comprehensive teacher training course in using digital resources. An inherent trade-off with this alternative is that moving toward more distance learning training systems may discourage older educators from actively taking part in capacity development.

Recommendation 3: supplementary SMS content

SMS content is the most direct way to rapidly address the shortfall in access. SMS can be leveraged to provide more contact between teachers and students, especially if teachers are supported with free SMS to contact students. Evidence from Angrist et al (2020) indicated the effect of SMS education was doubled when phone coaching was added. This suggests that SMS can be used to facilitate greater support and guidance form learners remotely.

Pairing SMS quizzes with Sangsad TV content is an effective way to transform content into interactive, and possibly adaptive, learning experiences. A more ambitious program would design entirely new SMS content to produce adaptive content that is differentiated to the students' age and level of learning. There is clear evidence that differentiation is an effective feature of educational interventions (Banerjee et al., 2016). An important precedent for SMS content is the work by Pratham (2020) in India to keep SMS content fun, including using riddles and stories that may increase use of SMS.

Although a process of emergency distribution of radios has been useful in other countries (UNICEF, 2020), our survey data corroborates several external data sources in

suggesting that radio is not currently a widely used aspect of the educational ecosystem. Indeed, a more effective approach, in terms of its ability to scale fast and reach students who have access only to mobile phones would be to introduce mobile phone-based education. Using SMS as a supplement to Sangsad TV content would improve the quality and retention for Sangsad content. However, it would not improve access because the students would need to be able to access existing Sangsad content. However, a full SMS content program would be able to scale access to students who currently cannot access Facebook, Sangsad TV or radio (which is over 50% of the population, as described in Section 1), but who do have access to a phone. Since there are phone contracts equivalent to 99% of the Bangladesh population it is reasonable to assume that a significant number of students who are not able to access existing content would be able to access it through a mobile phone.

Due to the systematic lack of user access to relevant technologies, we recommend supplementary SMS content as an important immediate step in improving equity and access to digital education across the country.

Recommendation 4: Monitoring and Evaluation Dashboard

a2i informed the authors that a significant area of potential improvement is monitoring and evaluation (M&E) of the learning platforms. Indeed, the fact that only 12% of survey respondents 'know what Eduhub is and how to use it' suggests that increasing monitoring data and feedback from platforms may be necessary to shape content creation and adapt overall strategy. a2i have informed the authors that there is currently no centralized evaluation and monitoring system that spans across platforms. The alternative of an M&E dashboard would fulfill this purpose. Peru successfully implemented a monitoring and evaluation dashboard and found that WhatsApp is by far the largest platform for interaction between students and teachers. (World Bank, 2020).

In the long-term we recommend a nation-wide assessment leading to a digital-divide mapping, which can better represent the lack of access and availability of technology of educators and learners. Access should be defined through multiple tangible and intangible indicators with emphasis on social access to technology. This will allow the education ministry to take on a more strategic approach to distributing funding for infrastructural development. Along with that, the government could establish an access-to-technology interactive platform that highlights the availability of electricity, internet, and digital devices of learners and educators in real-time and recommends a customized set of best practices that should be used by teachers from a specific region.

This recommendation involves high levels of input capacity but is most important if it is assumed that distance learning will be important over the long term. A monitoring dashboard will likely take significant implementation time. If the timescale of the pandemic is shortened by the recent successful vaccine trials, then the immediate priority must be interventions with immediate impact (namely recommendations 1 and 2).

Conclusion

These alternatives work in tandem. A successful information and sensitization strategy will necessarily improve the use of SMS content, or Sangsad TV quizzes. Similarly, the successful implementation of online teacher development for digital content will increase the quality of distance learning, incentivizing students to stay in the education system, improving retention, and increasing effectiveness of both evaluations and informational campaigns.

These recommendations would build on the strides a2i have already made. Their progress to produce a high-quality digital infrastructure during Covid-19 should not be underestimated. To take one example, the creation and continued teacher use of MuktoPaath, which provides an unprecedented number of educational courses in Bangla, is a huge achievement. The fact that 70% of survey participants either occasionally or frequently use MuktoPaath speaks to this success. Eduhub, Sangsad TV and Ghore Boshe Shikhi Facebook have been rapidly rolled out.

This pandemic has given a rare chance to reshape how education can be approached in Bangladesh. More importantly, it has increased the tolerance of most stakeholders willing to

work toward and accept major changes. Now is the appropriate time to take bold measures that will focus on massive systems-level change while implementing incremental improvement that will aid learning in the short-term. In this vein, it is alarming to see that the proposed budget for FY 2020-2021 education sector remains unchanged following the devastating impact the pandemic is continuing to cause (Alamgir, 2020).

The suite of interventions that are recommended to be introduced immediately (specifically an information campaign and a digital teaching program) would improve access and retention in the short-term context of the global pandemic. Large increases in access and retention can be achieved by proactively encouraging students and parents to use platforms more and developing training that will enable them take advantage of these new platforms. However, it is important to recognize that it may be necessary to complement these interventions with long-term systematic reforms, including an M&E dashboard and a deliberate approach to collecting data on the roll-out of digital tools.

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Chapter Three

Resiliency in Uncertainty: Sustaining and Strengthening Primary Education in Belize during the Covid-19 Pandemic

Claire Chadwick, Charley Kenyon, and Mary Nagel

Summary

When schools closed for in-person instruction on March 20, 2020, responding to the Covid-19 pandemic was not the only challenge facing the Ministry of Education of Belize. The closure of the country's borders brought its tourism-based economy to a standstill, leaving many Belizean students and families facing an uncertain economic future. Natural disasters presented further uncertainty, while the outcome of general elections brought a new political party into power. This chapter was generated through consultations with the Ministry of Education of Belize using primary data collection and careful review of relevant comparative literature. Through this consultative process, the authors developed a series of recommendations for the Ministry's response efforts to support primary education. The authors' proposed recommendations are two-fold: strategies for the immediate mitigation of learning loss and strategies to build a post-pandemic recovery plan beyond the Covid-19 pandemic.

Context

As countries around the world continue to be affected by the Covid-19 pandemic, many are turning to high-performing countries to learn from and develop their own action plans. However, given globally evolving health conditions and other varying contexts, it is difficult, if not impossible, for a strategy that might have been successful in Singapore to work in Canada, for example. However, with careful consideration to context, lessons learned from one nation can be extrapolated and applied accordingly to mitigate the immediate effects of Covid-19 on education systems. Therefore, it is imperative at this time that leaders cast a wide net as they search for solutions that will allow them to continue educational efforts in their respective contexts.

Belize has not been spared by Covid-19; the pandemic and subsequent effects have impacted many parts of Belizean society. The pandemic has affected tourism as the country, like many others, closed its borders to the outside world to stop the spread of the Covid-19 virus. This is particularly salient for a country like Belize, where over a third of total employment is based on the tourism industry (World Trade Organization, 2017). The economic devastation of the pandemic is global, but Belize's reliance on tourism has led to unprecedented economic disruption for the country. This economic disruption has resulted in the unemployment of many parents and caregivers in Belize, further exacerbating the uncertainty and adversity that students are living with during the pandemic (UNICEF, 2020).

With regards to education specifically, the Ministry of Education closed all schools on March 20th, 2020. This resulted in severe consequences for students already suffering from a lack of essential resources, including ICT¹ (information communication technologies) infrastructure to transition to tech-enabled remote learning. In Belize, only 57.2% of households have access to the internet and 46.2% have access to cable television (SIB, 2019), which meant that any tech-enabled distance learning would leave out a significant portion of Belizean students. While the Ministry was able to provide required ICT at the secondary and tertiary level, funding was insufficient to provide for all primary school students. Therefore, to ensure

¹ The lack of ICT included both a lack of physical tech-enabled devices, and a lack of internet and data.

equality of primary school student learning, printed learning packages, a criterion of highest concern to the Ministry, were used to maintain educational continuity during the Covid-19 pandemic.

In addition to the challenges presented by the pandemic, Belize, like much of the Caribbean and Central American region, is also particularly prone to various natural disasters, from flooding to hurricanes. In November 2020, serious flooding across the country resulted in widespread damage and disruption of daily life (Relief Web, 2020). This flooding further impacted the Ministry's ability to respond to the pandemic and exacerbated the already significant levels of psychological stress of students and caregivers (International Federation of Red Cross and Red Crescent Societies, 2020).

Amidst the recent natural disaster and on-going pandemic, Belize also proceeded with the country's general elections to see if Prime Minister Dean Barrow's party - who had led the country for the last 12 years - would continue to steward Belize through the on-going crisis. Elections took place on November 6th, 2020 resulting in a democratic transition of power to the newly elected People's United Party (PUP). The incoming PUP Prime Minister, Johnny Briceño, reconfigured the Ministry to become the Ministry of Education, Culture, Science, and Technology, and appointed Francis Fonseca as Minister². Minister Fonseca, alongside newly appointed Chief Education Officer, Ms. Yolanda Gongora, who previously served as a teacher, principal, and leader within the Ministry of Education, would prioritize the formation of a Covid-19 Task Force to respond to the most pressing education needs across all sectors of education.

The incumbent Ministry would inherit an education system facing severe challenges, which had been significantly worsened by the pandemic. These challenges included school closures, limited ICT at homes, limited support at home to foster learning, and much more. Despite these difficulties, the response of Belize's education system throughout the Covid-19 Pandemic has demonstrated significant resilience, from which we believe a myriad of lessons can be learned for other counties facing similar constraints, especially with respect to limited national data and access to ICT (see Chapter 5 Guatemala).

Positionality

The authors of this chapter were fortunate to collaborate with a dedicated team from the Belize Ministry of Education as the Ministry navigated the complexities of the pandemic. Throughout the consultancy, the authors were not based in Belize nor do they have lived experiences working in the education system in Belize. Due to Covid-19 travel restrictions, the authors worked with the Ministry remotely and are particularly grateful for the insights and guidance provided by this team to support primary school teachers in adapting to pedagogical shifts to ensure continuity of learning.

The authors also recognized the unique opportunity to learn with and from the frontlines of an education system which resembled many other middle-income countries around the world. Belize did not have access to PISA scores, limiting their ability to partake in, and learn from, comparative perspectives and the Global Education Movement more generally. As such, the authors recognized that without these international comparative tools, adapting interventions to the Belize context would be challenging, but the authors remained committed to support the Ministry's response efforts.

Despite these challenges, the authors accessed significant literature and data from the Global Education Movement to support the Ministry in learning from international response efforts to the pandemic. The following section showcases the authors' consultancy process, from collaborating through virtual consultations with the departing Ministry officials through the political transition to the new administration in office as of January 2021. At the time this chapter was finalized (February 2021), newly elected officials had recently been placed in the Ministry of Education and schools across the country remained closed.

Consultancy Approach

² <https://www.moe.gov.bz/minister-of-education-culture-science-and-technology/>

The authors first met with a team from the Ministry of Education of Belize, including the then-current Chief Education Officer and two Education Officers, on September 11, 2020 via Zoom. When schools closed on March 20, 2020, the Ministry moved quickly to deploy guidelines for primary schools across the country and instructed teachers to develop printed learning packets for caregivers to pick up from and return to school weekly, to ensure continuity of learning. Based on this decision, the Ministry asked the authors to focus on developing a strategy to help caregivers better support students as they completed the printed learning packets at home.

To iterate on the problem, the authors performed initial desk research through which they reviewed all available documents on Belize’s Covid-19 response efforts, as it pertained to education. This included the protocols for closing schools, the Covid-19 abridged curriculum and the considerations which were being taken before schools could re-open. From this initial review and consultations with the client, the authors proposed a problem statement based on a new understanding of the problem (see Figure 1). This problem statement was too few students engaged in learning at home during the Covid-19 pandemic.

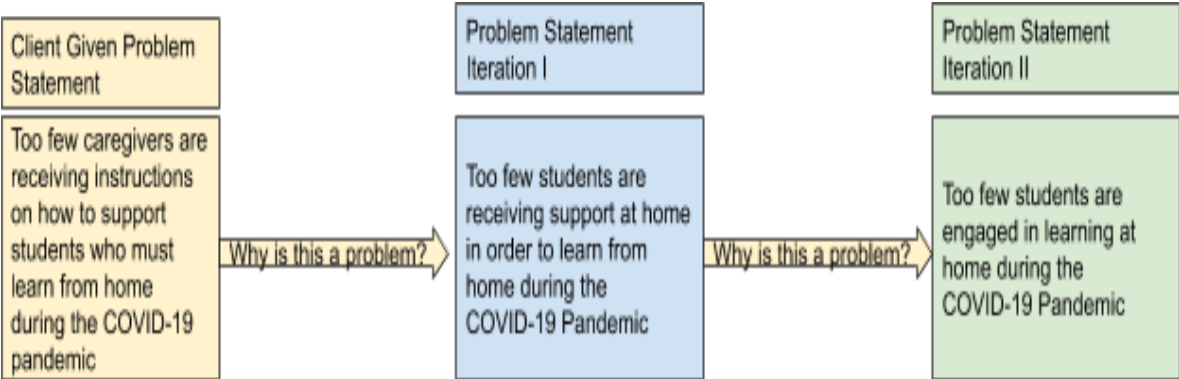


Figure 1 - Problem Statement Iterations

The authors recognized the need to address the lack of available data to be able to identify the root cause as to why there was such limited student engagement in relation to printed learning packet completion. Furthermore, throughout consultations with the Ministry, the authors realized that there was limited data on student learning from before the Covid-19 pandemic against which to benchmark student learning during the pandemic. This included limited information on conditions such as languages spoken at home, primary school enrollment, and national test scores (C. Babb, personal communication, Oct. 16th, 2020). To work through these limitations, the authors developed a plan with the Ministry to collect real-time data to inform response efforts.

Understanding the Problem

Recognizing that the authors had yet to speak directly with any teachers who were responsible for creating the printed learning packets and liaising with the caregivers at home, the authors organized a focus group with 10 primary school teachers and 1 primary school principal in the Belize District. Authors solicited teacher's inputs to document the realities teachers were facing in maintain continuity of learning, to help inform the policy recommendations for the Ministry.

From this focus group, the authors learned that primary student engagement during the Covid-19 pandemic was presenting significant challenges. The authors did not, however, understand the specific mechanisms and conditions leading to low student engagement. As mentioned, students in Belize faced significant adversity during the 2020 calendar year, including the pandemic itself, the related economic implications on many families, and significant flooding. As such, the learning challenges faced by students was unsurprising; it is widely understood that when a child experiences a significant level of trauma or adversity their brain moves out of “learning mode” and their executive function decreases, drastically limiting their ability to learn (Terrasi & Crain de Galarce, 2017; Barr, 2018; Sitler, 2009). Furthermore, evidence shows that, in the case of natural disasters, these impacts on learning for primary school students may last for several years (Wolmer, Hamiel, & Laor, 2011).

Looking to the Covid-19 pandemic specifically, the World Bank speculates a potential loss of 0.3 to 0.6 years in mean years of student achievement globally, due to this pandemic (World Bank, June 2020). In addition to this learning loss, available literature largely agrees that school closures, and more generally the Covid-19 pandemic, will negatively impact the mental health and emotional well-being of students (Miranda et al., 2020; Radwan et al., 2020). It was the authors' belief, based on the focus group and this initial research, that the disruption of daily routines, social isolation, and vulnerable socioeconomic conditions – all conditions affecting primary aged students in Belize – would have long term effects on teaching and learning in Belize (ECLAC-UNESCO, 2020; Miranda et al., 2020).

Despite this concerning trend, there is significant evidence that schools, and teachers, can be deeply healing to students following trauma or adversity, and that this support can allow learning to resume (Mutch, 2015; Terrasi & Crain de Galarce, 2017). Moreover, social emotional learning (SEL) has been shown to be particularly powerful in allowing students to re-engage, and to resume learning after trauma or adversity (Powell & Bui, 2016; Salloum & Overstreet, 2012). SEL has been acclaimed for its relatively easy implementation, widespread availability, and significant benefits for students (Powell & Bui, 2016). This understanding led us to the belief that social-emotional learning may, in fact, be a key point of intervention in the case of Belize, and perhaps promote re-engagement and continued learning for primary school students.

The authors' belief that SEL was a key intervention was further validated both by the focus group and the Ministry. During the focus group, many teachers expressed that they were informally attempting to promote SEL through activities such as reading scripture to students attending a religious school, encouraging connection between students and caregivers, or providing arts-based activities. Moreover, the Ministry recognized and affirmed that SEL was currently missing from Belizean primary schools and that SEL held value within this context.

Reviewing the Literature on Social Emotional Learning During Crisis

Based on a collaborative decision with the client to focus efforts on the benefits of social emotional learning for students, the authors conducted a literature review to better understand leading research on SEL. While social emotional learning (SEL) is a rather large umbrella term, we utilized a common, and well-researched, definition of SEL – SEL as the focus of developing three primary skill groups: cognitive skills, emotional skills, and interpersonal skills (Jones & Doolittle, 2017; Jones et al, 2017; McClelland et al, 2017; Aspen Institute, 2019). We found that there was significant literature that indicated teacher delivery of SEL that focuses on these cognitive, emotional, and interpersonal skills can be highly valuable to student wellbeing, including student wellbeing after crisis (Cahill et al., 2020; Müller & Goldenberg, 2020; see also Freeman & Strong, 2017; Schonert-Reichal, 2017).

Three key themes emerged from the literature review: supporting emotional resiliency in students; building strong teacher student relationships; and promoting teachers' own emotional resiliency. All three of these themes address, in their own way, how developing the social emotional learning of students can help them cope with crises, be more engaged in school, and subsequently, produce stronger academic performances.

Firstly, looking at emotional resiliency, defined as a dynamic, complex process which allows an individual to overcome, or mitigate, the effects of adversity based on external supports and internal characteristics and coping skills (Masten, 2014; Rutter, 1999, Ungar, 2012; Panter-Brick, 2015), the authors found it is essential to wellbeing both during and after crisis (Gouin et al., 2017; Woods-Jaeger et al., 2018). Additionally, the authors found that SEL can support the development of emotional resilience following a crisis experience (Cahil; et al., 2020; Cramer & Castro-Olivo, 2015; Greenberg et al, 2017). This has been found in numerous settings, including the United States during the aftermath of Hurricane Katrina (Cramer & Castro-Olivo, 2015), Israel during the Gaza War (Asarnow, 2011) and Lebanon following the Lebanese War (Buam et al., 2013). In all these examples, students' wellbeing and resilience was improved, because of SEL instruction following or during a significant crisis. While it is ideal to start SEL prior to a crisis, the examples display the potential benefits of strengthening student emotional resiliency when students experience trauma.

Secondly, looking at student-teacher relationships, it has been well established that this relationship, fundamental to learning, can hold immense protective power against the effects of trauma (Brunzell, Waters & Stokes, 2015; Bernstein-Yamashiro & Noam, 2013; Dods, 2013; Van Loan & Garwood, 2020). This relationship has been proven to improve academic performance in students, especially following trauma (Cornelius-White, 2007). Moreover, within the specific context of the Covid-19 pandemic, several authors have suggested that the teacher-student relationship has been important for mental health during remote learning and will remain important as schools reopen (Cahill et al., 2020; Fontenelle Tereshchuk, 2020; Wall, 2020). The importance of this relationship is particularly relevant in the Belize context where the trauma of the Covid-19 pandemic has been coupled with the traumas of hurricane season and severe flooding. Once a strong student-teacher relationship is established, teachers are well-positioned to provide essential care to heal any potential emotional damage the student has gone through (Foote, 2015) and eventually contribute to improved academic performance (Cornelius-White, 2007). As Belize's primary schools are entirely remote, and ICT is not being formally utilized, there are minimal opportunities for teachers to build strong relationships with students. However, students are evidently experiencing trauma, which strong teacher-student relationships can buffer against. With schools closed and limited learning opportunities available for students, an intervention that prepares teachers to build relationships with students as soon as possible is critical to mitigate longer term learning loss.

Finally, looking at teacher emotional resiliency, it has been well established that for teachers to support students, teachers must first be supported themselves (Cahill et al., 2020, p. 31; O'Toole et al., 2016; O'Toole, 2018). Research has found that teachers with more developed emotional skills tend to report less burnout and greater job satisfaction, addressing two of the primary causes of teacher attrition (Moeller, 2018). Moreover, in the absence of such emotional skills, teachers who had experienced a trauma reported significant and concerning levels of burnout (O'Toole, 2018; Kaloo et al., 2020, p. 9). This finding remains true within the context of the Covid-19 pandemic, as adapting to new methods of education delivery has put stress on many teachers (Cahill et al., 2020). This demonstrates that supporting teachers' emotional resiliency is essential if teachers are to be tasked with supporting student resilience, in a context where trauma is as prevalent as it has been in Belize. Moreover, teacher attrition considerations should be particularly salient in Belize, given the relevant limitations on Belizean human capital (Näslund-Hadley, et al., 2013).

As of January 2021, primary schools in Belize remain closed for in-person instruction. The task of meeting the emotional and mental health needs of students, and ensuring that students remain invested in learning, has fallen largely onto Belizean teachers, like it has for most educators around the world. As previously elaborated, the literature addressing past crises suggests it is paramount that teachers are empowered to establish healthy, safe relationships with students and can promote their students' sense of belonging, emotional resilience, and coping mechanisms to manage stress. In the context of Belize specifically, data suggests that a significant percentage of the population has lost their job or seen a reduction in income, indicating that parents and caregivers are in a position of extreme vulnerability during the pandemic (UNICEF, 2020). Therefore, parents could benefit from an intervention focused on teachers as it allows parents to focus on providing economic stability for their families and leverages this strong potential that research demonstrates teachers have in crises. For teachers to be successful in this critical endeavor, it is essential that they are supported in maintaining their own resiliency and wellbeing as well.

Primary Data Collection

After reviewing relevant literature, the authors in collaboration with the Ministry, developed two surveys: one survey had the goal of capturing the realities of primary school teachers in Belize at the time of distribution (November 2020) and the second had the goal of determining the level of awareness and integration of social emotional learning into the printed learning packets being sent home by primary school teachers during the Covid-19 pandemic. The questions were developed in conjunction with the Ministry to ensure they were culturally competent and met the needs of those serving on the ground in the Belizean education system.

These questions, which were validated against a focus group, included a variety of short answer and multiple-choice questions aimed at gathering complex and triangulated information. The surveys were sent out to education officers across all six Belizean districts, and received 197 and 185 responses respectively³. However, it is important to note that most of the results that came in were from the capital district, Belize District. Despite this limitation, the surveys still provided the authors and the Ministry with valuable insight upon which to build.

One noteworthy emerging theme was the teachers' concern about the wellbeing of their students. It was particularly distressing to find that in the authors' survey, 1 out of 5 teachers responded that they did not believe that their students had meaningful relationships at home. They also found that 35% of the teachers in the survey did not believe that their students had structured routines at home to complete learning packets. These findings led us to discuss with the Ministry some of the limitations of deploying printed learning packets.

The authors were particularly encouraged to see that 90% of teachers reported that they believed it was their responsibility to integrate activities to promote student wellbeing into the learning packets and many were doing so informally without guidelines from the Ministry. These results led us to believe that in a pandemic-timeline dependent on immediate results, anchoring any recommendation to leverage the existing strength of Belize's teachers would be critical to mitigate learning loss and ensure continuity of learning.

Policy Analysis

Determining the Criteria

Once the authors developed a comparative understanding of SEL interventions deployed during the Covid-19 pandemic, they began conversations with the Ministry to determine the most appropriate criteria to evaluate the proposed policy recommendations. The process of determining these criteria was essential, as the authors needed to ensure any recommendations were applicable, and could be effective, in the specific context of Belize.

Hit the Target

Building from the work of Eugene Bardach, the authors chose “Hit the Target” as one of the essential criteria. The authors defined “Hit the Target” to make sure they were achieving the three goals, as were defined in the literature review: 1) supporting emotional resiliency in students; 2) strong teacher student relationships; and 3) teachers’ own emotional resiliency and healthy relationships. In short, this criterion allowed the authors to ensure that the policy recommendations did, in fact, accomplish the authors' goals of improving student SEL, and thus, student engagement.

Equality

According to the Ministry, equality is defined as ensuring all students have the same level of access to learning during the Covid-19 Pandemic (Babb, personal communication, 2020). While the authors recognize that in most education spaces, equity is a better proxy for meeting these needs, the Ministry felt strongly that all students in Belize receive the same educational experience, and thus, the term equality is more accurate.

Cost

In consultation with the Ministry, cost was deemed an essential criterion along which policies needed to be measured. This is particularly important in Belize as limited funds are available within the country. Most of the education spending in response to the pandemic was allocated to provide laptops and data packages to secondary and tertiary education, leaving less resources for primary education investment and making cost a crucial consideration for the proposed policy recommendations.

³ According to the Statistical Institute of Belize there are approximately 3,330 primary school teachers in Belize. As such, this sample size represented approximately 5% of all primary school teachers in Belize.

Timeframe

Finally, considering the uncertain nature of the Covid-19 pandemic, the authors determined that the time in which a policy could be deployed was an essential consideration. Upon further consultation with the Ministry and based on an understanding of how trauma affects learning, the authors adapted their timeframe criteria to incorporate both an immediate and post-pandemic timeframe. Distinguishing between these two timeframes would allow the Ministry to both meet the immediate needs of teachers and students, while also planning for a post-pandemic recovery to build and strengthen a more resilient Belizean education system.

Policy Scenarios

The following section highlights a series of policy scenarios developed by the authors with careful consideration to the Belize context, and the potential of each scenario to contribute to the continuity of learning across primary education in Belize.

Policy Scenario I - Add Social Emotional Learning outcomes to the 2021 National Learning Outcomes

In Belize, National Learning Outcomes (NLOs) act as the national curriculum and dictate the competency, skills, and knowledge which all students should gain, while maintaining teachers' autonomy to design lessons. As such, embedding SEL into the NLOs could be a strategic approach to increase the amount of, and improve the quality of, SEL in Belizean classrooms. Moreover, the use of NLOs to ensure students' learning in support of a change in pedagogy is well established internationally (OECD, 2011; Liang, Kidwai & Zhang, 2016). For example, in Singapore, to advance the education system and implement 21st century skills, detailed learning outcomes were created to guide policy makers, teachers and students (Tan et al., 2017).

In Belize, over 500 NLOs determine the skills, capacities, and learnings to be gained by all students. Currently, 44 outcomes refer to SEL indirectly, throughout the 7 primary grades. As such, NLOs provide an exceptional opportunity to ensure that the pedagogical change is reflected in classrooms throughout the country. As such, we recommend the addition of NLOs which are directly related to SEL, in addition to the current 44 outcomes which refer to SEL indirectly. By ingraining SEL competencies into the NLOs, teachers will be required to support students' SEL, while retaining their own autonomy to do so in ways that are culturally competent and appropriate. Therefore, this policy scenario aptly *Hits the Target*. Moreover, this has the potential to be highly equalizing, as all students will benefit from the NLOs. We do, however, recognize that to ensure this policy scenario is truly equal, teachers must receive sufficient training to be able to integrate SEL. We foresee this policy scenario as being financially feasible. Finally, as Belize is currently in a review process for the 2021 NLOs, this is a strategic and feasible time to incorporate SEL. While the completion process of this scenario may be relatively slow, it is likely to help with post-COVID recovery, and thus, is worthwhile despite the longer timeframe that would be required to implement this policy.

Policy Scenario II - Strengthen Teacher Capacity to Bring SEL into the Classroom

The Ministry of Education was aware of the need to support teachers during the Covid-19 pandemic. In July 2020, the Ministry held virtual training for teachers in partnership with international organizations to prioritize the skills necessary for remote learning (UNESCO, 2020; Brazil-FAO International Cooperation, 2020). However, based on the authors' literature review and internal data from their survey (79.8% of teachers have reported that they feel it is their responsibility to incorporate wellness into remote learning activities), the authors believed that the Ministry should begin to consider prioritizing the skills necessary to support students' social and emotional learning. The authors presented this policy as one that leverages the strength of Belizean teachers, with a strong chance of success in mitigating learning loss in this moment.

The authors' comparative research across countries emphasizing SEL during Covid-19 suggests that supporting teachers can lead to increased student engagement. For example, Uruguayan teachers frequently used materials from the initiative *Ceibal en Casa*. Teachers cited their continuing use of this platform because they felt well-supported by the initiative and were

given access to materials and strategies for maintaining relationships with their students (Ripani, 2020). Preliminary analysis of this program suggests that 85% of primary school students have been reached in some capacity by *Ceibal en Casa* (Ripani, 2020). And in New Zealand, with the *Te Rito Toi* initiative, teachers were trained on the importance of socio-emotional wellbeing of students and provided information on how to build up SEL in their students, as well as set their own boundaries to support their own emotional resilience. Over half of the primary school teaching force in New Zealand accessed these resources, and in the first month of the program, the website was accessed 250,000 times by 37,000 teachers, over 50% of the total teaching workforce (Van Lieshout, 2020; Education Counts, 2019). While it is important to recognize the educational systems of New Zealand and Uruguay are not entirely like that of Belize, the initial results coming out of these SEL-based programs suggest that a focus on SEL is one that many teachers are already embracing. It is also worthwhile to note that in Belize specifically, primary school teachers are, according to the authors' focus group, already modeling informal SEL in their teaching and therefore would be an ideal lever to anchor an SEL-intervention to increase student engagement.

Based on these varied contexts of SEL integration during Covid-19 and the successful precedent for online-based in-service teacher training in Belize, the authors suggest that the Ministry develop a series of online workshops that build teacher capacity to implement SEL in the remote classroom. To aid in the effectiveness of the training, the authors propose that the Ministry create a guide to distribute to all teachers that highlights what SEL is, why it is important, and how it can be implemented. The proposed guide would be a short informational tool that would provide teachers with pertinent information defining SEL and what it may look like in the classroom in the context of at-home learning. Given that equality is a critical criterion, building teacher capacity is one of the more accessible and equitable policy options due to the systems already in place related to teacher training. Teachers would have access to the same training, meaning that students would theoretically be receiving a similar exposure to SEL competencies regardless of where they go to school. In addition, if workshops are offered virtually on Mondays and/or Fridays, there will be a higher chance of attendance as all teachers are required to be in schools on those days and will therefore have access to the necessary ICT to connect to the trainings (Babb, personal communication, November 19th, 2020). Due to this policy's emphasis on equality, ability to hit the target as it relates to SEL, and its relatively low cost and short timetable compared to the other scenarios, this policy scenario was well-received by the Ministry and such a guide, with a series of trainings, could be an extremely useful tool for Belizean educators at this time.

Policy Scenario III - Add an SEL dimension to Teacher Pre-service Training

When making changes or additions to any curricula, pre-service training is vital as it ensures teachers are well-versed and well-prepared to execute the vision of the curriculum (Stephens et al., 2004). Therefore, another scenario worth considering is the addition of SEL into the pre-service teacher training of Belizean teachers. Every teacher in Belize is required to go through pre-service training in which they learn best practices, theories, and pedagogies of teaching as a partial fulfilment of their requirements toward a teaching license (C. Babb, personal communications, October 9, 2020). Under this policy scenario, all teachers will be taught SEL during the two-year pre-service training and thus, a culture of integrating SEL into the classroom will be developed. Evidence shows that this will increase students' emotional resiliency, improve student-teacher relationships, and improve teachers' own emotional resiliency (Cahill et al., 2014, p. 10; Schonert-Reichl, 2017; Legette et al., 2020; Collie et al., 2012). By requiring all teachers to gain SEL competency during their pre-service training, this policy scenario will ensure that all new teachers have equal exposure in SEL, build capacity for structural change that values SEL, and guarantee the longevity of any such SEL-based reform. While this scenario is likely to be far more costly than others, it is timely in the current educational context of Belize as the Teacher Institute of Education (the body responsible for teacher training in Belize) is in the process of revision, a practice that only occurs every 3-5 years (C. Babb, personal communications, October 9, 2020) and now would be the perfect time to begin a multi-year programmatic adaption.

Policy Scenario IV - Prepare Caregivers to Deliver SEL

Originally, the Ministry felt strongly that caregivers held significant potential to support students learning during the Covid-19 pandemic, and to act as co-facilitators of learning in Belize (C. Babb, personal communication, September 18, 2020). Internationally, this has been attempted; Minneapolis in the United States successfully created a framework to help parents support SEL while students were learning from home due to the Covid-19 pandemic by engaging in activities with students offline and then encouraging students to share their experiences online (Alexander et al., 2020). While this does display the potential for caregivers to be engaged as co-facilitators of learning in Belize, doing so would address neither student-teacher relationships nor teachers' own emotional resiliency. Further, in all contexts, a policy targeting caregivers leaves little room to address equality as children have varying relationships with their caregivers, and caregivers often face financial and time restraints that limit their ability to support learning. These relationships, and potential barriers, may lead to vastly different outcomes.

In the Belize context specifically, teachers who participated in the authors' survey estimated that 21.2% of students did not have a supportive relationship with a caregiver, further raising equity concerns. Moreover, it is important to reiterate that many caregivers across Belize are facing significant stress from the pandemic, which would likely impact their ability to serve as co-facilitators of learning. Due to the large portion of Belizeans who are either employed in tourism or in the informal economy, the unemployment rate in Belize has increased dramatically during the pandemic and is roughly around 22% (Economic Oversight Team, 2020). Moreover, the poverty rate has increased to 41.3% (Pan American Health Organization). This is likely to decrease caregivers' ability to co-facilitate learning, which may create large variations in access to SEL for students. This is further compounded by the significant linguistic diversity of Belize. According to the authors' survey data, 31% of caregivers are not literate in English meaning that an English program would be inaccessible to potentially a third of the population. While English is the official language of instruction, and thus the language of official school communications and printed learning packets, English is not always the primary language spoken in homes in Belize. As such, a program targeting caregivers would need to be translated into an array of languages. Moreover, this policy scenario is likely to be more expensive than the authors' comparable policy scenario of directly training primary teachers.

Recommendations

Based on the analysis, the authors proposed a series of recommendations considering an immediate approach to mitigate learning loss as well as post-pandemic recovery considerations.

Mitigate Learning Loss

With the recent victory of the People's United Party (PUP) in the national elections, the incoming Ministry will need to move quickly to leverage the existing strengths of Belize's education system to respond to the demands of the on-going Covid-19 pandemic. As such, the authors' crafted a set of recommendations intended to mobilize Belize's strongest asset: its autonomous and collaborative teachers.

Building on this existing strength within Belize's education system and considering all the previously proposed policy scenarios, the authors recommend that the Ministry create an SEL guide and develop virtual in-service training for all teachers in Belize, to place and support teachers at the center of the response efforts to mitigate learning loss.

Create an SEL Guide for Teachers: The Ministry should create a digital guide outlining SEL practices which can be used to support remote learning for all primary school teachers. Recognizing the ICT constraints of certain districts, the Ministry should ensure the physical delivery of such guides, where necessary. The Ministry should also leverage teachers as facilitators, instead of caregivers, as teachers have the potential to forge strong relationships

with students, and because training teachers is significantly more accessible than training caregivers for the Ministry.

Develop In-Service Training on SEL: The Ministry should develop virtual in-service training to be provided on Mondays and Fridays when teachers are mandated to be in schools, and therefore have access to ICT. This training should center on the three key dimensions (student emotional resiliency, student teacher relationships and teacher emotional resiliency), and provide the opportunity for teachers to learn from one another based on their existing, informal SEL practices.

As with any set of policy recommendations, the authors recognize that there may be risks or shortcomings. Firstly, while the SEL Guide holds immense potential to make knowledge about integrating SEL accessible to all teachers, there is a risk such a guide may not be used. However, by pairing this guide with In-Service Teacher training, the guide becomes core to Belize's nationwide teacher training.

Post-Pandemic Recovery

Given the new PUP leadership, there is an enormous opportunity to begin post-pandemic recovery planning to drive system-level reform across the entire Belizean primary education system. To accomplish this, the authors advocate for the creation of a system-level reform that incentivizes and supports the continued integration of SEL into Belizean classrooms and schools. As such, the authors have identified the biggest opportunities to drive impact to be incorporating "whole of child"⁴ learning outcomes into national learning outcomes, and to formalize and integrate SEL dimensions into Belize's national assessment. Moreover, we recommend the integration of SEL training into pre-service training to cement "whole of child" learning into the national learning outcomes and deepen a culture of SEL amongst Belizean teachers.

Building SEL into NLOS: The Ministry should build SEL explicitly into and across the National Learning Outcomes. This alternative will further develop the cultural appreciation and understanding of SEL and will help create a sustained structure and mechanisms to incorporate SEL into both pre-service and in-service training.

Align NLOs with BDAT: The authors also believe that aligning any new NLOs with the Belize Diagnostic Assessment Test (BDAT) can help to build a sustained pedagogy around SEL in Belize. A delay in BDAT deployment provides an opportunity to consider the incorporation of new "experimental-questions" to evaluate the current state of student SEL competencies. This data could then be used to inform modifications to the NLOs as well as the in-service training.

Pre-Service Training: The Ministry should incorporate SEL into pre-service teacher training as it is one of the strongest long-term policy changes that has the potential to increase teacher knowledge and capacity around SEL. This reform would make SEL a priority in Belizean primary school classrooms and deepen the culture of SEL amongst Belizean teachers. The timing for this category of change is fortuitous as pre-service guidelines are currently being examined and revised (C. Babb, personal communications, Nov. 13, 2020). Looking at the post-pandemic recovery recommendations, one significant consideration is the risk of NLOs being written, but teachers being unsupported in their ability to integrate them into classroom pedagogy.

By pairing the creation of these NLOs with the short-term teacher training, in the form of in-service training and an SEL guide, as well as the longer-term teacher training, in the form of pre-service training, all teachers will be empowered to support students development of social

⁴ The "whole of child" refers to a holistic approach to educating a child that addresses both character and values as well as attitudes, beliefs, and mindsets. More specifically it is the integration of cognitive skills and competencies, social & interpersonal skills & competencies, emotional skills & competencies that produces rigorous academic content and learning experiences. (Reimers, 2018).

emotional skills, capacity and learning. Further, by integrating new NLOs into the BDAT, Belize will develop nationwide data on SEL, allowing for international and national comparison, and for best practices for teaching SEL within Belize to be identified and transferred.

Implementation Considerations

Based on the strong, existing relationship between the Ministry and UNICEF, the authors suggest that the Ministry should partner with UNICEF to serve as an implementing partner. This option will be a relatively quick alternative to deliver content to teachers and allow the Ministry to strategically utilize the resources of UNICEF, especially financial and technical expertise. While the authors caution against a one-time intervention, or complete reliance on UNICEF, the authors recognize the opportunity to leverage the skills and expertise UNICEF provides to create, in partnership, meaningful materials and workshops. Similarly, the authors hope that a partnership with UNICEF, or other such international organizations, will minimize such costs making the proposed policy recommendations feasible.

CODA

The authors met in February of 2021 with the newly appointed Chief Education Officer, part of the newly elected People's United Party, to present recommendations generated over the sixteen weeks of the consultancy period. The feedback from both new and former Ministry officials was in alignment with the findings regarding the need for SEL-based interventions to mitigate learning loss. There was, however, no engagement on the post-pandemic recovery recommendations implying that the Ministry's focus remains on the immediate response efforts. These efforts included the creation of a Covid-19 Education Task Force. The Chief Education Officer stated her intention to forward the authors' recommendations to the task force for review. However, the Ministry did not commit to the implementation of any of the recommendations.

The authors presented the recommendations to several international organizations, who are well positioned to support primary education in Belize at this time. UNICEF Belize was largely positive about the proposed recommendations and expressed interest in supporting the Ministry in implementing the recommendations. Further, the authors presented to a Lead Education Specialist at IDB, with expertise in the Belize context, who provided valuable insight, including strategies for implementation. The authors hope that their recommendations can help to ensure that all primary school students in Belize will be able to learn, and remain resilient, both during and after the Covid-19 pandemic.

While the Covid-19 pandemic will eventually end, Belize and many other countries will continue to face disruptions to education due to natural disasters and other crises. As such, education systems, both in Belize and globally, must be resilient themselves and support the resilience of teachers and students to ensure education can continue despite future uncertainty.

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Acknowledgements

The authors of this chapter would like to thank Emily Fingerle for her work throughout the consultation process, as well as Dr. Carol Babb, Ms. Darlene Lozano, and Mr. Patrick Flowers for their guidance, collaboration, and tireless commitment to the success of this project.

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Chapter Four

Tackling Mental Health Challenges in the Municipality of Santa Ana in Costa Rica

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Summary

In addition to widespread learning loss because of school closures from the Covid-19 pandemic, there have also been worsening mental health conditions of children across the globe. This mental health tragedy represents a more silent pandemic with lifelong effects that cannot be treated with medicine alone. This analysis on mental health in the municipality of Santa Ana in Costa Rica serves as a case study tracking the impact of Covid-19 on youth mental health. We review academic literature on how poor mental health affects academic achievement and establish a model for what mental health policies at schools should look like during and post-Covid. Considering the crucial role that schools have in fostering mental well-being among students, especially those from marginalized communities, we highlight the potential of Relationship Mapping as a cost-effective and powerful tool for identifying students experiencing mental health challenges and strengthening the bonds between educators and children.

Positionality

The consulting team consisted of three Ed.M. students at the Harvard Graduate School of Education from vastly different backgrounds. Peter Swing has been a longtime resident of Costa Rica. Vo Ram Yoon is a dual citizen of Bolivia and South Korea with an interest in mental health. Bingyao Hu is a Chinese citizen with a passion for international education policy. One of our co-authors, Peter Swing--co-owner and president of a private school (Berkeley Academy for Multicultural Studies) that reports to and functions under the Municipality of Santa Ana's Regional Education Supervision, participated in this case study. This unique connection allowed direct access to leadership personnel and relevant data based on a seven-year professional relationship, which led our team to select the Municipality of Santa Ana as our case study. Additionally, our authors were motivated to choose the municipality of Santa Ana because they recognized the absence of efforts addressing the great disparity of educational resources between public and private schools in the municipality and hoped to provide support.

Communicating with the Municipality of Santa Ana's regional director Jesus Alonso Diaz made research for this case study uncomplicated as he and his leadership team were very open to receiving recommendations and support. Having the established professional relationship with the Municipality of Santa Ana may have limited policy recommendations from the authors because of the prior and working knowledge of the municipality's economic distress and financial issues. This knowledge played a significant role in prioritizing the economic and cost-efficiency elements, more specifically the integration of SEL, when considering the criteria in policy analysis.

On Costa Rica and the Impact of the Covid-19 Pandemic on Learning

According to the Instituto Nacional de Estadística y Censos (INEC), Costa Rica has a total population of 5,111,238 and seven provinces that consist of 82 cantons (INEC, 2020). The canton of Santa Ana is located eight miles west of the nation's capital, San Jose, and comprises six districts: Brasil, Piedades, Pozos, Salitral, Santa Ana, and Uruca. It currently has an estimated population of 58,946 (2018) of which 15.3% (8,991) are students from Pre-Kindergarten to Grade 12 (Oviedo, 2020). About 72.5% (6,519) are students who attend public school

institutions (Oviedo, 2020). Santa Ana is a canton that is socially and economically diverse, representative of the entire country. Despite 19.2% of its inhabitants living in poverty, Santa Ana includes high concentrations of the affluent households in Costa Rica (Oviedo, 2020).

The Covid-19 pandemic devastated Costa Rica's education system as the national academic year began in February. On March 6, the Costa Rica Ministry of Health reported its first confirmed case of Covid-19 and declared a national emergency on March 16, closing all schools in the country (Ministerio de Salud Costa Rica, 2020). Seven days later the MEP transitioned all public schools to a virtual school program, *Aprendo en Casa*, that included issuing over one million (1,067,091) email accounts to students providing access to an online platform and a distance learning program that varied throughout the cantons (Diaz Rojas, 2020).

To support students without access to electronics, a television program sponsored by the Ministry of Education is televised on Channel 13 - SINART for one hour in the morning and repeats in the afternoon Monday through Friday. The program targets students in the upper elementary levels and rarely provides guidance that corresponds to written work that is to be evaluated. A radio program exists (101.5 Radio Station) and airs for one hour in the afternoon Monday through Friday. There is limited data and information available regarding the program's viewership and listenership, the effectiveness of programs for all grade levels, and learning outcomes. On August 27, the Ministry of Education announced that schools will not be allowed to return to in-person classes in 2020 (Dirección de Prensa y Relaciones Públicas, 2020). In addition to the announcement, the ministry released information regarding connectivity to virtual platforms. Of the 1,067,091 students in Costa Rica that attend public schools 372,033 (35%) did not connect to the virtual school platform.

A Preliminary Exploration of Mental Health in Costa Rican Youths

On October 8, 2020, a group of Costa Rican young adults released a song titled "Me Siento Alone" (I Feel Alone) as part of their national campaign #MeSiento (#IFeel) to raise awareness of and destigmatize mental health problems that have proliferated with quarantine orders in place and schools staying closed (Presidencia de la Republica de Costa Rica, 2020). The music video features singer Raquel Gómez spending day after day in her room with clothes strewn across the floor and relying on a video-chatting app to maintain a semblance of human connection. The melancholy lyrics and video are meant to represent the feelings of depression and isolation that youths in Costa Rica have been facing this year. Many have shared their own experiences dealing with poor mental health on social media using the campaign's hashtag to highlight the urgency of mental health problems in Costa Rica, which were presented in a book that was delivered to the Minister of Justice and Peace Fiorella Salazar Rojas (We Could Be Music, 2020).

Although there are about one hundred stories affiliated with the #MeSiento campaign on the official website, it is unclear how many more youths in Costa Rica have been experiencing poor mental health because of the Covid-19 pandemic (MeSiento, 2020). Nonetheless, it is compelling that they have raised their voices to influence the national response to the Covid-19 pandemic and make political leaders aware of how it has affected their well-being. On an international scale, prior research has shown that the mental health of children globally was not faring well even before the pandemic: up to a fifth of children worldwide suffer from poor mental health and a significant portion of mental disorders begin before adolescence (UNICEF, 2020). Furthermore, research on the mental health impacts of epidemics, such as Ebola and SARS, demonstrates that people may experience heightened anxiety and distress due to an unexpected accumulation of stressors (United Nations, 2020). It is likely then that the Covid-19 pandemic will have detrimental effects on the mental health of youths who were already struggling before worldwide lockdowns and school closures.

Therefore, we suspect that a major education challenge that public schools in the Municipality of Santa Ana are facing is that student performance has been faltering due to underlying mental health problems that have been both caused and magnified by the Covid-19 pandemic. The absence of a municipality-wide strategy that aligns schools, teachers, and parents to respond effectively to the mental illnesses of students exacerbates the odds that students will

be able to fully recover from the hardships of distance learning and trauma of the pandemic, much less readapt to in-person schooling one day. Utilizing both quantitative data from official government sources, student surveys, and qualitative data provided by teachers and parents, we hope to establish the urgency of mental health issues among students in Costa Rica, provide a literature review on the topic of mental health and cross-national interventions, and offer concrete policy responses for the municipality.

Quantitative Indicators of the Mental Health of Costa Rican Youths

Tracking the number of phone calls for psychological aid during the pandemic, a report by the College of Professionals in Psychology in Costa Rica (CPPCR) demonstrates that Costa Rican youths under 18 years old have been experiencing emotional distress in the past several months (Facio, 2020). A partnership among the CPPCR and the Ministry of Health, the “13-22” hotline has been widely publicized as a free resource for anyone struggling with mental health issues during the pandemic. The report shows that there were a total of 4,090 phone calls made from May 4th to October 13th. Out of those 4,090 phone calls, about 206 (5%) of them came from youths, defined to be anyone less than 18 years old. Since this hotline was specifically developed to assist with mental health issues caused by the Covid-19 pandemic, it is difficult to discern if the numbers would have been lower in the absence of a pandemic since it is a relatively new service in Costa Rica. The report classifies the cause of those 206 calls into three main categories as defined by the CPPCR:

- 62% were reported to have symptoms of depression
- 26% were reported to have symptoms of anxiety
- 12% were reported to have issues from the consumption of psychiatric medication and/or psychoactive substances

Further examination as to what is causing students to experience anxiety and depression reveals certain factors that are strongly associated with poor mental health among Costa Rican youth. Most cases of anxiety involve isolation, which could broadly cover cases involving general discontent with heavily relying on social media to maintain friendships or being left alone for extended periods of time at home. Although virtual schooling was referred to as the primary cause of anxiety in only about 3% of cases, this does not necessarily mean that the learning of youths has remained relatively unaffected or that students are mostly satisfied with virtual schooling. Rather, one should consider how anxiety induced by feelings of abandonment and challenges of living in a toxic household can have a negative effect on academic performance, behavior, and attitudes towards school (UNICEF, 2020). The full classification of the reasons behind feelings of anxiety among youths is as follows:

- 31% - Isolation
- 26% - Relational Problems with Household Members
- 22% - Fear of Getting Infected or Infecting Significant Others
- 8% - Financial Struggles
- 6% - Non-Compliance with Covid Measures from Elderly Relatives
- 4% - Positive Case of Covid-19
- 3% - Virtual Schooling

In addition to classifying causes of anxiety among youth, the report also identifies common reasons for depression, some of which are like the ones for anxiety. In contrast to the previous breakdown, one can see that relational problems with one’s family are the most stated cause of depression while isolation is the second most common reason. Mourning the death of someone who has died, whether the cause of death was attributed to Covid-19 or not, is also a leading cause of depression among youths in Costa Rica. Another difference between the two breakdowns is that virtual schooling does not appear to be a common cause of depression.

Nonetheless, struggles with depression that are exacerbated by problems with one's family, lack of socialization with others, or the death of someone can have a negative impact on a student's performance at school. The full classification of the reasons behind feelings of depression among youths is as follows:

- 37% - Relational Problems with Household Members
- 31% - Isolation
- 26% - Mourning
- 4% - Fear of Getting Infected or Infecting Significant Others
- 2% - Financial Struggles

Disaggregated by municipality, there were a total of 64 phone calls that originated from the Municipality of Santa Ana out of the total of 4090. Further disaggregation by individual districts within the municipality shows a high of 29 phone calls coming from Uruca and a low of only 1 phone call coming from the district of Brasil. From the data, it is not clear how many of those 64 phone calls came from youths, but it is evident that there are residents in the municipality who have been struggling with mental health issues. It is possible that the small number of phone calls belies a larger number of people who have been suffering from mental illness yet lack the ability to reach out for help. The full breakdown of phone calls for psychological aid in the municipality of Santa Ana by individual district is as follows:

- 29 - Uruca
- 13 - Santa Ana
- 12 - Pozos
- 5 - Salitral
- 4 - Piedades
- 1 - Brasil

Another source of quantitative data on the prevalence of mental health issues among Costa Rican youths comes from U-Report, an online platform created by UNICEF where youths can respond to polls and express their opinions on policies to draw the attention of policymakers (UNICEF Office of Innovation, n.d.). On the platform's most recent survey on how the pandemic has affected the mental health of U-Reporters, there were a total of 46 adolescents in Costa Rica aged 15 to 19 who responded with no respondents being younger than 14. (U-Report Costa Rica, n.d.). Some noteworthy findings are as follows:

- 46% reported depression and anxiety to be their most common feelings with only 7% being in a good mood
- 61% have experienced altered sleeping patterns compared to before the pandemic
- 35% felt pessimistic about the future compared to 15% who felt optimistic
- 78% respondents felt the need to ask for help regarding their mental health, yet 36% of them felt like they had no one to go to.

The generalizability of this small sample is limited since they represent youths who are particularly proactive in sharing how the Covid-19 pandemic has affected them. However, the numbers above raise questions as to how many children in the municipality of Santa Ana and Costa Rica are having similar experiences, especially in not being able to identify anyone who can help them with their mental health issues.

Overall, the experiences of Costa Rican youth in terms of their increased feelings of isolation and problems with household members follow global trends on the impact of Covid-19 on child well-being. A comprehensive investigation by Save the Children surveying about 13,000 children aged 11-17 in more than 40 countries shows that youths with limited contact with friends due to school closures have significantly higher negative affect (Ritz et al., 2020). There have also been higher rates of violence in households where children must stay home

from school compared to times when children could attend classes in-person, which parallel the trend of relational problems in the household being one of the most common causes of depression and anxiety among Costa Rican youths (Ritz et al., 2020). While the quantitative evidence provided is limited in establishing how widespread mental health problems are among Costa Rican youths, it is at least clear that they exist and could develop into a larger crisis where students struggle with the emotional trauma of the Covid-19 pandemic and suffer from delayed neurological development if left unaddressed (UNICEF, 2020).

Qualitative Indicators of the Mental Health of Costa Rican Youths

To better understand the mental health of Costa Rican students during a pandemic, we surveyed teachers and parents residing in the Municipality of Santa Ana on how the pandemic has affected the mental health of their students and children, which in turn could have affected their performance at school. By having the teaching staff and parents at Berkeley Academy in the municipality serve as a sample, we were able to receive 23 responses from teachers from the elementary to high school levels and 3 from parents. Some respondents reported that several students had been doing better with virtual schooling for a few cited reasons: less distractions at home compared to in-person schooling, fewer experiences with social anxiety, and high level of emotional resilience in the students themselves. But for most students, the lack of human contact with classmates, excessive time spent looking at screens, and reduced opportunities for physical exercise have led to higher levels of depression, laziness, and stress. These changes in psychological well-being have been associated with lower quiz scores, missed deadlines, and reduced participation in class. One teacher described at length how their students were affected by the pandemic:

The sadness they carry from not being able to be with their friends has impacted their emotions and their performance. The monotony and routine of virtual classes makes them tired and bored. And at the same time, the pressure they must continue studying as if they were in a normal school period and the pressure to keep their grades high has impacted their self-confidence (personal communication, December 3, 2020).

While there may be some students who are meeting or even exceeding expectations, teachers observe that most students are in a negative feedback loop where poor mental health reduces performance, which in turn only aggravates the negative emotions that students are struggling with. Although a causal relationship cannot be established, research on how mental health affects academic performance suggests a strong connection between the two, which will be described in the literature review.

Just like teachers, parents have also been reporting a range of responses from their children to virtual learning and the pandemic in general. While some have stated that their children do seem to be doing better from reduced distractions, most shared that the mental distress caused by the pandemic has resulted in worsened school performance and behavior issues that were not present before. As the statistics in the previous section demonstrated, isolation is one of the largest factors that give rise to symptoms of anxiety and depression among youths. While virtual schooling itself may not be a significant cause of mental illness according to CPPCR's data, the statistics do not fully reflect how isolation and mental illness are mediated by the experience of virtual schooling as described by one parent:

School performance is also negatively impacted. He is distracted in class and spending too much time in front of screens for his age. Being on a computer at this young age, for multiple hours in the day, during class and assignments is not helping. He does not spend any time interacting personally with classmates anymore, and discussions in online forums are limited, so he does feel quite isolated (personal communication, December 3, 2020).

Taking the voices of parents into account supports the observations of teachers and raises the possibility that students could end up with persisting behavior issues that will make it difficult for them to properly socialize with their peers once in-person schooling returns. The following literature review on the effects of poor mental health on academic achievement enables us to suggest a causal link between the experiences of Costa Rican youth with mental health and their subsequent academic performance.

The Link Between Mental Health & Academic Achievement

Learners' academic outcomes in the Municipality of Santa Ana could be affected by mental health problems along two margins: the decision to remain in school and performance in class. Mental disorder predicts a higher risk of dropping out of school, and thus truncates educational attainment. A longitudinal study following a cohort of Australian students from the age of 15 to the completion of high school where adolescents who reported a poor mental state had twice the odds of dropping out compared to those in a more stable condition (Butterworth & Leach, 2017). Although the population in that study is different from the one in Costa Rica, it is still worth considering how the identified trend may manifest in the municipality.

For marginalized students, the risk of dropping out is even higher. In one study of special education students, the expulsion rate for students with emotional disturbances was 64% (Blackorby, et al., 2004). Another comprehensive study of reenrollment conducted by the federal regional educational lab in San Francisco shows that only 30 percent of dropouts returned to school, and fewer than 20 percent managed to graduate (Berliner, et al., 2008). Furthermore, dropping out of the school system can also lead to juvenile delinquency. Students who did not complete high school have higher rates of illegal drug use and alcohol abuse, and they are 63 times more likely to be jailed than non-dropouts (Fernández-Suárez et al., 2016). Overall, the association between dropping out and delinquency will decrease students' odds of re-engaging in learning opportunities, making them less likely to reach the same level of academic achievement with their similarly aged peers.

If students continue their education in school, mental illness can negatively affect students' cognitive and noncognitive capability, which are closely related to students' productivity and performance. Research shows that children's developmental competence is integral to their academic competence (Masten, et al., 2005). However, a prolonged period of stress, which is very likely for children to experience during the Covid-19 pandemic, could lead to developmental deficiencies and interfere with academic capabilities. Chronic stress alters the chemical and physical structure of the brain, damaging cognitive skills such as attention, memory, and creativity (Wellman, 2014). In addition, behavioral problems might trigger conflicts between child and teacher, and social exclusion, thereby resulting in negative learning experiences (Agnafors, 2020). Since students' perceptions of teacher support and the mutual respect are directly linked to positive changes in academic motivation and engagement (Ryan & Patrick, 2001), teacher-student conflicts may also negatively impact students' willingness to engage in interactive and academic activities. Therefore, low adjustability and a strained student-teacher relationship related to behavioral disturbances jointly contribute to low academic performance.

Combining evidence on the experiences of students in Costa Rica with empirical research on how mental illness affects academic outcomes shows that the Municipality of Santa Ana not only has to care for the physical health of youths during a pandemic, but also for their mental health in a challenging time where they are expected to meet typical learning goals. Fifteen percent (8,991) of Santa Ana's population are students and of those, 22% have a disability or presence of a learning condition and 26% need some type of learning accommodation (Corrales, 2012). Additionally, Santa Ana's overall poverty rate is 19%, but districts within the municipality have rates as high as 37% (Salitral) and 20% (Piedades). It is likely that the impact of the pandemic on mental health will be even more severe for students who have already been struggling in school due to financial constraints or learning disabilities based on prior investigations on mental health by Costa Rica's Ministry of Health (Corrales, 2012). The pandemic has made an already existing dire economic situation worse and leaves

students of Santa Ana extremely vulnerable to mental health problems that have significantly negative effects on their learning (Cuffe, 2021).

International Case Studies in Improving Student Mental Health

Since student mental health is also tied to the health of the wider community, an effective action plan includes a tiered support system that uses technology to diagnose symptoms and provide services, as evidenced by Panama's response to Covid-19 (Alcaldia de Panama, 2020). Bordering Costa Rica, Panama is like its neighbor as measured by economic size, literacy rates, and capacity to provide digital devices as well as support to schools in adapting to online learning (UNESCO Institute of Statistics, 2018; Reimers & Schleicher, 2020). Panama organizes mental health symptoms in three levels of severity: code green for mild symptoms like uncertainty and fear of infection, code yellow for moderate symptoms like panic and tightness in the chest, and code red for serious manifestations of psychological disorders. Residents of Panama experiencing psychological distress can contact Panama's mental health program, SAMI, to receive remote counseling (Municipio de Panama, 2020). Psychosocial support is mainly provided remotely through calls and telemedicine, which have been shown to be as effective as in-person appointments to diagnose and assess the mental health of people across all ages. A review of 70 studies on telemental health delivery programs demonstrated that patients were not only satisfied with the convenience and quality of care, but hospitals were also able to save money from reduced travel and administrative costs (Hilty et al., 2013). SAMI complements its counseling help line with mass emails, posters, videos, and training sessions on emotional regulation, although there is no data demonstrating the extent to which people in Panama engage with either its remote counseling program or other resources (López et al., 2020). With the pandemic limiting in-person interactions and imposing chronic stress on many, countries must learn to use technology to provide personalized mental health support.

Colombia's "En Confianza con las Familias" (Trusting in Families) combines the potential of family-school partnerships with socioemotional learning (SEL) to raise the capacity of schools and families to raise healthy and engaged learners (Ministerio de Educacion, 2020). Spearheaded by the country's Ministry of Education, the main component of this initiative is live broadcasting of experts in psychology, childhood development, and family relations to educate families on SEL and best practices in raising children. Since August 2020, they have been scheduled every 15 days and topics are chosen based on parent input through online surveys, resulting in the videos reaching audiences of about 8,000 viewers. Research on SEL consistently shows a consensus that students' emotions, behavior, and learning are deeply intertwined. A literature review of 200 SEL programs encompassing K-12 students showed that program participation was associated with improved academic performance and reduced mental illness (Durlak et al., 2011). Another core feature of this program is the provision of two distinct guides for families and school staff (Colombia Aprende, 2020). Families are provided with a guide that describes their role as parent educators, which contains SEL exercises to help parents reflect on how they raise their children and illustrates how they can be more involved with schools. School staff receive a more technical guide that describes the benefits of collaborating with families and synthesizes best practices for creating a meaningful alliance between schools and families. In addition to applying SEL principles to both children and parents, "En Confianza con las Familias" provides a promising model of how countries can mitigate mental illnesses caused by Covid-19 by identifying the distinct and critical roles that teachers and parents have in fostering a healthier and more educated society.

On June 2020, the Chilean president Sebastián Piñera announced that the country would launch the program "#SaludableMente" (#HealthyMind) to tackle the mental health challenges that have risen during the Covid-19 pandemic (Ministerio de Salud, 2020). As a first step, he created a working group of mental health professionals to discuss a national strategy on mental health, which led to the creation of numerous guides and videos on topics such as SEL-centered pedagogy for teachers, instruction on providing psychological first aid to children for parents, and recommendations for indoor physical activity for children. A key component of the program was a website that assembles every public resource on mental health and is organized

by distinct groups, such as youths, the elderly, caregivers, women experiencing abuse, persons infected with Covid-19 and people with disabilities. The official website for #SaludableMente also provides multiple phone numbers, live chats, and WhatsApp groups to provide customized mental health treatment to every demographic (Gobierno de Chile, 2020). A major strength of #SaludableMente is that by aggregating resources on mental health on a single website, teachers, parents, and youths can easily find assistance at one convenient location based on their own demographic profile and needs. Although data is not available on how many visitors the website has received or the number of phone calls that have been made to its numerous channels, #SaludableMente challenges the stigma of mental health through a heavily publicized campaign that seeks to engage each segment of the Chilean population.

Policy Implications for the Municipality of Santa Ana

In the Municipality of Santa Ana, both public and private schools are required to disseminate all communication and initiatives directed by the Ministry of Health's Mental Health Division to students and their families via email or in-print documents sent home with students (Corrales, 2012). Initiatives include drug and alcohol prevention, anti-bullying, and suicide prevention campaigns, oftentimes assisted by the Municipal Police Force of Santa Ana. The process of maintaining mental wellness on school campuses in Santa Ana depends on the grade level of students. For primary grades, it is the responsibility of faculty and staff to identify mental health issues in students during interactions and socialization. For upper primary to high school grade levels, faculty and staff are responsible for identifying mental health issues in students, but students are also encouraged - through lectures, class-wide assemblies, and interventions - to seek guidance from their teachers and counselors.

In response to the pandemic, the CPPCR and the Ministry of Health created a joint campaign called "Junt@s Nos Podemos Cuidar" (Together We Can Take Care of Each Other), launched June 11, 2020 to direct students and school communities to resources created specifically during the pandemic (Junt@s Nos Podemos Cuidar, 2020). The official website provides videos featuring psychologists discussing how families can take care of children and the elderly, adapt to new ways of living during the pandemic, and monitor one's mental health. Additionally, posters that promote social distancing guidelines and best practices in psychological first aid are readily available. Although no data is available on how many people view these resources, most people we surveyed reported being unaware of the campaign, or that they found it to be unhelpful:

The campaigns are not helpful. But that's not the campaign's fault either. When in isolation at a very young age, not being able to meet with friends, play together, discuss things other than just assignments, does not make it easy at all (personal communication, December 3, 2020).

Furthermore, the fact that previous policies have put the onus on teachers to identify mental health issues among students has become a major weakness now that their interactions with students are limited to what they see on a screen.

Although there are some systems and resources that have been implemented to facilitate communication between schools and parents, the quality of communication among administrators, teachers, and parents differs from case to case. Teachers reported that they have been communicating with parents through email, WhatsApp, and other platforms if needed, which has provided them with more information on the challenges that their students and students' parents are experiencing. What has differentiated teachers who have been in close touch with parents, from those who struggle to receive a response, is the existence of a prior close relationship. The success of virtual schooling heavily depends on parents to troubleshoot and manage the schedule of children, so the pandemic has made educators and caregivers realize just how important each other's roles are and the value of collaborating for the success of Costan Rican youth. As one teacher commented, having school take place within their homes has helped parents realize the crucial function that schools have in a child's development:

Parents have seen that school is not only a place to learn academic content, but it is a place [for their children] to discover themselves and to learn to interact with others. Families can now see everything that happens in a school and how important it is (personal communication, December 3, 2020).

Developing school policies that promote family engagement in the Municipality of Santa Ana, and go beyond informing parents about national initiatives, will not only build a collective capacity to forge lasting home-school relationships centered on student success, but also mitigate the mental health issues that students face by combining the knowledge and skills of teachers and parents.

As the boundary between home and school has blurred, it cannot be the sole responsibility of the school and its teachers to buffer the minds of students against the uncertainty of the Covid-19 pandemic. Rather, a best practices approach to addressing student mental health will use an ecological framework that encompasses the various levels in which interventions can occur student, family, school, community, and government. Also referred to as a whole-of-society approach by UNICEF (2020), an ecological framework of mental health acknowledges that treating mental health requires the collaboration of multiple sectors, from individual households to the national government, while confronting other social ills that worsen mental health outcomes, such as poverty and domestic violence. The complexity of student mental health requires a multifaceted approach based on partnerships among schools, local nonprofits, and government offices that can better serve the needs of students and their families. Failure to do so could result in government policies failing to make a meaningful impact on students as they must depend on themselves to make it through the school year, further exacerbating the stress they face. Effective policies that help students in the Municipality of Santa Ana overcome mental health challenges will also use a combination of SEL and psychological first aid as preventative measures. For more serious cases, student needs will have to be categorized by level of severity so that they can be addressed with the appropriate measures delivered through technological means whenever possible.

In the context of Costa Rica's current mental health initiatives, the "13-22" hotline and "Junt@s Nos Podemos Cuidar" are focused on delivering psychological first aid as widely as possible, but more focus must be placed on other key elements. Telemedicine could help expand the reach and effectiveness of mental health counseling when phone calls are not suitable for some people. Furthermore, integrating SEL in current online learning platforms and curriculum could help students deal with mental health challenges while schools are closed and after they reopen next year. Additionally, to avoid overwhelming mental health services, the municipality will have to direct people to the appropriate services through a tiered support system that ideally would involve families, schools, and community members, so that students can receive the personalized attention they need to overcome the monumental challenge of going to school during a pandemic.

Criteria to assess these Policy Alternatives

To compare the policy alternatives that could help the Municipality of Santa Ana respond more effectively to mental health issues among students, we have established five distinct criteria based on the policy implications we have established above:

- SEL: To what extent is SEL integrated?
- Technological Adaptability: To what extent can the policy be carried out through both virtual and non-virtual means?
- Community Engagement: To what extent does the policy engage multiple stakeholders to care for student well-being?
- Early Intervention: To what extent will the policy facilitate the quick identification of students who face dire mental health issues and need specific services?

- Cost Effectiveness: To what extent can the Municipality of Santa Ana adopt the alternative considering its financial constraints?

In the next section, we describe three policy alternatives that we believe would be best suited to the context of mental health issues in the Municipality of Santa Ana, followed by a policy outcomes matrix showing how each of them fare against our five criteria.

Policy 1: Adult-Student Relationship Mapping

Adult-student relationship mapping is a framework for forging connections between school staff and students. By plotting a web of connections between students and adults in school, schools can identify disconnected students and systematically ensure that every student has a positive, trusting relationship to a staff member, so that school administrators can know when certain students need academic or emotional support.

The adult-student relationship mapping specifies three related activities:

1. Mapping: Mapping requires staff and faculty to attend an all-staff meeting. On a document, students' names with two check boxes next to each name will be provided: one box indicating that the staff has a trusting relationship with this student and another suggesting that the staff member believes this student may be exposed to high academic and personal risks.
2. Reflective meetings: Upon completion of the mapping activity, an all-staff reflective meeting will be convened, inviting staff to identify disengaged students, pair them with school staff and develop strategies to address students' needs.
3. Learning session: Staff who are paired with students will receive training from a child psychologist to learn effective ways to approach children and guide them.

To initiate this program, a comprehensive letter to parents and families that explains the mapping program's objectives could inform guardians and prime relationships that will be needed for the program's sustainability. Having families support the program would allow school psychologists to gather information on behavior trends at home that could be analyzed and addressed through support plans. Upon completion of the mapping, school staff designated with students in need can start approaching them. One effective strategy is weekly emotional check-ins through short video calls or house checks, where teachers become more aware of students' lives and current emotional state while making sure the connection does not become a rote routine that could stop students from passionately sharing (Prothero, 2020).

To ensure the relationship is formed and maintained, follow-up staff meetings could be convened in small groups to report any progress made with relationship-building. A district child psychologist could assist the group and assess whether meaningful connections have been sustained. It is important to ensure that school staff personalize connection strategies based on students' access to the internet and family background, so that no student is left behind.

Some variations could be incorporated into the standard procedure. In addition to a connection between the paired student and school staff, there could be informal group check-ins such as a teacher asking about students' current mood at the beginning of every class. This would not only enable teachers to leverage existing classroom routines but would create a sense of community and promote the development of socio-emotional skills for students. Moreover, the form in which the mapping activities take place might vary. While schools that decide to conduct the activity in person can use existing infrastructures (white boards, meeting rooms, markers etc.), schools that decide to go virtual might need additional investments in technical development and maintenance.

Implementing the adult-student relationship mapping framework can be very costly depending on how comprehensive the program is designed as well as its proposed duration. Elements to consider when analyzing the investment required by schools, districts and municipalities to carry out a comprehensive adult-student relationship mapping program include: time required to train staff, faculty and administrators; identifying and contracting a qualified psychologist to supervise the implementation of the program; and time required for staff, faculty and administrators to maintain program sustainability which includes program

coordination, staff meetings, and weekly parent and student follow-up. Furthermore, while the adult-student relationship mapping helps identify students who need support with mental health issues, it does not specifically provide a robust curriculum that addresses comprehensive ways to improve a student's mental health condition. However, when considering scaling an adult-student relationship mapping framework to various school sizes within municipalities, the program is more cost effective than others as it is a program that is easier to scale and does not require any large or immediate capital investment.

Policy 2: Online Support Groups for Students and Parents

An alternative policy is to form student support groups and parent support groups, so that children can receive support from both peers and their families. The envisioned outcome is to ameliorate the damaging effects of stressors on people's mental health and maximize the strengths of children and their families, which will likely lead to better academic performance. Three results measures are used: forming a peer support system, strengthening self-care knowledge for both stakeholder groups (students and parents), and improving capabilities as supporters of their children's mental health (for parents only).

The support group serves as a platform to exchange concerns regarding the pandemic and ideas about coping strategies. Specifically, students and parents are paired by the school, and they could form connections and meet on a regular basis. An online platform will be developed to offer mental-health related resources and practical strategies for coping with the Covid-19 crisis. Parents could also navigate modules on the topics of children psychology.

The theory behind the designed activities is to address adolescents' mental health crisis from two perspectives: getting social support and fostering a nurturing family environment. Support from peers motivates the development of an achievement identity, fostering self-esteem and a "can do" spirit among children. Adolescents with positive self-images are more likely to use problem-focused coping strategies, which are effective in reducing distress (Cong, Ling, & Aun, 2019). Research also highlights the importance of a nurturing family climate with low level of conflicts, as family provides the foundation for children to learn trust and build resilience (Prioste, 2020). By engaging in discussions about Covid-19, parents can validate their own anxieties as well as their children's to manage their stress and support their children through uncertainties in the pandemic.

While those strategies work theoretically to buffer the negative impacts of Covid-19 on both parents and children's mental health, some risks might undermine the effectiveness of this policy. One of the major assumptions is that the online materials provide knowledge in practice, and children and parents apply what they discussed and learned. In addition, the practice of such activities could lead to desired outputs only if every household has Internet access and devices to support virtual interactions. Other assumptions include the completion of designed activities and good learning results. However, it is difficult to systematically assess the result as the only means of verification is the subjective input of parents and students.

Though the initial cost of an online support group for students and parents at the school or municipal level may be economical, the overall value and effectiveness of the program may not justify the investment. The effectiveness of the online support groups for students and parents will greatly depend on how many students and parents can afford the costs of internet service and electronic devices to connect to these groups. Furthermore, the elements to consider in implementing online support groups include staff, faculty and administrator training on online platforms and properly moderating groups; time required for staff, faculty, and administrators to maintain program sustainability which includes program coordination, staff meetings, and weekly parent and student follow-up

Policy 3: SEL Kernels

Students in K-12 benefit the most when it comes to SEL programs. There is a wealth of empirical evidence that demonstrates many positive outcomes that these programs provide, including better achievement, social awareness, self-management, and mental health in students (Prothero, 2019). The Ecological Approaches to Social Emotional Learning (EASEL) laboratory at Harvard University created a flexible and sustainable cost-effective way to

implement SEL programs in schools by using shorter, less time-consuming, and less complex activities, referred to as SEL kernels. Some of these activities include 5-minute breathing exercises that ask students K-12 to focus on their breathing, which allows them to regulate their emotions and engage in mindfulness. Other examples of SEL activities range from non-verbal communication exercises to problem solving role-playing games.

A unique and advantageous aspect of SEL kernels is that these exercises do not need to be imparted inside a classroom setting; rather, they may sometimes be more effective when they are conducted during break, recess, and lunch periods, depending on the type of exercise. Lastly, these SEL kernels do not need to be implemented in a school learning environment. During the pandemic, for example, many SEL kernels can be conducted via online or virtual classes with little or no difference in outcomes if implemented in person.

To initiate the program, school administrators would have to conduct an all-staff comprehensive training session on 1) the importance and objectives of the SEL kernels; 2) training on various grade-level appropriate SEL kernels; 3) organizing the administration and reporting of the program (i.e., scheduling the frequency of kernels to not interrupt curriculum, reporting, and tracking the effectiveness in grades and behavior, etc.). Materials required from schools depend on the type of SEL kernels that are selected by administrators to be implemented, which is extremely cost-effective. As all schools in the Costa Rican education system require a staff member dedicated to student counseling and psychology (a “psychopedagogue” as they are called in Costa Rica), this staff member can lead or assist in the kernel training that is tailored to school or classroom idiosyncrasies.

In the context of the current pandemic, however, the effectiveness of the majority of the SEL kernels may be diminished when implemented via virtual school platforms. There is little empirical evidence that supports the effectiveness of online SEL kernels. For example, breathing exercises can be done virtually in an online classroom where students, but problem-solving role-playing games and non-verbal communication exercises would be difficult to conduct effectively.

Furthermore, barriers that undermine efforts to bring general SEL programming to scale, like poor integration into educational practice and low sustainability, are likely to be exacerbated in low-income and low-resource communities like certain districts in Santa Ana (Jones, et al., 2017). Having limited buy-in for SEL kernels from parents, guardians and teachers during virtual school platforms will affect the sustainability and thus the overall effectiveness.

Like adult-student mapping, the cost of implementing SEL kernels can be very costly depending on the comprehensiveness of the program design and its proposed duration. Elements to consider when analyzing the investment required to carry out SEL kernels include time required to train staff, faculty, and administrators on implementing SEL kernels; and identifying and contracting a qualified psychologist to supervise the implementation and of the program. The greatest difficulty with implementing the SEL kernels is scaling the program to various schools of different sizes within municipalities. Currently, in the Municipality of Santa Ana, there is a shortage of qualified psychologists working for the Ministry of Education. Contracting a qualified psychologist to follow-up on the progress of these programs can be very expensive for school districts and municipalities.

Policy Outcomes Matrix

	Integration of SEL	Technological Adaptability	Community Engagement	Early Intervention	Cost Effectiveness
Adult-Student Relationship Mapping	Moderate	High	High	High	High
Online Support Groups	Low	Low	High	Moderate	Moderate
SEL Kernels	High	Moderate	Low	Low	Low

Policy Recommendation

After considering the tradeoffs and evaluating practical alternatives in SEL kernels and online support groups for students and parents, the most feasible and effective education policy to implement for the Municipality of Santa Ana is the adult-student relationship mapping program. With activities practiced and inputs given, the project is expected to have three main outputs: development of a web of connection between students and school staff, acknowledgement of adult relationship’s importance for youth and strengthened capability as supporters of youth mental health for school staff.

A network of connection between students and teachers or “map” will be formed because of school staff using strategies and plans to approach students and maintain the relationship. Specifically, the results of student surveys and teachers’ self-reports will be collected to ensure a trusting tie is formed and maintained between every student and at least one school staff until the end of the project. The mapping and reflective meeting activities are expected to help school staff identify students in need and realize how relationships with an adult could help them, while the mental-health related professional development aims to provide school staff with knowledge and practicable strategies to improve students’ mental health. A survey on teachers’ insight into student mental health will be passed out before and after the project to reflect any potential changes in perspective and knowledge capacity in that field. Furthermore, in the context of Santa Ana, the designated school psychologist or “psychopedagogue” will be able to utilize this information to tailor individualized education plans (IEP) and implement proper accommodations to improve the learning environment of each student. Lastly, the information would be placed in each students’ personal school file, which will ensure the continuity of their academic accommodations as they progress through grade levels and schools.

The major assumption for school staff’s enactment of the stated activities leading to the mentioned outcomes is that the school faculty are motivated participants and have “bought into” the activities. Since the follow-up meetings will be a new routine for school staff, motivation must be provided to ensure active attendance and participation. In addition, connecting to students and personalizing strategies require school staff to dedicate a significant amount of time to this project. The extended job responsibilities add great burden to their workload, so they may lack the time and incentive to treat the project seriously. The project’s successful implementation is dependent on students and their families accepting and buying into this program and being willing to cooperate.

The envisioned outcome because of the three outputs is improvement in students’ mental health and resilience for all K-12 schools in Santa Ana, especially for those most at-risk. The potential benefits of extra-familial relationships include better emotion management and a healthy development for students. A trustworthy adult could not only serve as a source of comfort for teens, helping them unburden their feelings, but also serve as a role model for them to learn emotion management. Moreover, bonding with a caring adult provides teens with relational experiences that help build neural connections in the brain (Search Institute, 2017).

Conclusion

The educational challenge that we identified in the municipality of Santa Ana - that students have been less focused on reaching their academic goals due to poor mental health - is one that is most likely present in other nations and will persist in a post-Covid era if national governments keep underinvesting in mental health services. Although the symptoms of Covid-19 are physical, the secondary effects of the virus on mental health are not to be overlooked considering that a vaccine cannot provide immunity against anxiety, isolation, and trauma. By focusing on mental health through relationship mapping, the pedagogical skills of teachers and personal knowledge of parents can be effectively combined so as to not only mitigate the mental strain of a pandemic that has greatly affected the healthy development of children in Costa Rica, but to also serve as a foundation where schools worldwide can better integrate family involvement into their practice and in the process develop a more humanistic vision of the role that schools can have in promoting nurturing relationships within communities.

CODA

The Municipality of Santa Ana's Regional Education Supervision received our paper and policy recommendations with great appreciation. As the municipality focuses primarily on financial relief and economic factors during the pandemic, they are open to implementing and adopting low-cost programs that do not require any capital investment. The adult-student mapping recommendation is currently being considered but will require approval from the Ministry of Education.

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Chapter Five

Promoting Education Continuity by Supporting Teachers in Guatemala During Covid-19

Francisco Barajas, María José de León Mazariegos, Pierce Henderson, and Carrah Olive-Hall

Summary

In this chapter, we analyze the problem described by our client, *Empresarios Por La Educación* (ExE): Guatemalan teacher competencies need to be strengthened for distance education in response to Covid-19. We use a combination of desk research; a survey distributed to 96 educators in the country; 10 field interviews and a focus group with principals to arrive at our recommendations. To best serve the immediate and long-term needs of the Ministry of Education of Guatemala (MINEDUC), we posit that a three-phase approach should be adopted, involving short-, medium-, and long-term solutions. Specific actions proposed include the integration of strategic communication channels and SMS messaging for government and teacher contact; user-friendly and equitable digital platforms for distributing teacher resources; reforming pre-service and in-service teacher programs and scaling up strategic partnerships. Through this plan, we anticipate teacher competencies will increase during the current crisis and set Guatemala on a path to maximize student potential through 21st-century teaching and learning in a post-pandemic world.

Introduction

At the outset of the Covid-19 pandemic, countries around the world developed strategies for education continuity that relied heavily on the use of technology, shoring up public-private partnerships, and developing digital modalities to support student learning. In Guatemala, remote learning options were developed by the Ministry of Education through the “Aprendo en Casa” initiative, which included printed materials, lessons transmitted via television and radio, and an online platform named *#AprendoenCasa* (Aprendo en Casa, 2020). For the country’s intended move to a hybrid model in January 2021 (González, 2020), teachers need expertise in a wide range of competencies for navigating a complex, digital environment (Jackson, 1990).

This chapter is divided into three parts describing our three-phase plan: we start by covering the literature and evidence relevant to each policy option, follow with an analysis of these options, and conclude with the policy recommendations that we presented to our client. We then lay out the best way to apply each recommendation to maximize teacher potential in Guatemala’s hybrid school year in 2020-21 and beyond.

Client and Research Methods

In Guatemala, like in many Latin American countries, the wide digital divide and lack of teacher competencies in the use of technology have presented challenges for education continuity during Covid-19 (Tejada et al., 2020). When the opportunity was presented to work ad honorem for a client to pursue research on this topic, María José de León Mazariegos, a Guatemalan citizen and co-author of this chapter, reached out to her network in the country to seek an introduction to Verónica Spross de Rivera, an expert on Guatemalan education and the chief executive officer of *Empresarios por la Educación*. *Empresarios por la Educación* (Businesspeople for Education) is an education advocacy association led by the Guatemalan business sector. The organization seeks to create a more equitable country through education. It was founded in 2002 with the encouragement and support of the Inter-American Dialogue’s

Partnership for Educational Revitalization in the Americas (PREAL). Since its founding, Empresarios has promoted the transformation of the national education system by advocating for the reform of education policies and the implementation of best practices that contribute to the enhancement of learning (Empresarios por la Educación [ExE], 2020a).

Empresarios por la Educación is aligned with five areas of work:

1. Advocate for policy reform and influence leaders in Guatemala's education system.
2. Encourage the certification of schools, principals, and teachers.
3. Manage a strategy to transform teaching careers and create the necessary partnerships to drive reform.
4. Promote educational innovations, including the management and execution of the ProFuturo program in Guatemala, and IN-LAB, a technology-based teacher education program for the development of 21st century skills.
5. Manage the “Educame” (Educate Me) initiative, which sought to address Covid-19-related challenges by expanding connectivity and technological access for students and teachers, as well as by strengthening teacher professional development in the use of digital technology for learning (ExE, 2020b).

The research for this chapter was carried out remotely with the support of Harvard University and Empresarios por la Educación. Sources of secondary research included the website of the Ministry of Education of Guatemala; publications from the Center for Economic and National Investigation (CIEN) in Guatemala; data from the Guatemalan Institute for Statistics (INE); and data from multilateral organizations, including the Inter-American Development Bank, the World Bank, and the United Nations. Empresarios por la Educación supported the team's primary research by facilitating virtual interviews with principals from public schools in urban and rural parts of Guatemala and assisting in the distribution of our survey to school stakeholders.

Our research is partly grounded in the findings from a survey of teachers and principals that was created by the authors of this chapter to gather data on teacher competencies in the use of information and communication technologies (ICTs) in Guatemala. The survey included 55 questions and was completed by 96 participants, including 80 teachers and 16 principals located throughout the country. Almost 70% of participants work at public institutions and at least 40% work in rural settings. The respondents are in 19 of the 22 departments (provinces) of Guatemala and represent all four levels of schooling (i.e., pre-primary, primary, lower secondary, and upper secondary). This survey provided data and insights that we revisit often throughout this chapter. However, given that the survey was distributed through Empresarios por la Educación's social media platforms and most of these platforms' followers are recipients of the Maestro 100 Puntos award, we cannot claim this is a random and equally representative sample. The Maestro 100 Puntos award began in 2005 as a partnership between the Ministry of Education of Guatemala and Empresarios to honor exemplary pre-primary and primary-level educators from the public and private schools who have created innovative and/or high-quality teaching practices in the classroom. These educators have won the award for being self-starters and innovators, and for their dedication to the teaching profession (ExE, 2020a). Thus, while providing strong evidence and insights for the team's decision making, this survey instrument must be viewed as a rapid needs assessment.

Literature Review: Policy 1 (Short-term)

When Covid-19 disrupted education in Guatemala school closures meant that teachers, students, parents, and caregivers could no longer continue face-to-face interaction (Ministry of Education of Guatemala [MINEDUC], 2020). The consequences of the stay-at-home and social distancing measures for learning in response to the pandemic exposed the importance of virtual communication to organize and mobilize stakeholders in an education system. This section will

cover the literature on building streamlined virtual communication channels and protocols for best practices using mobile interventions.

Strategic Communications: Best Practices

Public sector organizations cannot exist in an environment in which they do not interact with citizens (Werder, 2020). For this reason, a thriving Guatemalan education system requires stakeholder engagement, especially in the most vulnerable areas. An underlying idea of strategic communication is that public services will improve through collaboration and engagement with local citizens (Brodie, 2016).

In Guatemala, the results from our survey showed that only 63% of educators knew about the online teaching resources offered by MINEDUC, while over 90% of educators chose to make their own guides and materials and communicated within small silos. Nearly 50% of the teachers stated that there had been a lack of clarity and/or direction from authorities during the pandemic, according to the Inter-American Dialogue and Teach for All's regional survey to understand the changes and adaptations of teachers to remote learning during Covid-19 (Tejada et al., 2020). These results suggest an opportunity to strengthen communication. In addition, there is evidence of public agencies shifting away from traditional top-down, one-way communication strategies and instead, fostering civic engagement through collaborative, two-way approaches (Nedungadi, 2017; Reimers, Fernando & Sanz de Santamaria, 2020). While top-down channels such as national press briefings and mass media communications are favored among Guatemalan officials, this strategy can work in tandem with a more multi-dimensional approach.

For municipalities and departments (provinces) to develop a robust communications system for Guatemala's education continuity, focus on the target audience is critical, and factors such as poverty, remoteness, low population density, and technological limitations must be considered (Cole, 2014). Education stakeholders in Guatemala must receive equitable access to information through a communication system that adapts to the cultural values and norms of its designated context.

To ensure alignment, this section of research is grounded in Duffy and Chance's (2007) framework for an effective communications program:

1. Assessing Communication Needs - Experts can gather consensus of the target demographic with respect to their cultural and social perceptions that influence public engagement
2. Planning Strategic Communication- Carefully planned messaging programs need to be developed for stakeholders to receive information in a timely manner
3. Identifying Audience - Determining the different communication needs of stakeholders will help officials understand the best ways of reaching their audience
4. Shaping Messages - Avoiding jargon, messages should conform to the needs of the identified audience and the *necessary media channels to deliver the message*
5. Evaluating Communications Program - Assessments should focus on the process and outcomes of the communications program

While broad, this framework establishes a practical guide for a strategic communications plan, which can be leveraged by MINEDUC to accommodate political and legal constraints bounding the process and the roles of Guatemalan stakeholders (National Academy Press, 1989). In addition, development must account for the participants within the network who play an active role in the strategic communications plan; Duffy and Chance (2007) identify the gatekeepers, liaisons, and thought leaders - school staff and parents with connectivity to outside environments such as neighborhoods or professional establishments - as key stakeholders in the communications plan.

WhatsApp Integration: In our survey, we observed that all 96 of the primary school participants owned a smartphone and used WhatsApp to communicate within their education networks, which tracks with the statistics of the International Telecommunication Union showing that 119

Guatemalans out of 100 have access to a mobile device, (ITU, 2020). WhatsApp, a social networking, and instant-messaging application, allows students and teachers to keep in touch with more interaction opportunities in a supervised environment (Singh, 2018). Considering the broad use of WhatsApp as an educational tool in Guatemala's most rural areas, it is imperative to develop an effective virtual environment using mobile devices for continuous learning, especially for those who lack the necessary computer equipment and internet access for a more ideal virtual environment (World Bank, 2020).

Sharing many similarities with Guatemala's National Plan for education continuity during Covid-19, the main strategy of the Municipal Ministry of Education of Bogotá, *Aprende en Casa*, included access to an online platform, educational TV and radio programs, distribution of printed materials, a nutrition program, and a technical and pedagogical support program (Reimers and Sanz de Santamaria, 2020). Yet, strikingly, research from Reimers and Sanz de Santamaria (2020) showed that most of the public-school teachers in Bogotá communicated via WhatsApp, followed by email and virtual classrooms. WhatsApp was the main application used by students without internet access or computers (Reimers & Sanz de Santamaria, 2020). This finding aligns with the insights surfaced in the focus group we carried out with Guatemalan principals: all three participants stated that the WhatsApp application was the most favored and used tool among their schools for education continuity (Glenda Rivera, Personal Communication, November 9, 2020; Juan José Coyoy, November 10, 2020; Ilma Arrivillaga, Personal Communication, November 13, 2020). The wide use of WhatsApp offers a familiar and effective vehicle to reach marginalized stakeholders who lack access to computers or the internet, aiding in the distribution and collection of learning materials. The integration of mobile solutions takes advantage of technological resources that are accessible and recognizable in vulnerable communities.

India Case Study: To flesh out our review of this modality with a comparative case study, we identified a successful pilot program tested in the schools of many rural villages in India, using WhatsApp to help build pedagogical skills in teachers. (Nedungadi, 2017). The aim of the WhatsApp pilot was to alleviate teacher absenteeism and improve performance of educators and students (Nedungadi, 2017). Three WhatsApp groups were formed with specific goals to improve the quality of teaching through providing supporting materials remotely, ensuring adherence to planned activities, and encouraging peer learning (Nedungadi, 2017). The first group consisted only of central coordinators (e.g., district or municipality officials). The second group included central coordinators and added one representative from each school, which were referred to as cluster coordinators. The final group incorporated central coordinators, cluster coordinators, and village teachers within each school. With each cluster having a different purpose, communication strategy was developed by delegating responsibilities to the appropriate stakeholders for reporting, sharing best practices, monitoring, and providing feedback (Nedungadi, 2017). Although this case study only focused on 18 educational centers with 5 clusters and 19 teachers in Uttarakhand, this program was implemented nationwide and covered over 100 villages in rural India (Nedungadi, 2017).

This illustrates how simple, yet impactful, strategic communication using available resources, such as mobile devices, can broadly enable teacher collaboration in remote areas. This mobile intervention can be replicated in Guatemalan schools by organizing education stakeholders into well-designed WhatsApp or SMS groups. The goal would not only be to enable school collaboration in remote areas but minimize insubstantial communications by disseminating information through more effective mediums. Schools can also tailor WhatsApp group chats to assemble teachers, caretakers, and students into specific clusters.

Integration of Collaborative Learning Methodologies to Engage Teachers and Students in the Upcoming "Hybrid" School Year.

Studies show there is a positive impact on students' learning when combining collaborative learning opportunities with WhatsApp/SMS messaging during an academic hybrid learning model (Chan, 2005; Klímová, 2019; Soler Costa, 2020). Klímová (2019) looked at the effectiveness of combining in-person learning with a mobile application. The researchers

studied how a group of university students engaged in this hybrid modality and found that it “extends and enriches students’ learning environment and enhances students’ learning potential.” (Klímová, 2019). WhatsApp was shown to support students’ learning and communication skills in an online environment, while also allowing teachers to continue instruction uninterrupted. Instant messaging can provide students with opportunities to interact together and construct and share knowledge (Chan, 2005). Soler Costa 2020 created a study design that looked at two groups, one that used collaborative learning over mobile devices and one that did not. The results of their study showed that the collaborative-learning method increased student motivation, and “the relationships between teachers and students, the relationships between students and students, autonomy in learning, problem-solving, and the sense of time in the training process.” (Soler Costa, 2020). A 2017 study looked at a “Mobile-Blended Collaborative Learning model” to help university-level English as a Foreign Language student (Adiguzel, 2017). They created collaborative, authentic language activities predicated on a project-based learning approach that engaged students in and out of the classroom (Adiguzel, 2017). This group used WhatsApp as the main information source and studied how the use of mobile learning would impact students (Adiguzel, 2017). When educators enter the hybrid school year in Guatemala, they should be equipped with the best practices of supporting collaborative learning, incorporating the use of mobile apps to increase engagement and build community.

However, there are limitations to these studies. For example, the research was conducted in a university setting, and transferring these skills down to younger ages will mean schools will need to adjust the design with age-appropriate pedagogies. Moreover, primary, and secondary students may be more or less responsive to the benefits of instant messaging for community building. For instance, face-to-face interactions are a key component in building interpersonal skills, and SMS messaging will not be able to replace those interactions. Still, using WhatsApp is one of the best available options in rural or remote contexts to support students and teachers in maintaining contact and building relationships.

Literature Review: Policy 2 (Medium-term)

While the WhatsApp communication modality presents a new and more accessible system for delivering information to teachers and students, MINEDUC already commissioned a platform, with the support of UNICEF, to reach teachers during the pandemic. Aprendo en Casa, mentioned previously, is the Ministry’s primary web-based education platform accessible via digital devices, with a collated list of teacher, student, parent, and caretaker resources for education continuity in the pandemic. Yet, given what we know from our surveys of teachers, a focus group with principals, and conversations with our client, these programs are underleveraged.

Understanding how to present information on the internet is a relatively new, unexplored, and complex domain, yet attending to best practices can maximize engagement and encourage repeated use (Garett et al., 2016). Thus, this section of the chapter will highlight what is known in the literature about the best practices of website design. We then shift to cover what it takes to migrate this content to mobile devices for widening the reach for stakeholders without access to computers and high-speed internet.

Website Redesign Best Practices

The primary components of Aprendo en Casa include: programming and messaging through telecommunications, which is sponsored through public-private partnerships with MINEDUC and telecommunication companies, Tigo and Claro; television and social networks learning sessions, which includes socio-emotional intervention, educational delivery and capacity development for caretakers; several radio programs for remote learning; 10 digital resources ranging from Coursera and Sesame Street to Guatemala-based ProFuturo; distance pedagogical support for students supported by MINEDUC staff; a digital library from Britannica, Wikiguate, ODILO, and Bloom that includes collections, tools and platforms for reading, and children’s literature (MINEDUCa, 2020). With many options to choose from, this

platform may present a potentially unwieldy task for a single user to sift through. Further, we found it is difficult to understand where on the site teachers should go and believe the information architecture of the site prioritizes aggregation over collation (Aprendo en Casa, 2020).

As in any process of outsourcing the development of digital solutions, understanding the “what” and “how” of product development is crucial for being a smart consumer. Therefore, we reviewed the literature on effective website user experiences to find a framework for MINEDUC. The purpose of providing a framework for website design is to operationalize and demystify the process of website development, as well as spotlighting the need to use research on best practices when building engaging and effective front-end design. We delivered to our client the full framework from Garrett et al. (2016) in our final deliverable and will briefly touch on its most salient definitions in this section:

1. Navigation: salient and consistent navigation bar that allows users to navigate easily throughout the entire website; easy access to web pages and a feeling of control for user navigation
2. Graphical Representation: ensuring all stakeholders feel included in the imagery on the site; high-resolution images with the appropriate color, font, size of text; and ensuring the graphical iconography aids navigability
3. Organization: understandable structure that aligns with cognitive processing, with meaningful systemization that aids in the users processing information
4. Content Utility: enough information that is up-to-date and relevant for specific users
5. Purpose: clearly articulating the use of the site and each web page so that all users understand how to process the site’s content
6. Simplicity: labeling, designing, and composing the website while minimizing redundant features and creating an uncluttered layout
7. Readability: void of grammatical errors, understandable to all stakeholders in Guatemala and well-written

Developing an engaging website does not require hiring world-class design agencies, rather it simply calls for the careful structuring of information and paying attention to what the research says about effective digital engagement (Garrett et al., 2016). MINEDUC’s Covid-19 website can become more user-friendly for teachers if its design incorporates the principles of this framework.

Along with best practices for information design, MINEDUC must equip itself with the resources, tools, and best practices of online UX/UI modalities so that, as it engages in public-private partnerships and multilateral procurement, it may advocate for tailor-made solutions, specific to the context of Guatemala. As Mohammed (2020) shows, the design and experience of virtual materials must be culturally sensitive, and the national context must be honored. Not all website and application design are the same, and the expectations of the stakeholders in the Guatemalan education system should and will have a drastic effect on the efficacy of the tools that MINEDUC will build to address 21st-century challenges and opportunities.

Mobile Application Development

The Aprendo en Casa website was designed for computers. The consultants on this team and the surveyed teachers found the mobile navigation experience difficult and limiting. Moreover, for teachers who do not have access to high-speed internet, utilizing teacher resources on the internet is a nonstarter. While the magnitude of the problem is still uncertain, our survey and the focus group with principals indicated that MINEDUC has had difficulty reaching marginalized, rural, and low-resource teachers due to a lack of low-tech solutions for disseminating high-quality information and education products (Glenda Rivera, Personal Communication, November 9, 2020; Juan José Coyoy, November 10, 2020; Ilma Arrivillaga, Personal Communication, November 13, 2020).

According to the World Bank, digital penetration rates in Guatemala for mobile phone use, as well as smartphones with internet connection, exceeds the population; for every 100

people there are almost 119 mobile cellular subscriptions and there are over 19 million smartphones with internet capabilities in the country — roughly 112% of the population (World Bank, 2020; Media Landscape, 2020). In urban communities, the percentage of households possessing mobile phones is 92.2%; in rural communities, the percentage of households possessing mobile phones is 83.5. Yet only 3% have fixed broadband and 47% of the population own a computer (World Bank, 2020). So, while we could speak about the efficacy of using mobile devices for distributing resources (Bastawrous & Armstrong, 2013; Martinez et al., 2017; McCloskey et al., 2018; Kothari et al., 2020), the numbers clearly indicate that fixed broadband reaches almost none of the population and computer use is less than half; we believe these figures justify the need to develop an alternative digital modality that can reach a low-resource population, e.g., a mobile application. Further, in our survey and qualitative interviews with teachers, principals, and nonprofit leaders, we found that not every teacher and student has access to computers, yet all 96 of our teaching professionals regularly use a mobile device with access to data.

In the health sector, there have been numerous studies on the process of mobile app development to design for low-resource settings (LSRs). (Bastawrous & Armstrong, 2013; Aranda-Jan et al., 2016; McCloskey et al., 2018). As Aranda-Jan et al. (2016) showed in their experiment with low-resource medical device design, leveraging a user-centered approach ensures the cultural and behavioral reliability for the development of the application. To better understand their needs, these researchers developed a surveying instrument for analyzing the factors that will affect the behavior, adoption variables, and design outcomes for their users. We delivered this framework, with a host of important indicators for mapping out each design domain, to our client, and provide an overview of Aranda-Jan et al. (2016)'s framework here:

1. Sociocultural: defined as considering the literacy and access to education, the religious and cultural beliefs of the people, and the local or preferred language used
2. Infrastructure: the access to electricity and fuel, used to power their phones, as well as the access to physical resources
3. Geographical and Environment: the remoteness of the places of living of these demographics, the local temperature, and the local humidity
4. Institutional Structures: available local funding, skills, and training of the participants and those who will assist with their devices, availability of maintenance, awareness of mobile application uses, level of government involvement in the area, level of technical skills and knowledge, the reliance on borrowed equipment, and the levels of corruption in the area
5. Technological: availability and accessibility of batteries, devices, consumables; the affordability of devices; the opportunities for training
6. Industrial: the presence of supply and distribution chains, the commercial landscape and competing technologies appropriate to the context and the quality of local (or international) manufacturing

This framework is described as a taxonomy instrument, giving government and product designers valuable and relevant information on the demographics for which they are building products (Aranda-Jan et al., 2016). From Guatemala City, MINEDUC may be able to better access the needs of rural Sacatepéquez or the lowlands of Petén. However, this is not meant to be a prescriptive process and designers must understand how much information within each indicator is necessary to ascertain how the different factors will affect the design (Aranda-Jan et al., 2016).

The survey instrument, with 39 indicators, allows ministry officials or consultants to develop a systematic understanding of the user demographics in marginalized or remote settings (Aranda-Jan et al., 2016). This tool is especially useful for not only collating data on user demographics but to understand where design bias may lie. As noted earlier we found in our survey and focus group that teachers preferred WhatsApp because students lacked access to computers and fixed internet at home. Consequently, the mobile app developers may focus on, for instance, the digital capacities or preferences of the families Guatemalan educators serve

when designing for teachers in rural communities (Glenda Rivera, Personal Communication, November 9, 2020; Juan José Coyoy, November 10, 2020; Ilma Arrivillaga, Personal Communication, November 13, 2020).

Literature Review: Policy 3 (Long-term)

Guatemala's teachers and the future of learning

In 2018, the PISA for Development (PISA-D) evaluation revealed that only one in ten Guatemalan students reached the minimum achievement level in mathematics and that only one in three reached the minimum achievement level in reading (CIEN, 2019). According to United Nations Sustainable Development Goal 4, to achieve a quality education, it is important to increase the number of trained and qualified teachers (UNESCO, 2021). While MINEDUC has reforms in place to provide initial pre-service and in-service teacher preparation, it is not currently offering professional development programs for secondary-level teachers and principals. The lack of teacher preparedness, especially in the use of ICTs, has been a main challenge to achieving a quality distance education during Covid-19 in Guatemala.

To this research, we carried out three empathy interviews with principals from public schools in urban and rural parts of the country (Glenda Rivera, Personal Communication, November 9, 2020; Juan José Coyoy, November 10, 2020; Ilma Arrivillaga, Personal Communication, November 13, 2020). According to the information gathered from this focus group, the main challenges faced were teachers' lack of ICT skills and students' lack of access to technology (Glenda Rivera, Personal Communication, November 9, 2020; Juan José Coyoy, November 10, 2020; Ilma Arrivillaga, Personal Communication, November 13, 2020). As mentioned in our research methods section, we carried out a survey with 80 teachers and 16 principals from 19 out of the 22 departments (provinces) of Guatemala, 70% of whom worked in the public sector and at least 40% are working in a rural setting.

This survey also showed that almost 40% of the respondents had not received any type of professional development in the use of ICTs, and only 50% had received it during their initial preparation. When Covid-19 began, MINEDUC offered high-quality ICT training tools from local and international partners on their *Aprendo en Casa* website. However, few of the principals interviewed had explored the site and only 64% of our survey respondents were aware of it. Moreover, only 35% of teachers felt they had the capacity to integrate digital resources into their lesson plans.

While many of our policy recommendations target teacher ICT competencies, ICTs are just one component to providing high-quality distance learning. As national and regional assessments have shown, student outcomes are low in Guatemala and are far from reflecting 21st century skills (CIEN, 2009). Moreover, Guatemalan teachers do not have sufficient knowledge in core subjects like mathematics and reading, and the absence of a system to recruit qualified teachers has negatively impacted the quality of teaching in the country (CIEN, 2019). This section of the literature addresses not only the urgent need for teacher professional development in the use of ICTs but also the need for equipping teachers with deeper learning pedagogies.

TPACK and Deeper Learning

A useful model to understand the relationship between technological knowledge, pedagogical knowledge, and content knowledge is the Technological Pedagogical Content Knowledge (TPACK) framework, developed by Mishra and Koehler (2006). This model allows the assessment of classroom practices in the twenty-first century, using a multi-pronged, overlapping lens for viewing the teacher's role (Koehler et al., 2013).

There is no single definition of deeper learning pedagogies, but classrooms that involve this domain of pedagogy are student-centered, prioritize critical and creative thinking, focus on 21st-century skills, cultivate authentic inquiry, and teach reflective habits of mind (Mehta, 2015). Deeper learning combines key concepts from many leading theorists, such as Jean Piaget, John Dewey, and Paulo Freire. This deep learning framework centers on 21st-century competencies, such as the seven critical skills laid out by Anthony Wagner: critical thinking and problem

solving, collaboration and leadership, agility and adaptability, initiative and entrepreneurialism, effective oral and written communication, accessing and analyzing information, curiosity, and imagination (Wagner, 2008). The American Institutes for Research (2016) collected data from high schools that implemented deeper learning curricula and found that students developed higher levels of collaboration skills, academic engagement, motivation to learn, and self-efficacy. These same students displayed higher test scores on the OECD PISA-based Test for Schools and U.S. state-mandated English Language Arts and Math tests (Surr, et. al., 2018).

Synthesizing principles from TPACK and Deeper Learning, McCleod and Graber created the 4 Shifts Protocol as a framework to build deep learning skills that rely on ICT competencies. The 4 Shifts Protocol lays out how teachers can integrate technology into their classroom while teaching in a deeper learning style. Its four components:

1. Deeper thinking and learning
2. Authentic work
3. Student agency
4. Technology infusion (e.g., including the use of computers in the class and tech literacy)

Each component is broken down into subcategories, with rubrics for teachers and schools to evaluate where they fall and where they can improve. The book lays out manageable ways of restructuring lesson plans to integrate the above components (McLeod, 2019). This protocol puts theory into practice and gives a clear rubric and plan for teachers to see where they need to improve their skills and knowledge.

Teacher professional development and initial teacher preparation in Guatemala

Since 2012, universities have been the primary providers of teacher professional development in Guatemala. University of San Carlos (USAC), the only public higher education institution in the country, leads the initial and in-service teacher preparation program for teachers of the public education system (ExE, 2015). The “Formación Inicial Docente” (FID), or “Initial Teacher Preparation,” program began when MINEDUC passed a reform in 2012 for the teaching profession to require university-level training (Universidad de San Carlos, 2018). This added three years of primary-level teacher preparation in an accredited higher education institution (ExE, 2015). In-service professional development for pre-primary and primary-level teachers began in 2009 through the Academic Program of Professional Development for Teachers (PADEP/D) (MINEDUC, 2012). PADEP/D is, to this day, a voluntary two-year program (MINEDUC, 2016a).

One of the main strengths of PADEP/D is its presence in the most remote areas in Guatemala (Agustín, 2019). Its curriculum includes twenty courses comprising ten core subjects for intercultural bilingual teachers and ten specialization courses (MINEDUC, 2016b). In the first cohort of PADEP/D, there was a specialization course titled *ICTs Applied to Education*, and PADEP/D has offered workshops in the use of ICTs (MINEDUC 2010). However, training in the use of technology or ICT pedagogies did not appear as a core subject of the curriculum of PADEP/D (MINEDUC, 2014). Integrating pedagogical models, like the 4 Shifts Protocol, into FID and PADEP/D would lead to increased teacher competencies and higher student outcomes.

Presently, MINEDUC does not offer a teacher professional development system for secondary-level teachers. Nevertheless, the Academic Program of Professional Development for Lower-Secondary Teachers (PADEP/CB) was created in 2016 under the Umbral Program, which was financed by the U.S. government’s Millenium Challenge Corporation with technical support from Family Health International. PADEP/CB was implemented by three Guatemalan private universities (Universidad del Valle, Universidad InterNaciones, and Universidad Panamericana) in five departments and has reached almost 2,000 teachers (CIEN, 2019). PADEP/CB offered programs in mathematics, communication and language, natural sciences, leadership, and educational management (MINEDUC, 2019). According to an interview with a representative from Universidad InterNaciones (Mónica Flores, Personal communication, November 9, 2020), “technology was a cross-disciplinary subject.”

Policy Option Analysis

Policy 1 (Short Term): Strategic communication channels and SMS messaging

With the complexities and disparities of access in rural areas, public administrators will require the skills to tailor response plans around the needs of local communities during the Covid-19 crisis. Guatemalan officials should engage with their citizens and design a viable strategic communication plan and consider mobile interventions in areas that are vulnerable to social, technological, and economic disparities. Once a strong communication plan is in place, school leaders can use its channels to help teachers adapt their curriculum for SMS messaging and WhatsApp, widening student engagement and learning.

Policy 1.1: Strategic communications through mobile interventions: As noted in the literature review, app-based tools are gaining traction among developing countries to support distance learning (Nedungadi, 2017; Reimers, Fernando & Sanz de Santamaria, 2020). After conducting a rapid target-group needs-assessment, mobile strategies can begin to form by assembling members into SMS or WhatsApp groups. Each cluster should serve a distinct purpose, giving all members a clear understanding of the appropriate content to deliver. Choosing the best mobile communications channel should rely on what community members are most familiar with using, rather than requesting them to download and learn new applications (World Bank, 2020). Given the urgency, assisting disadvantaged schools with mobile solutions is both an efficient and timely response to the pandemic.

This option provides low-cost benefits and does not require providing new hardware. Thus, we believe that political opposition from system stakeholders, such as the unions or officials within the government, will likely be minimal. As Guatemala begins to transition into a hybrid model for the 2021 academic school year, officials and school stakeholders should continue to augment mobile interventions to help reduce the threat of school dropout. However, it is important to highlight that there are limitations to the capacities of mobile solutions. For instance, privacy regulations from WhatsApp may inhibit a proper monitoring system to ensure that there is full transparency on how these platforms are being used. In addition, this policy is not a sustainable recommendation due to the rapid speed of technological change. WhatsApp integration also runs the risk of falling out of fashion and being replaced by a more popular platform. Using WhatsApp as the primary modality for disseminating information to system stakeholders will be an efficient and effective communication modality for the 2021 academic school year.

Policy 1.2: Integration of collaborative learning methodologies to engage students in the upcoming “hybrid” school year: To maintain student engagement in Guatemala’s hybrid model, schools should restructure their curricula to create opportunities for students to collaborate both in-person and using SMS messaging. Creating opportunities to grow teachers’ practices and increase student engagement will be key during this new model. By school leaders changing the curriculum to incorporate collaborative learning through SMS messaging, students can connect to their peers and teachers and teachers can build competencies facilitating and creating authentic projects and learning environments.

This strategy is backed by research: by leveraging mobile devices, the World Bank Group (2020) report recommends creating WhatsApp groups for teachers and establishing regular SMS communication between school leaders, teachers, and parents to maximize support. Guatemala’s school leaders can provide WhatsApp best practices and build teachers’ competencies in facilitating conversations, which, in turn, will help grow their understanding through peer learning between teachers. Instant messaging is considered an effective tool for learning and teaching through social interactions and builds interpersonal skills (Gillingham & Topper, 1999). Overall, with a well-designed curriculum and collaboration, students using WhatsApp would benefit from consistent feedback, ease of communication, and engagement in different learning activities. There are limitations to these types of online interactions; schools

will need to consider the long-term impact of limited conversations, lack of face-to-face contact, and the need to differentiate for different learning types.

Policy 2 (Medium Term): Teacher-friendly online resources and mobile application development

Previously stated, MINEDUC accrued many online resources for teachers and students and must find a way to maximize these products during the hybrid model to ensure high-quality distance education in the 2020-21 academic year. Prior to Covid-19, the Ministry sought to invest 8.36 million Quetzals (approximately US\$1.06 million) in technological innovation (MINEDUCb, 2020). The Ministry of Education expanded their budget to over 30 million Quetzals (approximately US\$ 3.8 million) for education technology in response to distance education during the pandemic (González, 2020). This figure is still low and as the world is experiencing a cascading global recession, budgetary constraints are likely (World Bank, 2020).

With these factors in mind, we believe reformatting the online resources currently available to improve teacher capacity will be low-hanging fruit for the Ministry. The following two recommendations are not only to improve access but to maximize the funding spent on preparing Guatemala for 21st-century teaching and learning.

Policy 2.1: Redesign the website that houses Aprendo en Casa resources to make it teacher-friendly: Developing the institutional capacity to ensure all teachers can support their students in remote settings will be a heavy lift for MINEDUC as it prepares for the hybrid 2020-21 academic year. Indeed, hybrid learning means teachers will likely have disparate levels of access to resources and means to reach their students. They must be equipped with flexible, just-in-time learning materials to support their contexts. The Aprendo en Casa website houses a breadth of knowledge, professional development, and curricular tools for teachers. The MINEDUC could reorganize these resources better for the hybrid school year, maximizing usability for teachers at a low cost (Aprendo en Casa, 2020).

Policy 2.2: Develop a mobile app that collates Aprendo en Casa resources to maximize access for low-resource populations: In terms of access, Guatemala must develop a robust online infrastructure for stakeholders without access to a computer or broadband. As it stands, there are over 10 million people almost entirely off the grid beyond a mobile device. Without designing a solution for teacher resource dissemination that matches their technological capacity, this population will be left behind (Aranda Jan et al., 2016). Not including this segment of Guatemala's education system will lead to underperformance in low-tech areas. Moreover, there is the opportunity to begin developing an affordable system to better connect teachers who are away from the technological infrastructure of urban areas. Developing an application for mobile phones would simultaneously boost teacher competencies using ICTs and the online resources of Aprendo en Casa, while spotlighting potential avenues for future low-cost education interventions through mobile devices.

The team appreciates that this is not a catch-all strategy, even with the mobile application; not all stakeholders in the Guatemalan system will benefit from this policy. To truly boost teacher competencies in the use of ICTs for distance education would require a systematic, far-reaching renovation of MINEDUC's current pre-service and in-service teaching strategy. However, such a complete renovation would be neither logistically nor economically feasible for the Ministry to leverage during the current crisis. The cost and timing of such an initiative, which we propose in the next section, fits squarely in a medium- to long-term time horizon. Thus, in the short- and medium-term, this recommendation is a realizable strategy under a tight budget and fast turnaround to provide maximal support for teachers.

Policy 3 (Long Term): Reforming pre-service and in-service teacher programs and scaling strategic partnerships.

According to Villegas-Reimers (2003), teacher professional development should be a lifelong process, and episodic training is not sufficient. Teacher professional development “involves enhancing teaching effectiveness, and supporting professional growth - that is, permitting the transition to roles of higher status and responsibility within the teaching profession” (Villegas-Reimers, 2003, p. 67). For this reason, and given the current challenges

with Covid-19, initial teacher preparation in Guatemala, both pre-service and in-service, should integrate ICT and deeper learning pedagogies to address current challenges and to invest in the long-term future of education for all Guatemalans.

Along with the availability of platforms, training, and resources, a long-term teacher education strategy that fully integrates ICTs is needed. Integrating ICTs into education presents many opportunities, but it is also known to be disruptive and can be accompanied by risks that include high costs, increasing burdens on teachers, and increased inequity (Trucano, 2016). During the Covid-19 pandemic, Guatemalan educators found it necessary to adopt ICTs to support their teaching, and they did so without previous training in ICT pedagogies. The 2021 hybrid school year in Guatemala will continue to require the use of ICTs for education continuity (González, 2020). For this reason, education policy reform that includes ICTs should be a priority of MINEDUC.

The SABER-ICT policy framework developed by the World Bank can be a useful tool for policymakers regarding ICTs in education. The third theme of the SABER-ICT policy framework focuses on teachers, specifically on (a) teacher training and professional development for both pre-service and in-service on ICT-related topics; (b) ICT-related teacher competency standards; (c) teacher networks/resource centers for teachers; and (d) school leadership training, professional development, and competency standards. The SABER-ICT policy framework is intended to identify the developmental stage of each one of these subthemes. These stages, which are divided into “latent, emerging, established and advanced”, give decision makers a clearer view of their progress towards ICT integration in their education system (Trucano, 2016, p.10).

Policy 3.1: Education reform on initial teacher preparation to prepare pre-service and in-service teachers in the use of ICTs and deeper learning pedagogies: According to the SABER-ICT policy framework, MINEDUC is currently in a “latent” developmental stage in terms of pre-service and in-service teacher professional development (Trucano, 2016). Presently, neither FID nor PADEP/D include ICT pedagogies in their curricula. The integration of ICTs will be important not only for the hybrid 2021 school year but also for the future of Guatemala. The participants in our survey revealed that most teachers had participated in different types of ICT training during the pandemic but not during the FID or PADEP/D program. Likewise, 85% of respondents agreed that there is a need for pedagogical support for school staff to integrate ICT in the classroom. In addition to preparing them to use ICTs, teachers need support in incorporating our recommended deeper learning pedagogies — ICT pedagogy and deeper learning intertwine. The 4 Shifts Protocol can be leveraged by teacher preparation programs to help prepare teachers to use technology and deeper learning strategies (McLeod, 2019).

The 2020 Guatemalan Population Census report showed that almost 7% of students are not able to continue with their studies at the secondary level (Portal de Resultados del Censo, 2020). Likewise, PADEP/CB, which offered in-service professional development for lower secondary-level teachers, should be revived, and made accessible to a new cohort. In contrast to PADEP/D, which is carried out by USAC, the last PADEP/CB cohort was provided by three private universities. The costs of reviving PADEP/CB would therefore be higher, but a continuation of PADEP/CB is recommended to increase teacher competency in the use of ICT pedagogies at the secondary level.

Policy 3.2: Maximize continuous teacher professional development through strategic and scalable public-private partnerships: The MINEDUC is currently in an “emerging” developmental stage in terms of teacher networks that provide online support in the use of ICTs (SABER ICT Policy Framework, Trucano, 2016). During the Covid-19 pandemic, Aprendo en Casa offered various high-quality online resources from local and international institutions. Several of these offered online courses in the use of ICTs, deeper learning pedagogies, and 21st century skills through established partnerships. For example, the social initiative ProFuturo, a program from the Telefonica Foundation and La Caixa Foundation, which began in Guatemala in 2017 and managed in partnership with Empresarios por la Educación in the country since 2019, is already available in thirteen departments (provinces), reaching 300 schools, and over

5,400 teachers and 1,900 principals. Its contents for children have been adapted to the Guatemalan national curriculum, or Currículo Nacional Base (CNB). Its value proposition is based on teacher professional development that favors pedagogical appropriation of technology and innovation, a classroom experience where children are offered high-quality education to enhance skills, and the development of student competencies for future personal and professional goals (Gabriela Gaitán, personal communication, November 19, 2020). ProFuturo could be expanded further to support the development of ICT competencies and 21st century skills throughout the country. ProFuturo also grants access to technology with the support of “mobile labs” that include a laptop for teachers and tablets for students. These labs require access to the internet every two weeks for the purpose of downloading course content and updates (Gabriela Gaitán, personal communication, November 19, 2020).

Alternatively, FUNSEPA, another nonprofit organization and potentially scalable partnership, produced a five-month continuous online development course for teachers that can be used without internet access. NA’AT, an online platform developed by FUNSEPA, has also been adapted to the CNB. This platform uses a gamified format, and has teachers think creatively while using national standards and supporting their students in creating authentic projects through a deeper learning/PBL approach (Jocelyn Skolnik, Personal Communication, December 2, 2020). MINEDUC could leverage existing partnerships with Guatemalan and international institutions that specialize on ICT and deeper learning pedagogies to maximize continuous teacher professional development. While a major renovation, these solutions utilize resources already on the ground, adapted to the CNB, and use methodologies supported by education experts.

Limitations

We believe that leveraging technology to boost teachers’ competencies in the use of ICTs for distance education and, ultimately, refurbishing Guatemala’s teacher professional development system would best build teacher competencies to respond to remote teaching. However, it would be misleading to say this is the only methodology to improve teacher performance. Regarding the latter, boosting teachers’ abilities in the classroom could involve several modalities, such as increasing teacher motivation, professionalizing the position, and building a culture of accountability. Any of these methods may have cheaper alternatives to the policy options we propose. Regarding the former, technology allows for a rapid diffusion of information, however, like in all parts of the globe, the digital penetration rate is not 100 percent in Guatemala. There are stakeholders in the system who do not have access and the yawning technological divide is exacerbating inequities.

However, we decided to choose technology and professional development to increase teacher performance in distance education because, utilizing existing technology tools will provide a rapid solution for education continuity during Covid-19 in many marginalized areas in Guatemala given the high rates of mobile penetration. The integration of mobile solutions takes advantage of technological resources that are accessible and recognizable in vulnerable communities. In addition, given our survey and research, the Ministry of Education was already offering high-quality tools for free that were not being used by teachers. Resources were not the problem, but rather how these were disseminated and leveraged. Our proposed solutions build a network of outreach and put in place professional development mechanisms to ensure teachers can act on the information the Ministry provides. Therefore, while we recognize there are alternatives to our proposal, we believe that using technology and renovating teacher professional development in the country will yield the highest return for the Ministry’s investment for the upcoming hybrid school year.

Policy Recommendations

Phase 1: Short-term recommendations

Recommendation 1: Create a strategic communication plan led by regional education authorities using mobile solutions for learning methodologies and education continuity. We

propose education authorities implement a strategic communication plan capitalizing on existing mobile solutions, like WhatsApp, in schools to maintain education during Covid-19. Through mobile interventions, an amended curriculum should foster collaboration and connectivity by providing a mobile space for students to connect and create authentic projects and conversations among peers.

Phase 2: Medium-term recommendations

Recommendation 2: Maximize accessibility to existing online education resources for teachers, students, parents, and caregivers. MINEDUC developed a plethora of high-quality digital solutions that are underleveraged by the education system. To maximize the impact of these tools, the government must prioritize access. We propose that redesigning the website to be teacher-friendly for those with access to a computer, and a mobile application for those that do not, will significantly broaden the reach of Aprendo en Casa.

Phase 3: Long-term recommendations

Recommendation 3: Reform teacher education policy to integrate the use of ICTs and deeper learning pedagogies in pre-service and in-service teacher professional development, while also maximizing continuous teacher professional development through strategic and scalable public-private partnerships. Teachers and principals need to be prepared for the demands of 21st century teaching and learning and the use of technology. Technology will continue to play an integral role post-pandemic and teacher professional development will need to adapt to modern times. By increasing and strengthening strategic partnerships with nonprofit organizations like FUNSEPA and ProFuturo, the Ministry can capitalize on good practices already being used in the field and can help ensure that teacher professional development supports teachers' development in ICT skills, deeper learning pedagogies, and 21st century skills.

Conclusion

As it prepares for a hybrid school year in 2021, Guatemala must support educators who are serving the needs of all students through distance education. As immediate next steps, recommendations 1 and 2, and each of their sublevels, provide economically feasible strategies for the Ministry of Education of Guatemala to develop and deliver high-quality information and communication networks to teachers. These, in turn, will boost teachers' competencies to provide strong learning models in the hybrid schooling environment. Given that the Ministry of Education is currently dealing with twin crises related to public health and the economy from Covid-19, these recommendations can assist in mitigating the strain of remote learning while circumventing barriers related to capacity and infrastructure.

This policy research would not be complete, however, without highlighting the growing intensity of the OECD's, World Bank's, and other institutions' calls to action for developing countries to begin preparing for massive technological disruptions by laying the groundwork for digital transformation (OECD, 2020; Beylis et al., 2020; USAID, 2020). To prepare for this future, teachers must be equipped with ICT competencies and 21st century skills to prepare for new technological challenges. Thus, recommendation 3 drives towards a future vision for the country and serves as a potential roadmap for increasing the standards for teacher capacity-building. Integrating ICT pedagogy into pre-service and in-service training, while simultaneously involving public-private partnerships to help bridge the digital divide, are long-term goals that can help education prosper. Now is Guatemala's opportunity to respond effectively to the threats of the pandemic and, through innovation, leapfrog its digital divide as part of efforts to ensure future prosperity for all.

CODA

At the beginning of 2021, we presented our policy recommendations to the Board of Directors of Empresarios por la Educación (ExE). Using our recommendations as a third-party

endorsement for their advocacy projects, ExE plans to produce a policy brief, and share it with the Ministry of Education of Guatemala to help influence short- and long-term policy decisions this year. The ExE board stated that it anticipates this brief will be instrumental in supporting collaboration with other Guatemalan institutions, including la Gran Campaña Nacional Por La Educación (ASIES) (the Great National Campaign for Education). The board also requested that the team continue to support ExE with research and evaluation as Guatemala moves into the 2021 academic year. In addition, the board president of ExE expressed interest in examining how to motivate teachers to use new technologies and available resources. This presents the opportunity for further research into the impact of pedagogical innovation and how it is received by Guatemalan educators and stakeholders. Our team is enthusiastic about seeing our work move from research to practice and is excited to continue our collaboration with ExE.

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Chapter Six

An Integrated Approach to Education Continuity in Rural Kenya

Revanth Voothaluru, Charlotte R. Hinrichs, and Michael Ryan Pakebusch

Summary

This chapter examines several policy alternatives the non-governmental organization Asante Africa Foundation can implement to support the re-enrollment and academic success of students in rural Kenya impacted by a nine-month school closure due to Covid-19. The authors executed this consulting project with collaboration from key members of the Asante Africa team, including CEO Erna Gratz and Global Director of Learning, Monitoring and Evaluation, Byrone Wayodi. Additional contributions came from Kenyan families and school leaders. The chapter identifies barriers to re-enrollment and academic success for vulnerable students, particularly girls, living in extreme poverty. Considering the evolving nature of the policy response to Covid-19, the chapter contains a review of several studies on implementing digital learning, teacher training, and accelerated curricula. Targeted interventions that address the current situation and measures that Asante Africa can sustain beyond the pandemic to improve student outcomes are presented. The final policy recommendation reflects the core institutional strengths of the NGO. Successful re-enrollment programs implemented during the Ebola epidemic in West Africa and pedagogical approaches adapted for vulnerable communities in Africa and Asia inspired our reform approach.

Introduction

In rural Kenya, the likelihood of widespread active engagement of adolescents, particularly girls, in Covid-19 education continuity programming and re-enrollment in school is low due to non-academic issues that beset vulnerable populations. These issues include high levels of poverty, attitudes and priorities of parents, and retrogressive practices that limit girls' potential. The challenge Asante Africa Foundation (hereafter referred to as Asante Africa) faces considering the pandemic has been the complete disruption in programming and the increased demand from students' families for material support such as food aid and learning materials. Our consultancy was introduced to help the organization determine how best to continue its vital work amid the Covid-19 pandemic that has led to the disruption of education service delivery in Kenya. The NGO desired our help to develop an approach that is sustainable post-pandemic.

There is a growing need in rural Kenyan contexts to reconfigure schooling to be flexible enough to allow students to contribute to their families' wellbeing while learning and developing as individuals. Despite the need for children to take on extemporaneous roles and responsibilities within families, research suggests that children need to engage in experiences that develop the whole child (ASCD, 2012; CDC, 2021). Asante Africa works to support this growth and therefore wanted our help to develop an emergency education policy that allows for the continuation of most of its signature support to youth: increasing equity for girls and improving the quality of formal educational offerings. The organization also wanted to expand this support to include social emotional learning due to the duration of the quarantine associated with the pandemic. Therefore, we agreed to work on the following problem: how can Asante Africa continue to offer youth educational, and now social emotional support, through a modified program? Our role was to collaborate with the NGO to develop a blueprint for an effective emergency education response that addresses this issue. The founder, Erna Grasz

agreed that we would design an emergency education policy for boys and girls. This is because Asante Africa will always contextualize its operational work to promote equity for girls.

This chapter begins with a discussion about the challenges that Asante Africa faces due to school closures in rural Kenya and the obstacles children face in these remote areas. This is followed by a literature review that explores qualitative and quantitative studies on the impact of different interventions for disadvantaged students, focusing on promising practices in a Covid-19 emergency education response. We then discuss the key implications, explore policy options, and analyze policy alternatives. The chapter concludes with a policy recommendation that includes trade-offs and suggestions for the next steps to implement a response. We contextualize this focus by addressing ways the NGO can introduce the intervention in diverse contexts.

Consultancy Approach and Research Methods

When it comes to education, NGOs play a significant role in the success of formal educational and vocational offerings to secondary students, particularly in rural areas of developing countries. Since the onset of Covid-19, this work has taken on increased importance. For these reasons, the authors of this chapter decided to work with the organization Asante Africa. This opportunity presented itself because one of the authors has been in contact with the CEO and co-founder personally as he volunteers on special projects. We employ a case study approach to undertake this work. We conducted interviews, analyzed documents provided by Asante Africa, and examined secondary sources on the Ebola health crisis in West Africa to assess the issue. We then developed a plan that seemed most appropriate for our client. The project relies heavily on documents and interviews with Asante Africa staff. However, the final policy recommendation reflects a design advanced independently from the NGO.

Once Asante Africa and we agreed on the organization's problem, we decided to hold periodic meetings to update the NGO on our progress and receive guidance from senior actors working in rural Kenya. We collaborated via Zoom or teleconferencing three times between September 2020 and December 2020. However, we collaborated more frequently via shared documents and email during the same time frame. We began the project by reading official regional reports, recent grant proposals, and recommended studies that Asante Africa provided the authors. These documents featured the organization's mission, vision, and services provided to the thousands of children the NGO supports in underdeveloped and marginalized areas of rural Kenya. During this process, we discovered that agency is one exceptional quality exemplified by teens living in these contexts. The youth created opportunities to learn for themselves by asking older siblings for help with assignments and regularly taking advantage of government-sponsored opportunities for rudimentary livelihood development. Moreover, there seemed to be a strong sense of community experienced by teens and adults.

Literature Review

Extreme Poverty in Rural Kenya

The declaration of Covid-19 as a pandemic led most countries to temporarily halt in-person learning and implement lockdown measures in March to slow the virus's spread. By July, the Kenyan Ministry of Education made the radical decision to close all public schools in the country until January 2021 and restart the academic school year. Before Covid-19, the central system challenges of Kenyan youth living in rural areas included the lack of jobs, job training, quality teacher training, girls' marginalization, and students dropping out of school. Asante Africa addressed these concerns through the three core programs it implements to educate East Africa's youth and empower educators across 330 schools (Asante, Impact Report, 2019).

To understand the gravity of this problem, one must understand the difference between poverty and extreme poverty. In 2015, the World Bank defined “extreme poverty” as income below 1.9 USD (Fierrera et.al, 2016). According to the development indicators of the World Bank, 36.8% of Kenya's population live in extreme poverty with the concentrations of high poverty in the Wajir, Narok, Kwale, Kilifi, and Busia counties (Ndege, 2018). 45% of Kenya's

9.5 million children are severely poor (UNICEF, 2017). Furthermore, the disparities between the rural and urban poverty in children is significantly high (UNICEF, 2017). Extreme poverty impacts people in severe ways by depriving them of basic human needs. Communities experiencing this form of poverty struggle with access to education, health services, safe drinking water, and sanitation. Considering that Asante Africa focuses most of its efforts in rural communities, many students that it supports live in extreme poverty. In contexts like this, interventions designed to support education delivery depend on prioritizing the greatest needs.

In addition to this, Wambua, Omoke, and Mutua (2014) found that 3.2 million people live in drought-impacted agricultural areas in rural Kenya, where food insecurity is a severe problem (p. 52). Droughts, and more recently locusts, have also had a destabilizing effect on livelihoods and financial security of those who depend on agriculture as a source of income. Wambua, Omoke, and Mutua (2014) found that 66% of the households surveyed were utterly food insecure, meaning they experience food shortages many months in a year.

In rural Kenya, vulnerabilities associated with living in drylands and climate change has also led to economic consequences that have affected educational access. Students who would otherwise attend school cannot because they must work to support their families. However, research shows that completing just the first four years of schooling in grades 1-4 can lead to a 7.4% increase in agricultural production (Muro & Burch, 2007, p. 4). The negative educational impact of food insecurity on students perpetuates a cycle of extreme poverty. Families and communities must recognize that students who stay in school longer are more likely to better utilize the land and learn ways to adapt to economic hardships associated with living in a marginalized area.

Girls Education

Erna Grasz, the founder of Asante Africa, cites female genital mutilation, cultural norms about girls, and early marriage as significant issues that decrease girls' odds of actively engaging in learning opportunities in rural areas (Grasz, 2020). A school principal in the region, Abdikadir Ismail expressed the most notable cultural concern regarding girls' education in rural Kenya in a recent interview. He explained that families prioritize the education of boys over girls because they carry on the family's lineage. Girls are considered anchors for their future husband's family. Moreover, the marriage of girls represents a financial boon for families as there is an enduring system of paying a bride price, typically in the form of cash or cattle. These challenges are particularly prevalent in pastoralist communities such as the Samburu and Maasai.

The possibility to attend school is entirely dependent upon a girl's family (Ismail, 2020). A female student may be required to dropout at any time in the school year without any explanation. The discontinuation of schools in Kenya has harmed girls living in rural communities because they have far fewer role models, including older female students and women in remote areas (Ismail, 2020). While political leaders criticize and discourage these practices, and there are laws to curb several of these practices, there is an apparent lack of institutional power in enforcing policies. The economic hardship of the pandemic in Kenya and the pre-existing issues of locusts and drought in rural and pastoralist communities are likely to lead some families to turn to their girls as sources of income. Once girls are married off by their families, it can become difficult for them to continue school.

New Developments

It was announced by the Kenyan Ministry of Education that on October 12, 2020 the partial reopening of schools will commence with Grade 4 (the competency-based curriculum class), Class 8 (the final year of primary school), and Form 4 (the final year of secondary school). From that point on Class 8 and Form 4 will be on a comparatively accelerated timeline. These two cohorts are expected to take their official leaving examinations, the KCPE and KCSE respectively in approximately three months. It is important to note that while the KCPE results will not influence a student's ability to matriculate to secondary school, it will influence the quality of school a student can attend and scholarship opportunities to attend these schools. However, the KCSE results will have a direct impact on a young person's ability to matriculate to tertiary education in Kenya or abroad.

The non-governmental organization Usawa Agenda suggests that many students were not learning during the period of school closures. The most striking findings from its report are that only 22% of students surveyed access instruction digitally and pre-secondary students are less likely to access schoolwork remotely (Usawa Agenda, 2020, p. 2). An average of 5% of students claimed to have access to learning materials in the counties in Kenya where Asante Africa has regional staff present (Usawa Agenda, 2020). The low level of active engagement in online learning is indicative of issues related to digital literacy, existing infrastructure problems, and access to devices.

Cases Studies on Re-Enrollment

In addition to the challenges students in rural Kenya face discussed earlier, the literature on enrollment post-Ebola in Liberia, Guinea, and Sierra Leone suggests that girls' participation in school is at high risk during the reopening of schools during Covid-19 (UNESCO, 2020a). These countries provide useful comparisons for this research due to the corresponding social factors that influence girls' access to education - particularly within rural communities. For instance, the number of girls out of school was three times higher than pre-Ebola numbers in Liberia (UNESCO, 2020b). However, Sierra Leone managed to re-enroll 95% of students after Ebola closed schools for approximately nine months.

Of the activities part of Sierra Leone's re-enrollment campaign, two that were noted as essential to its success were the mass awareness campaigns through community engagement and teacher training on supporting students well-being. Additionally, financial incentives, ensuring health and safety protocols, and the continuation of school feeding programs were significant factors for the success of the campaign. In addition to necessary contributions from the Government of Kenya, such as the continuation of financing for public schools and providing essential health and safety supplies, an organization like Asante Africa can effectively support a re-enrollment campaign through community engagement and teacher training, which are already core mechanisms of their programming.

Education Technology, Teaching, and Learning

A review of the literature on large-scale device rollouts, such as One Laptop Per Child, indicates that there are many omissions such as teacher training, technical capacity, alignment with curriculum, and stakeholders' roles (Coomar & Rzyhlov, 2013). However, when there is a targeted e-learning intervention, studies have shown that this can yield promising results. We will focus on this intervention in contexts where students targeted in the intervention are primarily from disadvantaged backgrounds.

In Sierra Leone, the 60 Million Girls Foundation facilitated a multi-year tablet program called the Mobile Learning Lab (MLL), which demonstrated itself as adaptable since it was effectively rotated between communities during the Ebola epidemic. They also reported a low operating cost per student during the initial startup phase (7.2 USD per student for a full 8-month program). After the initial project, communities retained the technology and continued the program with no additional funds needed, only tech support; other operations were run by local volunteers (60 Million Girls Foundation, 2018).

These characteristics are promising for a Covid-19 response since they address the financial and logistical constraints facing schools, governments, and organizations. 60 Million Girls also conducted a randomized controlled trial, and although the experiment was non-mandatory and offered no conditional incentives, they had a recorded attendance rate of 90% (60 Million Girls Foundation, 2018). Math test scores of the full treatment group improved by double the amount of the control group. An interesting finding was that for the partial and full treatment group (which differed by 88 hours of screen time), the increase in literacy was still significantly higher compared to the control group. Overall, the absolute gains were modest, considering the baseline. This gives reason to believe the mere introduction of an intervention involving technology during Covid-19 may at least have a positive impact on engagement and learning of vulnerable student populations in rural Kenya.

Computer-aided Learning

While we have looked at the broad implications of introducing technology hardware and mobile applications, we must also take a closer look at intentionally designed systemic interventions. Mindspark and Bridge International Academies were consistently identified as programs with the strongest correlation between computer-aided learning programs and educational gains, though in very different ways. Mindspark can be more accurately labeled as an adaptive e-learning software that helps individual students. At the same time, the Bridge model is aided by enterprise software, which serves a wide range of organizational functions such as managing academic and financial data. This dichotomy presents an opportunity to embrace each of their most practical innovations in the current Covid-19 context, given the economic, institutional, and logistical constraints.

The computer-aided learning system Mindspark provides an initial assessment of each student user's actual grade level, supporting the Teaching at the Right Level (TaRL) approach. Teaching at the Right Level is an evidence-based educational approach pioneered by the Indian NGO, Pratham. It focuses on developing fundamental reading and math skills in primary school students based on their learning needs rather than their age or grade. While the cost of having dedicated educational specialists is prohibitively high, the systematic gathering of real-time data to inform a pedagogical and curricular design can be a model for monitoring virtual learning programs during the pandemic and teacher training provided by Asante Africa.

A longitudinal study found that students who attended Bridge schools in Kenya for five years or more scored .41 standard deviations higher than the average student on the national primary school exam (KCPE), which is equal to about 2.5 years of educational gains compared to the average student (Bridge International Academies, 2019). Similarly, students in the Mindspark treatment group scored 0.37 standard deviations higher in math and 0.23 standard deviations higher in Hindi over just 4.5 months (Muralidharan, Singh, & Ganjiman, 2018). Both cases illustrate the effectiveness of capturing student performance data in real-time to use for curricular and pedagogical adjustments to meet student learning needs. This offers some guidance on how Asante Africa can structure any education continuity programming that prioritizes student learning outcomes. Regarding the literature reviewed, Asante Africa should give special attention to developing open-source software and applications to improve education continuity. Through collaboration with actors in Kenya's education technology space, devices like RACHEL can be pre-loaded utilizing inexpensive, home-grown tablet systems like Kio Kit (designed in Kenya), adapted to the Kenyan curriculum, designed for assessment, and administered through a learning pod environment.

In contrast, offline connections can allow distance learning on shared, borrowed, or personal devices, addressing general parent concern for family health and safety while maintaining a learning community and access to learning materials. Lastly, this intervention may support an accelerated curriculum, an education approach that is crucial for vulnerable learners during and after the pandemic due to the expected learning loss.

Teacher Training and Professional Development

The literature indicates the importance of right curriculum and instructional practices as the key to accelerate learning post-crisis situations (Accelerated Education Working Group, 2017a). This includes developing instructional practices needed to facilitate learning in a student-centered manner (Manda, 2011). The support teachers receive must be pertinent to the implementation of an accelerated learning program and provide pre-service and in-service training (Accelerated Education Working Group, 2017a; Accelerated Education Working Group, 2017b). The usage of individual coaching methods or collaborative learning practices can be leveraged to keep the support continuous (Accelerated Education Working Group, 2017a; Boisvert, 2017b). In the absence of in-person training during the pandemic, this can be done through web-conferences or observations of lesson recordings (Carrillo & Flores, 2020). Teacher professional development must be relevant, continuous, and cyclic. The literature reviewed highlights a few best practices in AEP implementation. This includes monitoring and evaluation, hiring locals as support for teachers in the classroom, flexible scheduling, and monitoring AEP implementation (Accelerated Education Working Group, 2017b; Menendez et al., 2016).

Key Implications

The effective re-enrollment of learners during and in the aftermath of Covid-19 will depend on a multi-level engagement of students, parents, teachers, and the community. Since Asante Africa's staff members are from and live in the communities they serve, they are an organization particularly well-suited to lead a re-enrollment campaign with support from other stakeholders, such as district offices of the Ministry of Education. Of the interventions explored in the literature review, a re-enrollment campaign involves the least amount of technical capacity while still having a significant impact on students. In recognition of the barriers to access outlined in the introduction, a re-enrollment strategy should be emphasized in any policy recommendation.

There are long-term implications regarding how technology-aided learning can influence instructional delivery during and post-pandemic in rural Kenya. The most critical findings from our Literature Review pertinent to the work of Asante Africa are the following:

- Self-directed, technology-aided learning yielded positive learning gains and reinforced prior knowledge in resource-constrained environments; and
- Volunteerism sustained the most successful technology-aided learning programs.

Mechanisms and interventions that permit self-directed learning are advantageous to implement since it is unclear how schools will mitigate students' estimated learning loss during the last nine months. From an operational perspective, the efficacy of any intervention that involves technology and self-guided learning will require a dedicated volunteer force, which is consistent with the interventions presented in the literature review. Asante Africa will need to recruit or identify volunteers from its reserve of individuals (e.g., Asante program alumni, Asante teacher beneficiaries, Asante scholarship students) who could support students depending on the context.

In the last few months, the NGO has implemented a tablet-based learning program for 106 students and will procure RACHEL devices for 60 students. The learning pod approach is implemented in Samburu, Narok, Turkana, and Marsabit counties. Scaling this pilot educational model could present avenues for effectively addressing learning disruptions for an extended length of time. Several options, such as Mindspark, Bridge@Home, and RACHEL encourage self-directed computer-aided learning. Depending on the per-student implementation cost, these options could be alternatives worth exploring. However, the procurement of devices and technology does not in itself contribute to improvement in learning. It is essential to couple implementing technology-enabled learning with effective instructional strategies, e.g., learning pods. As noted earlier, this is already the case. Student engagement for technology-enabled learning translates into improved learning outcomes. Considering that Asante Africa is piloting this approach with a small group, scaling it for all students could be propitious.

Teacher training and professional development must be relevant, continuous, and cyclic. For a policy response that focuses on accelerated education programming needs effectively, relevant PD includes a pre-service and in-service component. The continuous aspect of the policy response should involve individual coaching and collaborative models of teacher training. To realize a cyclic approach, Asante Africa should design or invest in web conferences and opportunities for teachers to participate in discussions around recorded lessons that demonstrate best practices in context.

Selection Criteria for Policy Alternatives

The policy alternatives recommended for the organization need to be considered with the criteria relevant to the diverse range of contexts served:

1. Scalable: Asante Africa impacts over 594,000 lives through their three different projects in East Africa. Any recommended policy alternative must consider scalability, considering the magnitude of the work. It is important to view scalability through the lens of replicating it in diverse contexts and across a wide population.

2. **Aligned:** Asante Africa's service model leverages the involvement of local volunteers in communities to facilitate change. Therefore, it is essential to determine if the alternatives are actionable without additional staffing costs. If the option requires a shift in the organization's philosophy or core operational methodology, it might lead to complications that present new challenges and increased expenses.
3. **Equitable:** Disparities in income levels and gender-based discrimination are predominant in the marginalized communities that Asante Africa serves. Interventions proposed by organizations for development in these contexts tend to inadvertently accentuate existing disparities. Therefore, it is essential to view the policy alternatives through the lens of equity, catering to all students' contexts in a way that maximizes benefits.
4. **Cost-Effective:** Cost-effectiveness refers to the maximization of output for a given input cost. Asante Africa Foundation is a non-governmental organization that functions through fundraising and philanthropy. It is important to view every policy intervention through the lens of cost-effectiveness, considering that any additional costs will involve new funding efforts and subsequently delay the implementation of the intervention. Identifying a “low cost – high impact” intervention is appropriate for implementation that can have a large and timely impact.

Policy Alternatives

Our research led to three distinct policy recommendations for Asante Africa to address with a focus on enhancing education delivery. These three policy recommendations represent an integrated model of two or more interventions that provide practical solutions to the challenges students and teachers face.

Policy Option One

Distribute Additional RACHEL Devices and Implement an Accelerated Curriculum: The procurement of RACHEL (Remote Area Community Hotspot for Education and Learning) devices pre-loaded with educational software can address the challenges presented by learning discontinuity. Since Asante Africa already uses them in a pilot program, integrating them in a learning pod model would be feasible. However, access to technology alone does not close learning gaps. When the devices are loaded with concepts based on the accelerated learning curriculum and with guidance from teachers, the intervention can ensure that students learn the fundamental concepts relevant to their age and grade level within a short period of time. Moreover, teachers will need professional development for implementation.

Beyond the rollout of RACHEL devices, Asante Africa must help schools conduct a baseline assessment to understand student academic needs at the macro-level. The NGO should also implement an accelerated curriculum for all students. The intervention is highly relevant because it aligns with the government's curriculum and contributes to student learning outcomes. The policy alternative is also highly scalable because it involves a series of replicable actions like increasing the use of RACHEL devices and integrating them into the learning pod model.

When it comes to alignment and sustainability, the intervention can receive a high rank because it builds on the existing pilots and requires minimal skill-building for volunteers and teachers. The NGO could easily integrate the policy into this model, thus expanding cohesion within existing operational structures. Leveraging devices in learning pods is sustainable for learning access, considering the high volatility and uncertainty that has resulted from the pandemic. Post pandemic, schools and learning communities can continue to use the devices as well. However, each RACHEL device is 500 USD.

Procuring devices at scale can be expensive. The cost per student is 12.5 USD. Students can effectively utilize RACHEL devices if they have smartphones or tablets of their own. There would be an increase of an additional 46 USD per-student to procure a smartphone in the absence of this. We arrived at calculations for smartphones and electronic gadgets by exploring a preferred Kenyan E-commerce website for mobile devices called Jumia.com. The model

reflects a “high cost – high impact” example when it comes to the criteria of cost-effectiveness. This intervention is not equitable because it is fair to assume that many students may not have access to electronic devices, which further widens the education gap.

Policy Option Two

Partnership for Social-Emotional Learning and Food Security: Considering new developments associated with the pandemic and the need for a highly effective emergency response, Asante Africa could collaborate with schools and the communities it serves to build a durable partnership as a viable policy response. The goal of this partnership is to provide all students with social emotional learning (SEL) at this critical time and to address the issue of food insecurity. There would be no cost or low cost associated with social emotional support depending on the strategies employed by volunteers.

To encourage student enrollment and help families alleviate food insecurity, the three could develop a program that allows students to learn how to grow their own food. Establishing a farm to school program would allow Asante Africa to implement an emergency education response that is both participatory and student/community centered. The NGO could provide training to community volunteers in agricultural science, nutrition, farming techniques, and home-related subjects. These practices are aligned with our belief that any emergency education response must be culturally sustaining.

In the School-to-Home emergency education response model, schools provide a space where students can experiment with farming and create an edible garden. The students, school, and community would have a stake in the project, thus increasing the possibility to sustain the program after the pandemic. One assumption this policy makes is that a school-to-home program would be welcomed by schools and communities. We also assume that students would have an interest in the topics associated with farm science. A high level of interest in this field of study could lead to a substantial increase in student re-enrollment.

This option allows students to participate in authentic opportunities to learn and mitigates a real-world problem faced by marginalized communities. Low-cost farming equipment such as a mini-tractor and irrigation tools would make this possible. An estimated investment of \$5,000 per school is necessary for the implementation of a farm-to-school program. We arrived at the estimated cost by conducting an Internet search for the price of basic farming equipment in Kenya. Approximately 3,000 students participate in the 30 schools Asante Africa supports in marginalized rural areas of the country. Therefore, the annualized cost per student is \$50. However, this cost would decrease based on total student enrollment per school since the policy options presented in this paper are designed to impact all students at all school sites where Asante Africa works.

The Policy Alternative Matrix developed for this project indicates this is a high cost / high impact option. It ranks high in terms of cost because of start-up needs and high in terms of impact because students, schools, and communities will benefit from the emergency response. It is worth noting that many areas where Asante Africa works are impacted by severe, extended droughts in rural Kenya. As a result, there is concern regarding equity because the option is not feasible for many schools.

The response is aligned to Asante Africa's service model to leverage local volunteer involvement in communities to facilitate change. This is possible mainly because locals comprise the staff in communities. Many program alumni mentor younger students and become involved at the community level in volunteer and leadership roles. The policy is scalable and places student needs and professional/communal training at the center of Asante Africa's work. Schools in some rural areas in Kenya reopened in November; therefore, AA could immediately partner with learning institutions and communities. Considering Covid-19, this option is viable in part because all activities can occur outdoors.

Policy Option Three

Establish Community Workshops and Teacher Professional Development: Our third integrated option begins with a multi-level intervention in the form of community workshops that would collaboratively identify and define barriers to re-enrollment. Baseline testing would also occur before the start of the term to assess students for academic competencies (as they relate to literacy and numeracy). The findings from both efforts would inform relevant teacher professional development. They would also guide the design of alternative models of educational continuity and support/accountability structures. The design of training and models would all be co-developed with the technical support of Asante Africa.

A digital monitoring system would sustain this intervention to monitor student well-being and academic progress and rapidly adapt practices based on evaluations. It is important to note that this intervention is built on the assumption that a multi-level workshop with extensive participation is achievable, given the public fears and government regulations concerning gatherings. We also assume that the idea of alternative models of education will have ideological and programmatic support of school staff.

This option is scalable and well-aligned as it builds on the institutional strengths of Asante Africa to help students and teachers develop competencies and transferable skills. It can be scaled vertically as a school policy and horizontally to reach parents, students, and teachers across rural Kenya. Equity is core to the multilevel workshop to ensure all students, regardless of barriers, are part of the design process for the rest of the school year. This policy is also highly relevant because it features a student-centered approach to learning and engages various stakeholders in discussions about the barriers facing students who want to re-enroll in school and how best to address their learning loss.

This approach is low cost (2.28 USD per student approximately). As with policy option one, we arrived at this calculation by consulting a popular Kenyan e-commerce website for mobile devices. Asante Africa would need to determine the likelihood that digital monitoring is executable, given that each school would need a device to record data and access a network to make it shareable. While self-directed learning is not an essential component of this policy option by design, a core facet is to implement a sustainable response with local autonomy built into a standardized process for implementation.

Comparison of the Policy Alternatives

The three policy alternatives explored in the previous section address educational access and continuity challenges through core levers. Option 1 suggests that Asante Africa heavily relies on technology in its existing learning pod model. Although this solution meets the selection criteria, the costs involved are high. Moreover, costs to ensure these devices in case of damage or theft would add to expenses. Option 1 is relevant only when students have access to devices like smartphones, tablets, or computers. Considering our context, this is implausible. For these reasons, Option 1 is not an equitable solution. This is important because the core work at Asante Africa is to ensure equitable opportunities for underserved communities. However, the policy is worth exploring with funding agencies that provide technical support.

The second policy alternative suggests that Asante Africa partner with local schools and communities to support student wellbeing. Considering the barriers to educational access that Covid-19 has compounded, social-emotional learning has grown in importance. Leveraging a partnership with communities and schools could lead to an increase in student wellbeing both at home and school. The other two policy alternatives do not address this concern directly. Option 2 also presents farm-to-school programming as a strategic, scalable emergency education response.

The literature reviewed by the authors highlights the effectiveness of such an intervention to increase education levels and skill development. However, the policy suggests that Asante Africa create a new project. Additionally, the NGO, community, and local schools would need to agree on a garden location and farming area. The response is not feasible due to extended periods of severe drought in many areas. There are logistical concerns and the recruitment of volunteers to consider as well. Although Option 2 reflects several promising

practices and meets most criteria, equity issues and possible staffing requirements make it an untenable emergency response for Asante Africa.

Option 3 proposes community workshops, teacher professional development, and progress monitoring as an emergency education response. In comparison to the other two alternatives, Option 3 would involve fewer expenses. Asante Africa's teacher capacity-building model has been active since 2012. The focus on building teacher skills and using digital devices in education is a part of the Accelerated Learning in the Classroom Program. This program reached over three thousand schools across three countries and is well-received by local schools. Adapting this program to address the challenges of the pandemic can be an effective and low-cost approach.

The devices needed for schools to monitor student data may require a procurement cost if there is no pre-existing device for school-use. However, the device's cost is considerably less than the price for start-up gardening tools and farm equipment or devices for all students. The policy also aligns with the operational philosophy of Asante Africa because it involves adding the layer of data collection and data-informed decision-making for professional development. The option also builds on the organization's past success with parental involvement. More specifically, it addresses the desire of parents to engage in their child's education and with children across the community. During the pandemic, Asante Africa has noted parents taking ownership of working with youth outside of the classroom, specifically concerning critical topics like drugs and pregnancy. Asante Africa's past success with engaging parents in its core programming and observation of increased agency during the pandemic is promising for the community workshops' success.

However, this policy alternative may not have the same impact as an accelerated education program or a partnership to care for students' social-emotional well-being. This is worth noting since Asante Africa aims to support the whole child through its continuity of learning response. Therefore, we propose an integrated policy alternative. An integrated approach would entail baseline testing and progress monitoring, coupled with school and community-based workshops. This intervention would involve training teachers, students, and parents to design and implement an accelerated holistic curriculum aligned with the Kenyan national standards. The workshops would address the need to support student well-being and address learning gaps created by the limited access to education during the quarantine.

Trade-Offs

Each policy alternative is designed to result in the continuity of learning during and after the pandemic. We selected Option 3 as our primary response mechanism and incorporated the curricular aspects from the two other policy options due to their high relevance to student outcomes. In this section, the trade-offs associated with the decision to recommend an integrated approach are presented.

There are two core trade-offs associated with Option 3 because the direct outcomes are adult-centered. For instance, the investment of time and resources in data collection, professional development, and parent engagement links indirectly to student outcomes. However, the edible garden and farm-to-school response presented in Option 2 reflects a student-centered approach that strategically addresses household food insecurity in the community and offers an indirect form of cash transfer in the form of food assistance.

Even with changes in teaching practices and school support structures, the trade-off here is that families may prioritize income-generating opportunities that involve their children over re-enrollment in school because food and financial insecurity are a pervasive problem. However, community workshops have the potential to address this trade-off because families and Asante Africa can collaboratively explore solutions to barriers that deter school re-enrollment. Ultimately this gives autonomy to schools to address the unique and varied needs of local families appropriately.

The second trade-off involves Option 1 and has implications for Option 3. The decision not to invest in RACHEL devices and increase digital literacy could impact the feasibility of employing e-monitoring and evaluation mechanisms proposed in Option 3. We address this

concern in the final section of this paper. Considering that tablets are available at approximately 4500 Kenyan Shillings (40 USD, as calculated on December 6, 2020), procuring a tablet for 30 schools could cost up to 135,000 Kenyan Shillings (1232 USD, as calculated on December 6, 2020). In addition to these costs, additional fees for maintenance and insurance of devices are also necessary. However, the total expense is potentially less than the costs associated with procuring essential gardening tools and farm equipment per school site.

Increasing teacher capacity to deliver instruction can improve student outcomes both in the short-term and the long-term. Similarly, improving parent training to create safe spaces for children can have significant long-term benefits. Asante Africa is well-equipped to facilitate training for teachers and parents given the success of its core programming. This influences teaching practices and positive engagement with parents on program content and direction. The two other policy alternatives discussed do not work to balance both the long-term and short-term gains. For instance, procuring farm equipment or RACHEL devices may not be justifiable expenses during a period of economic recovery. Our final policy recommendation is based on an investment in institutional practices and increasing volunteer capacity to make a lasting impact on education in rural Kenya beyond Covid-19.

Next Steps for Implementation

Asante Africa will need to leverage the existing educator network, modify training materials, assess physical implementation conditions, and conduct a needs assessment for data collection, monitoring, and evaluation as their immediate next steps.

The educator network across rural Kenyan schools needs to be informed about the emergency education response timeline. Also, stakeholders need to know the range of activities, teachers' roles, and how they are connected to the research team's teaching, learning, and enrollment goals. Implementors should primarily consult and modify the preliminary logical framework developed by the research team. Asante Africa should include additional assumptions to enhance the activities incorporated to reach the defined objectives and goals. This is particularly important because the NGO works in a range of geographic and cultural contexts. Educators must also collaborate with Asante Africa staff to modify existing training and facilitation materials from the Accelerated Learning in the Classroom and Wezesha Vijana programs to utilize them in multi-level workshops with school leaders, teachers, families, and community members, and subsequent teacher professional development.

For in-person training and workshops, we encourage Asante Africa to determine the best format and location with each local partner to ensure these are conducted according to the Ministry of Health's health and safety standards. This may increase participants' confidence and maximize attendance given the amount of holiday travel that will occur just before the reopening of schools. For instance, if the goal is to reach 150 parents through a community workshop in one locality, at least eight sessions could be held on certain days of the week, at certain times, and in suitable locations to prevent transmission of Covid-19. To maximize these workshops' reach, Asante Africa should leverage the community of parents they have previously worked with to encourage attendance and sustained engagement with the Covid-19 programming. Moreover, accurate contact information for students and families should be a priority for schools to build stronger ties between home and school.

The needs assessment will identify the technical capacities each school has to operationalize an effective baseline test and fully monitor academic progress. Asante Africa must determine if there is at least one device to input and evaluate data at each partner school. The NGO should evaluate how the current digital investment made (e.g., previous purchasing of devices) can be leveraged to cover a large geographic area through sequenced usage. This will depend on the organization's goals. Moreover, with a digital approach, Asante Africa must identify appropriate providers that can provide software that can be utilized for baseline testing. The research team can aid Asante Africa in identifying providers.

Conclusion

The pandemic has widened the existing gaps in educational equity and created numerous challenges experienced by students in Kenya's underserved rural communities. While people in these marginalized areas face multiple problems and obstacles, we intend to promote policies that identify these individuals, children to adults, as change agents in their communities. We hope our policy recommendation is flexible and durable enough to make incremental changes to attitudes and practices in this context. Such changes will offer solutions that work despite the barriers young people face to access and continue their education. Lastly, we hope this policy will lead to better partnerships and collaborative programs between the Asante Africa Foundation and the communities they serve.

Asante Africa's Current Work

In a follow-up interview with Erna Grasz on January 31, 2021, Asante Africa's founder expressed a commitment to implementing the policy recommendation developed by the authors. A summary from the 45-minute discussion is below. The organization agrees with the whole-child policy approach suggested by the authors. Any socio-economic problem that affects a child is exacerbated for girls. In Kenya, girls living in rural areas experience the most severe impact; they are routinely marginalized along with children living with disabilities.

Interviews conducted for the authors in Samburu and Marsabit, Kenya in February 2021 suggest that residents are genuinely grateful for Asante Africa's work. When asked if they think it is a good idea for foreign organizations to offer programs that focus on girls' education, every respondent said yes. They also noted that girls have the right to education. However, female genital mutilation (FGM), forced marriage, peer pressure, and vulnerabilities beset them. These vulnerabilities are associated with the belief that girls are less valuable than boys in these communities. Eight interviews were conducted with families that do not receive services from the NGO.

Asante Africa will implement the policy recommendations with the girl child, specifically in mind. Staff members have started to utilize the policy recommendations to act now that the children (0-18) are back in school. The organization has begun evaluating the policy to support children out-of-school. Additionally, Asante Africa is actively looking for additional ways to distribute the findings to help other NGOs; the first step was to publicize the policy recommendations. Our project is now a resource on the Asante Africa website.

In the community, Asante Africa will divide groups of children using a 60:40 ratio; 60% girls and 40% boys. The initial learning groups, whether school-based or community based, will be led by girls to support their ability to gain confidence and to decrease the possibility that they will be excluded or overlooked by male group leaders. Prior program evidence demonstrates that when girls start as the initial club/group leaders, they naturally include the boys in all activities. The opposite is true if initiated with boys in primary leadership roles. Ultimately, girls will become more comfortable with the boys as they engage in learning experiences together.

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Chapter Seven

Addressing Negative Trends in Attendance and Pre-Enrollment in Schools to Prevent Dropout During Covid-19: The Case of Quintana Roo, Mexico

Kristen Hinckley, Maria Jaramillo, Daniel Martinez, Wilbert Sánchez, and Patricia Vazquez

Summary

This chapter provides evidence regarding the impact of Covid-19 on school dropout globally and discusses the urgency to prioritize and address this problem. It will focus specifically on the impact of Covid-19 on declining trends in attendance and pre-enrollment in school related to preventing school dropout in the state of Quintana Roo, Mexico. Through a consultancy established with the Secretary of Public Education of Quintana Roo (SEQ), the authors had the opportunity to analyze their local challenges in addressing educational continuity during the pandemic and its impact and offer recommendations. This chapter will provide details regarding the local context and how the education policymakers have responded to the pandemic. Next, it will address the literature on root causes of dropout from around the world and from Quintana Roo. Then, it will provide empirical evidence to further describe the intricacies of the issue based on locally collected data. Finally, it will discuss policy alternatives and recommendations for the client based on best practices to address education continuity, grounding these recommendations in the contextual factors of Quintana Roo's education system. This chapter comments on how the concept of school dropout has changed during the Covid-19 pandemic, contributing to a potential new understanding of this phenomenon and the way it is defined and measured.

Introduction

In 2018, before the outbreak of the Covid-19 pandemic, one-sixth (258 million) of the world's children, adolescents, and youth were out of school (UNESCO, 2018). The pandemic has caused a global education disruption that has affected more than 1.7 billion learners, including up to 99% of students in low and lower-middle income countries (OECD, 2020a; United Nations, 2020, p. 2). UNESCO estimates 24 million more children are at risk of not returning to school (UNESCO, 2020a), which means that the effect of the pandemic in terms of school dropouts will bring the level of school dropouts to the same number of students out of school in 2000 (UNESCO, 2020, p. 2), wiping out 20 years of education policy gains in access to school. The projected magnitude of students dropping out or not returning to school is represented by the fact that “the out-of-school population would increase by 2% due to economic shocks caused by Covid-19” (UNESCO, 2020, p. 7, and Azevedo et al., 2020, p. 13).

The impact of the full-year of learning loss is expected to translate into a 7.7% decline in discounted GDP (calculated based on an 80-yr GDP projection with a base year of 2020, growing at a compound annual growth rate of 1.5%, discounted or brought to present-value at a 3% growth rate) (Hanushek & Woessman, 2020). Educational loss is likely to occur because “children will not learn as much as they were able to ‘before’ and because lack of engagement with learning during this period...will cause some of the children to dropout” (Luo et al., 2020). Engagement is one of the most difficult aspects to recover and students that lose connection with school may never come back, “affecting the long-term impact on students’ outcomes, which also potentially aggravates inequalities in education” (OECD, 2020a).

The school dropout rate will cause future generations of students with diminished

knowledge and skills, in turn negatively impacting their productivity, employability, and “ability to contribute to development in their economies” (Reimers, 2020a, p. 35). Recent data from Europe shows that “school closures have resulted in actual learning loss,” now referred to as a “Covid slide,” and students in middle- and low-income countries “are likely to be suffering even worse consequences” (Donnelly and Patrinos, 2020). The World Bank estimates that this education disruption can result in “a loss of \$10 trillion dollars in earnings overtime for this generation of students” (World Bank, 2020). Therefore, the UN urges joint global efforts to prevent dropout, focusing on identifying and bringing back school learners at risk (United Nations, 2020) and raising awareness among policymakers to keep students engaged in learning to limit hysteresis⁵ (Reimers, 2020).

Purpose, Goals, and Methods of the Consultancy

Throughout this consultancy, the authors have had the opportunity to support the client, Secretary of Public Education of Quintana Roo (also referred to as SEQ), in addressing challenges of educational continuity during the Covid-19 pandemic. This consultancy was established with the client based on the previous personal and professional relationship that one of the authors has with Mrs. Ana Vásquez (SEQ). She and her team granted the authors access to Quintana Roo’s local data and the authors were able to work with her team to better understand the data and reflect with them on the challenges that local authorities have been facing. A relationship of trust was established between the authors and the client, permitting an analysis and recommendations without limitations that were received with openness from the Quintana Roo team.

This collaborative process included frequent meetings with SEQ through September 2020 - January 2021 to discuss and share findings and to better understand the context. Based on these conversations and the data, the authors defined the most crucial problems to be two-fold: 1) an increase in the dropout rate that may be linked to students’ engagement, and 2) a concern with the quality of the educational resources that were developed to continue schooling during the pandemic. Quintana Roo’s problem can be summarized as one concerning student *dropout rate, engagement, and education quality*, all of which are connected.

Although Quintana Roo usually boasts a very low dropout rate and a growing student population, pre-enrollment and first week of school attendance figures in the current school year are lower than in past years, which could relate to students dropping out at a higher rate. Furthermore, the odds that students are receiving a high-quality education in remote settings is low. There is a “great void” (Educational Subsecretary of Planning in Quintana Roo, personal communication, September 23, 2020) in understanding in a deeper way the root causes of K-12 dropout during the pandemic and it would be beneficial for SEQ to know why exactly this education phenomenon is happening and gain insights on how to address the problem and make decisions accordingly.

The OECD urgently recommends to “collect comprehensive data to gain an accurate picture of dropouts or disengaged students during school closures and develop specific support to bring those students back to school” (OECD, 2020a, p. 4.) Therefore, this policy analysis was conducted considering different stakeholders’ voices (conversations with SEQ, high education officials, and teachers) (Vásquez, A., personal communication, September 21, 2020). The authors have also comparatively analyzed other countries’ initiatives to prevent and address school dropout in other education emergencies, as well as in the context of the Covid-19 pandemic. Throughout this process, the authors have spoken with experts addressing dropout internationally and in Mexico.

Context of Mexico and Quintana Roo: Demographics and Education

In Mexico, approximately 30 million students, 1.5 million teachers, and 244,000 schools (INEE, 2019) have been under pressure during the pandemic. Additionally, 21.2 million people

⁵ This term refers to the increasing challenge of unemployed workers returning to work the longer they remain out of a job. The OECD has suggested that similarly, in education, students that abandon school (either because they chose to or are unable to connect to the resources employed under the crisis response) may find it harder to go back to classes (Reimers, 2020).

still live with an educational delay, signifying that they are older than the expected age to complete primary school, but they have not finished primary or secondary education –either because they have been held back in previous grades or have dropped out of school– or that they are between the ages of 3 to 17 and are not enrolled in school (CONEVAL, 2019, pp. 102-103). Mexico's education system is decentralized, meaning that the 32 states lead and manage their own systems, but align to the national curriculum and standards. The states can innovate with strategies and attend to local needs with their own resources.

In the state of Quintana Roo (also referred to as QR), the economy is mainly based on tourism and therefore particularly impacted by the pandemic. Of the 1.7 million inhabitants, 78% live in urban areas, 22% in rural areas, and 32.5% are indigenous (INEGI, 2015; INEE - UNICEF, 2018, p. 58). The indigenous population has been historically marginalized and is concentrated in rural areas (INEGI, 2016).

The state ranks 10th among the 32 Mexican states in the Index of Social Progress for 2020,⁶ but still has 3.2% of the population illiterate, placing the state in 18th place out of 32 states on this indicator. With regards to school gross enrollment, QR reports 65.8% for preschool, 103.2% for primary school, and 86.2% for secondary school. In terms of access to information and communication, 72.4% of the homes have internet connection, 48% have computers, and 81.4% of the population use cell phones, ranking 15th among the 32 states (Mexico ¿Cómo Vamos? 2020). Quintana Roo is one of the states with the highest percentage of students enrolled in schools that are in highly marginalized areas (MEJOREDU, 2020, p. 86).

QR's school system consists of approximately 1,964 schools from Preschool to Secondary School in 13 different modalities (types of systems, rural, indigenous, private, etc.). The total registered student population as of September 30th, 2020 was 341,168 students (students per school ratio is 174). The QR School system is composed of both private and public institutions, with 77% of total school facilities being public schools which represent approximately 90% of the total student population.

Educational Response to Covid-19: Mexico and Quintana Roo

National Response: In response to the Covid-19 pandemic, the Federal Ministry of Education in Mexico closed schools on March 23, 2020, and these school closures have continued up through the publication of this chapter at the end of February of 2021. The new school year began on August 24, 2020, offering remote learning through television at a national scale, complemented by access to digital platforms such as Google and local radio educational programming (World Bank, 2020; SEP, Boletín 101, 2020). The core pillars of the national strategy included: 1) TV programming, 2) access to a web platform, 3) access to online and offline educational content, and 4) teacher training programs.⁷

Because only 56.4% of households have internet access while 92.5% have a television (INEGI, 2019) and Mexico has many decades of experience with a well-established secondary school TV program, Mexico's contingency plan opted for educational television as the main delivery platform to spread more content 24/7 and reach the most marginalized communities in the country (Ripani & Zucchetti, 2020). Since March, educational television content has been delivered through *Aprinde en Casa I, II, and III* (Learning at Home). For those who could not access the televised content, radio programs and textbooks distribution were planned locally (World Bank, 2020).

Results from a survey conducted by MEJOREDU⁸ in June 2020 provide insights on the obstacles to accessing distance education in that 57.3% of students did not have a computer,

⁶ The Index for Social Progress recognizes the efforts of all the governments to improve their citizens' basic needs, well-being and opportunities (Mexico, ¿Cómo Vamos?, 2020).

⁷ The training programs for teachers focused on the basic use of ICT (Information Communication Technology) tools through an available e-training center in alliance with Google for Education. Until now around 1.2 million teachers already have access to the platform, representing almost 60% of the teachers that are now using new technologies to receive training programs (SEP, 2020a). In regards to the use of ICT before the pandemic, Mexico had 69% of lower secondary teachers who "frequently" or "always" let students use ICT for projects or classwork, higher than the OECD average of 53% (2018) (Schleicher, 2020, p. 17; OECD, 2019, Web table I.2.1).

⁸ MEJOREDU is the new institution that replaced INEE (Instituto Nacional para la Evaluación de la Educación) in 2019, in charge of developing and assessing education policies in Mexico.

television, radio, or cell phone during the emergency and 52.8% of the instructional strategies required materials that students did not have in their homes (MEJOREDUE, 2020a). In terms of how students felt about distance learning, 51.4% of the activities online and on the TV and radio programs were boring for the students (MEJOREDUE, 2020a). Finally, the problems that students faced included the following: limited support or lack of explanations from their teachers, lack of clarity in activities, little feedback on the work completed, lack of knowledge about their successes or mistakes in the activities, insufficient understanding of what they were doing, less learning and understanding, perception of not having the necessary knowledge to pass onto the next grade (MEJOREDUE, 2020a).

Quintana Roo's Response: On March 23rd, 2020 SEQ decided that students from basic education would not return to school, and classes would be held remotely until the end of the academic year in July 2020. To ensure continuity of learning remotely, SEQ created and distributed educational workbooks for students on various subjects written both in Spanish and Mayan.⁹ These workbooks were to be used online and offline and to complement the national/state level strategy of *Aprende en Casa* to continue educating students without internet connectivity or students that are unable to access the broadcasted and streamed educational content. SEQ created a YouTube channel with video lessons and a public television channel, within Quintana Roo's Social Communication system, that was solely dedicated to the distribution of educational content (González, 2020). Unfortunately, there still are 23,881 students out of 407,318 (MEJOREDUE, 2020) representing 5.8% of basic education that have not had access to this support due to their lack of television signal and internet access, as well as students located in the most remote areas that cannot receive printed educational materials (Amastv, 2020).

Dropout and Covid-19 Context of Mexico and Quintana Roo

In Mexico, the dropout rate pre-Covid-19 in 2017-2018 in primary education was relatively low at 0.5% but higher in secondary at 4.6% (MEJOREDUE, 2020, p. 135). QR is recognized in Mexico for having “universal participation and dropout rates close to zero” in elementary grades (1-6) based on 2017-2018 data (Monroy & Trines, 2019). Despite the local authority's efforts to provide distance education considering the pandemic, by August 6, 2020, 18 days before the new school year, only 85% of elementary school students in QR had been enrolled for the upcoming school year by their parents (Gutiérrez, 2020). Data analysis shows that the QR education system seems to have been deeply affected by the pandemic (See Section 3). As referenced in Chapter 8 about Sinaloa, Mexico, school closures caused by the pandemic could result in a “loss of between 0.3 and 0.9 years of schooling adjusted for quality” (Azevedo et al., 2020), meaning that we might see a reduction in the average years of schooling in the state of QR from 10.2 years to 9.3 years (INEGI, 2020), falling close to the 9.1 average years of education that the state had in 2010 (INEGI, 2010).

Literature Review on School Dropout

This section is organized chronologically, from pre-Covid-19 to the current Covid-19 context, reviewing the causes of dropout and alternatives that have been used to address dropout over time internationally and in Mexico. It is essential to identify the “profiles” of students who dropout and the reasons that cause them to do so to understand the challenge of student school dropout. Lee and Burkham (2001, as cited in González, 2015) pointed out that the causes of dropout were based on social and academic factors. Social risks are related to race, gender, language and socio-economic status, and family structures. The academic aspect was often associated with grades, low expectations, repetition, or discipline problems. Burkham also notes

⁹ For a comprehensive list of all guides available, see, SEQ Secretaría de Educación de Quintana Roo. (2020). Guías De Experiencias Quintana Roo / Ciclo Escolar 2020-2021. Edited by Secretaría de Educación de Quintana Roo SEQ. Gobierno Del Estado Quintana Roo, 2016-2022.
<https://www.qroo.gob.mx/seq/guias-de-experiencias-quintana-roo-ciclo-escolar-2020-2021>.

that the more social risks a student accumulates, the higher the probability that this student will dropout; however, it is necessary to consider the age of the student since older students have a higher tendency to dropout.

In regards to why students dropout, Balfanz (2007) references the following four categories: “life events” (pregnancy, arrests, need to work to support the family), “fade outs” (such as frustration, boredom, or not seeing the reason for going to school), “push outs” (students perceived as difficult, dangerous, or detrimental to school and are encouraged to withdraw, transfer, or are dropped from rolls for failing courses or missing school), and “failing to succeed” (students who fail to achieve or who attend school without the supports they need). Other scholars categorize dropping out as a culmination of years of unconformity with schooling that may arise from students feeling a disconnect between academic life and “real” life (Furger, 2008). For others, it can be a more transient response to socio-economic pressures on students to support or care for their families financially (Furger, 2008).

Bowers and Sprott’s typology (2012) includes three types of dropouts: “quiet” (students with fairly low test scores and grades, went to class often without their homework done, and were rarely suspended), “jaded” (students that dislike school, with the average lowest test scores and grades, with most absences, and were suspended or on probation the most), and “involved” (students with highest tests scores and grades, highly involved in extracurriculars) (Bowers & Sprott, 2012, p. 142).

Recent studies have described other profiles, reasons, and typologies of dropout. USAID (2015) recognized a combination of factors and characteristics when approaching the dropout phenomenon and grouped them into four categories: individual, family, school, and community. The combination of all of these and the intensity of their appearance in students’ lives are connected to a student’s tendency to abandon the formal school system. Additionally, Adelman and Székely (2016) build on this research focusing on Central America, adding the importance of considering how students’ progress throughout the “human life cycle” as an important factor in addition to the individual, household, community, and macro factors. Hunt’s (2008) research in African countries highlights the importance of considering health as a factor that can be connected to student dropout, specifically regarding the need to review students’ health conditions as well as those of their families.¹⁰

This literature reveals the varied and often unpredictable nature of dropout, its “hows” and “whys,” and who may dropout. These factors identified in the literature, particularly those concerning unprecedented and sudden life events and social or community causes, are all plausible explanations for the root causes of dropout in Quintana Roo during the current pandemic.

With regards to making predictions for students that may abandon school, predictor models have been developed that take a range of variables from “household wealth” to “schooling equality” and “labor market conditions” (Adelman et al., 2017). These models also account for specific critical periods with a higher propensity for dropping out, such as the transition from 8th to 9th grade in the US (Bowers & Sprott, 2012) or primary to secondary transition elsewhere (Adelman et al., 2017). In emerging markets, individual socio-economic data, and granular community surveys to identify typologies that feed into predictor models have been more sparse or non-existent. However, UNESCO Institute for Statistics (UIS) has developed a database to account for children and youth out of school (UNESCO, 2020), and some municipalities and urban centers have begun compiling databases, utilizing widely available national data, coupled with some individual student-performance information to build these prediction capabilities (Adelman et al., 2017).

This sort of localized data is crucial towards understanding the main drivers of dropout and to developing an adequate intervention strategy to address these root causes, as students respond best to strategies tailored towards them (Bowers & Sprott, 2012). For example, researchers used such data for Guatemala and Honduras to construct a multi-level model with various individual covariates such as gender, age, indigenous identification, housework, school

¹⁰ This should be an area for future research and consideration in the context of Covid-19. For example, how does the death of a family member from Covid-19 impact (or not) students’ risk of dropping out of school.

year repeater, preschool attendance, among others, as well as family/community-wide information, such as parents' educational attainment, housing quality, and electricity availability. Their model predicted with 70-80% overall accuracy, the individual dropout rate for in-sample and out-of-sample datasets (Adelman et al., 2017, pp. 3-5).

Addressing Dropout Before Covid-19 and During Times of Crisis: What has been done?

Education systems around the world have implemented different strategies to address school dropout, such as early warning systems, tutoring programs, communication campaigns, and cash transfer programs. (Later sections will discuss early warning systems and tutoring programs).

A randomized controlled trial evaluation of a conditional cash transfer (CCT) program that targeted high school students in rural China demonstrated that the program reduced dropout by 60% and was “most effective among students with poor academic performance, and likely more effective among girls and younger students” (Mo et al., 2013). In Latin America, Brazil implemented a CCT program, “*Bolsa Família*,” and found that the program lowered dropout rates by 0.5% for grades 1-4 and 0.4% points for grades 5-8 (Glewwe & Kassouf, 2020). However, evidence from Mexico City’s “*Prepa Sí*,” an untargeted CCT program, was found to not increase high school graduation rates (Dustan, 2020).

Bogotá, Colombia shows an example of a communication campaign where different sectors worked together to implement an integrated program to address child begging, including involving the public in a pedagogical and communication campaign by providing citizens with “Coins of Change” (*Monedas de Cambio*) that they could give to children who ask for money in the streets. These coin-like flyers contained information for children and their families to receive the necessary support and the Secretary of Education intended that this program would prevent school dropouts (Nogero, 2019).

Because this health crisis can be comparable to Covid-19 in terms of the impact of being out of school (UNESCO, 2020b), we reviewed what was learned during that pandemic. In response to the Ebola crisis, strategies were laid out to address the supply and demand side of educational opportunity, such as training of health and safety professionals to control the outbreak and thus resume education, as well as awareness campaigns, socio-emotional learning hybrid programs with physiological support, and improvement of educational facilities.

The Ebola outbreak provides useful context when considering how health emergencies impact school dropout. Countries such as Sierra Leone, Guinea, and Liberia faced important education challenges, as approximately 5 million children missed school during the Ebola outbreak (Fisher et al., 2018), losing almost 39 days of classes (Malala Fund, 2020, 4). As Hallgarten (2020) pointed out, this health crisis “unsurprisingly, affected poorer and more vulnerable children disproportionately,” like the current impact of Covid-19 (UN News, 2020). However, the lockdowns that have lasted for months in many countries in the current Covid-19 context make it unique, as Hallgarten (2020) notes, “unlike Ebola, transmission of Covid-19 is asymptomatic, and the outbreak is global” (p. 2).

In analyzing the humanitarian impact of Ebola outbreaks, Hallgarten (2020) adopted a previous model to highlight the problems that can result in school dropouts, such as: 1) the reduction in the availability of education services, 2) the reduction in access to education services, 3) the reduction in utilization of schools, and 4) lack of quality appropriate education. Hallgarten notes that there are many causes of these problems such as, but not limited to the following: a) school closures, b) lack of at-home educational materials, c) fear of school return and emotional stress caused by outbreak, d) new financial hardships leading to difficulties paying fees, or children taking up employment, e) lack of reliable information on the progress of disease and school reopenings, f) lack of teacher training during crisis, etc. (Hallgarten, 2020, p. 3).

Dropout in Mexico Pre-Covid-19 and Programs to Address It

According to dropout statistics, first grades are key years to focus on dropout prevention efforts (Gómez Morín, 2013). A study conducted by Lorenzo Gómez Morín and Francisco Miranda López (2013) diagnosed the main factors of dropout in Mexico before Covid-19 for upper-secondary students. According to this study, school dropout is related to the following

factors that contribute to a student's school engagement: individual, family, school, or community. A more recent study, conducted by the Mexican government for the school cycle of 2018-2019, identifies dropout (*abandono escolar*) as one of the principal challenges of the country's education system with 1.1 million students reported as dropping out in the 2017-2018 cycle, particularly in upper secondary level (MEJOREDU, 2020, p. 135).

The report also finds higher rates of school dropout in most marginalized communities with the greatest disadvantages related to infrastructure, equipment, and availability of teachers (MEJOREDU, 2020, p. 137). Understanding how these factors contribute to a student's dropout allows education leaders to detect early warning signs and to create interventions to keep students on track to graduate. The three most significant and interrelated predictors for school dropout all relate to the “individual” area: school attendance, behavior, and school achievement (Gómez Morín & Miranda, 2013). Gómez Morín and Miranda's focus on individual circumstances are well connected to the root causes of dropout during situations of crises.

In 2011, the Mexican government designed a two-component program “*Síguelo, caminemos juntos*” (“Let us Walk Together”), to improve academic achievement and formative skills for upper secondary students to reduce dropout and failure rates. The first component used an Early Warning System as a diagnostic to detect students at risk of dropping out and implement interventions to ensure retention in school and caused an immediate decrease in the three indicators that were identified as the greatest predictors for school dropout (Gómez Morín, 2013). The second part is an Intervention System for Prevention that included a National System of Academic Tutoring, A Vocational Orientation Program, and a Psychosocial/Affective Program called “*Construye T.*” These combined dimensions make it possible to contribute to the holistic development of young people, in addition to contributing to increasing terminal efficiency and reducing the rates of dropout and failure (Sistema Nacional de Tutorías Académicas, 2011).

Prominent Factors of Dropout During Covid-19

The analysis of school dropout during Covid-19 allows for a comparison of how root causes of dropout have changed not only over time, but also in different global contexts and situations of crises, and how the consequences of dropout may be different in Covid-19 times than previously. There are common factors relating to the risk of school dropout between the Ebola and Covid-19 pandemics, such as socio-economic factors, “including the need to generate income, increased household and child-caring responsibilities, early and forced marriage and/or unintended pregnancy in certain contexts or fear of a resurgence of the virus...” and “those who did not have access to distance education during confinement” (UNESCO, 2020, p. 1).

However, the current Covid-19 crisis is bringing forth new factors relating to school dropout that were not at the forefront during other pre-Covid-19 crises. For example, UNESCO emphasizes the following three Covid-19-induced factors relating to dropout: a) educational and socioemotional disengagement, b) increased economic pressure, and c) health issues and safety concerns (UNESCO, 2020b). With regards to educational and socioemotional disengagement, the risk of disengagement will increase if students are already in low enrollment areas, if they dropped out or fall behind due to lack of connectivity, or if they miss the socioemotional support provided by schooling for lengthy periods of time. Regarding increased economic pressures, Covid-19's impact on livelihoods may increase the risk that students and their families must refocus on more immediate priorities (e.g., housing/food). Regarding health issues and safety concerns, the risk of temporary reluctance to re-enroll will increase and could lead to dropout if the health (physical and mental) of students and their families is impacted by Covid-19 or if there are concerns that safety protocols are not followed at school.

MEJOREDU's June 2020 survey provides a deeper root cause analysis for the Mexican context. When asked about the reasons that these students were excluded, 84.6% of teachers mentioned lack of internet access, 76.3% mentioned lack of electronic devices to access activities, and 73.3% mentioned scarcity of economic resources (MEJOREDU, 2020a, p. 10). From the students' perspective, they note other important reasons for exclusion, including difficulty to follow the activities (“it's difficult,” “I don't understand,” “I don't have time”) and

the stress or frustration that this entails, the need to attend to housework, the obligation to take care of other people, and the lack of motivation expressed as laziness, tiredness, boredom, loss of interest, or discouragement (MEJOREDUE, 2020a, p. 10).

Although SEQ's team has not explored the exact reasons for potential increased dropout, a high-level education official explained that most of the causes could be attributed to the Covid-19 crisis, primarily for economic, health, and academic reasons (Educational Subsecretary of Planning in Quintana Roo, personal communication, September 23, 2020). A local Quintana Roo teacher commented that 50% of her students' parents did not enroll their children in the current school year mainly because they were afraid of the health risks of going back to school and the difficulties, they had experienced to receive the material, as well as the lack of support for distance learning (Early Childhood Education Teacher in Quintana Roo, personal communication, September 20, 2020).

Comparative Covid-19 Responses for Dropout in Latin America and the Caribbean

The Inter-American Development Bank's study, "Education in Coronavirus Times," references the educational continuity responses implemented in 25 countries in the Latin American and Caribbean region such as learning platforms, digital content, social networks, and learning materials, tv/radio, and school openings (IDB, 2020, p. 6). Clear recommendations on preventing dropout suggest that governments deliver monetary transfers to alleviate financial crises and avoid transfers to the labor market, focusing on populations with especially high risk (IDB, 2020, p. 24). For example, Guatemala has implemented the "*Bono Familia*" program, providing \$130 to each household, benefiting more than 2.5 million families (UNICEF, 2020). Cash transfers have been used in Sao Paulo, Brazil through "*Merenda en Casa*" to substitute for the education, social, and nutrition support that public schools used to offer in the form of daily meals to students (Dellagnelo and Reimers, 2020 and Sao Paulo Government, 2020).

In addition, the Inter-American Development Bank (IDB) suggests strengthening educational trajectories to concentrate on students transitioning to the next school level (i.e., primary to secondary) that have abandoned school or are at risk of doing so (IDB, 2020, p. 24). It estimates that only 70% of the region's educational systems can identify each student individually (IDB, 2020, p. 11). This is particularly relevant to student dropout because an early warning system in Quintana Roo could locate students to identify their risk of dropout.

For example, Peru's Ministry of Education launched an early warning system called "*Alerta Escuela*" (School Alert), designed jointly in coordination with regional and local education offices, school directors, and teachers, to identify students at risk of dropping out of school to support them with concrete strategies to ensure their continuity and prevent dropout (Ministerio de Educación del Peru, 2020; Gobierno del Peru, 2020).¹¹ They developed a packet of actions to support students at risk (Ministerio de Educación del Peru, 2020) and regional educational offices are given autonomy in creating their local commitments and strategies. The School Alert tool is being institutionalized to ensure its long-term use (Peru's Ministry of Education Head of Statistics, personal communication, October 13, 2020). The Peruvian Ministry of Education has warned of the pronounced risk of dropout in indigenous, rural, and poor areas (Arango, 2020), which are all key demographics in the state of Quintana Roo.

Data Analysis of the Dropout Problem in Quintana Roo During Covid-19¹²

SEQ has designed and implemented a strategy called "*Pase de lista*" (Roll Call) that seeks to collect bi-weekly enrollment data to monitor the attendance rate to reach out to students that

¹¹ Utilizing machine learning, this system uses academic performance, parents' education level, socio-economic status, age, and other factors to predict students at risk of dropping out (Gobierno del Peru, 2020). By providing updated information on the communication between students and teachers, as well as information about the student's engagement with remote learning strategies, the system assesses a risk level for each student (low, middle, and high) with the following risk factors: precarious family economic situation, limited expectations about education, lack of family support for education process, school and family violence (Ministerio de Educación del Peru, 2020).

¹² Using local data provided by Quintana Roo, the authors have conducted a detailed data analysis which has been provided to SEQ.

have not shown up to school. It seeks to confirm that the students that were automatically enrolled in the new school year were in fact going to participate actively in the current schooling process (Educational Subsecretary of Planning in Quintana Roo, personal communication, September 23, 2020). The enrollment database is not centralized, and information must be collected by each school where each teacher must follow up with their students and parents to confirm their enrollment, after which the data is integrated into a platform.

Utilizing local data from QR, the authors used pre-enrollment figures and first week of school attendance figures as proxy measures to estimate potential future dropout which can only be measured at the end of the school year. Based on analysis utilizing the SEQ's data from after the first week of school in September 2020 at the start of the academic year, the estimated various negative impacts on the system are the following:¹³ decrease of 2.18% (approximately 7,600 students) to 4.7% (approximately 16,800 students) in pre-enrollment and a decrease of 15,989 students (approximately 4.5%) in 1st week attendance depending on the starting point for pre-enrollment. In sum, this could mean that the system could experience a loss of up to 32,789 students. Although official dropout is measured at the end of the school year, these negative trends are worrisome. Urgent action is needed.

Insights from the comprehensive data analysis on dropout in Quintana Roo during the pandemic

First Insight: Initial pre-enrollment down but not in all categories: Enrollment in Preschool and Primary was down 9.7% and 1.6%, respectively; however, surprisingly, Secondary School enrollment was up 1.4%. The total number of students across all three levels was down 2.18% from 348,763 to 341,168, a loss of approximately 7,600 students. Considering a population growth adjusted figures utilizing the previous year's growth rate in the student population as a proxy, the above estimate *could be understated by approximately 9,200 students. The real loss could be closer to 16,800 students impacted (about 4.7% of the total student population)*. The authors were expecting a lower pre-enrollment rate trend from high-school students assuming economic pressures affecting older students who are more able to work and to help sustain their families economically. However, the evidence runs in the opposite direction, therefore suggesting that other factors are contributing to the lower pre-enrollment numbers. One hypothesis is that perhaps parents are more concerned about young children's health risks or younger children are less capable of independent learning and their families are not able to support them to continue their education or are not satisfied with the distance educational offer.

Second Insight: Migration from Private to Public Schools: There has been a marked increase in migration from private to public schools during this current 2020-21 academic year. The migration increase has been almost 200% over the previous academic year in Preschool and Primary and almost 120% in Secondary School for a total of 6,589 students, *or almost the same number of students that did not pre-enroll in the current academic year*. This migration could have various adverse effects in destination schools (public schools receiving the Private School students), requiring resource allocation.

Third Insight: Attendance in the first week of classes was also down: Across the entire school system, attendance post-enrollment, or during the first week of the academic year, was down 17,302 students or 5% of the total number of students who had pre-enrolled in 'the '20-21 school year of 341,168 students in both Private and Public schools. The highest impact in percentage terms was Primary with 5.9% (11,603 students) or about 67% of the total (ex-CENDI and ISSSTE who have not yet reported numbers). *Private School represented one third of the total system negative post-enrollment impact, despite representing only 11.4% of the total students in the system (pre-first week class attendance in 'the '20-21 school year, including CENDI/ISSSTE)*. This skewed impact once again alerts to further continued negative post-enrollment trends and, by

¹³ In total, the authors attempted to estimate pre-enrollment and attendance trends across the system. These figures depend on the starting point for the number of students in the system: either a) a similar number to the Y-1 academic year (2019-2020), b) potentially a growth adjusted number of students, utilizing the same growth rate as Y-1 and Y-2 (2018-2019) or c) other growth rate.

consequence, an adverse impact on the Private School system. Given the fixed cost structure of teacher salary and building maintenance, at some point, schools may not be viable economic entities and would need to shut doors. This would reduce teaching capacity in the system, leading to a flood of new students in the public school system.

Negative post-enrollment rates appear to be higher in urban areas than rural areas. This does not mean that rural students have not been affected; they historically have been underserved and typically are from lower SES families. In addition, potentially given the pandemic's economic impact, private schools have seen an exodus of students and a disproportionate amount of negative post-enrollment adjustments relative to their representativeness in the overall school system in terms of several students. The migration from Private to Public could also overwhelm destination schools and affect the newly incoming Private School students' motivation as they face different resources in the Public School system. Furthermore, given the higher percentage of students leaving the private school system, this system will probably need monitoring for its financial health.

Insights from Conversations with Teachers in Quintana Roo

Conversations with teachers in QR highlight the importance of considering the characteristics of the current situation, with a recommendation to select the most relevant parts of the curriculum and/or design activities that are more useful in the students' lives for these times to avoid students dropping out and to promote more learning engagement (Quintana Roo's teachers, personal communication, October 12, 2020). However, they also referred to several strategies that focused on traditional dropout retention, such as mapping personal and social information, parental involvement, communities of support (Quintana Roo's teachers, personal communication, October 12, 2020).

Policy Alternatives and Recommendations to Address Dropout in Quintana Roo

While it is essential to consider the literature on dropout before and after crises and the initiatives that have been implemented to confront it, it is important to not simply adopt best practices implemented in other situations, but rather deeply understand the rationales behind these interventions to consider how they can be adapted and implemented effectively in the QR context.

Quintana Roo's response to the educational challenges brought about by Covid-19 in terms of school dropout will need to activate various Supply-side actions (e.g., Flexible Learning & Enrollment, Health & Safety issues), as well as Demand-side actions (e.g., Awareness, Economic Support), as well as Institutional aspects (e.g., Community Incentives and Action) (UNESCO, 2020b). This multisectoral challenge's complexity may be exacerbated by the limited funds available given the global economic shock. Potential solutions may be driven not only by best-practices but also by funding availability. Systems will need to be innovative and potentially partner with actors outside of the typical educational ecosystem.

The need for a plan to mitigate school dropout in basic education (preschool, primary, and secondary) was part of the conversation with SEQ; however, as of September 2020 there was no initiative yet to address the prevention of school dropout or student engagement (Educational Subsecretary of Planning in Quintana Roo, personal communication, September 23, 2020; Vázquez, A., personal communication, September 21, 2020). (See "CODA" for current update).

Policy Alternative Matrix

The matrix of policy alternatives (below) includes the best practices and the most viable strategies to be considered, based on the literature reviewed and the data analysis. The following criteria are used to evaluate and build policy recommendations: effectiveness (the ability to bring students back and prevent dropout), cost (the amount that needs to be spent to pay for the intervention), cost-effectiveness (the relationship between effectiveness and cost, the best cost-effectiveness defined by the greater the effectiveness and the lesser the cost), feasibility (defined by the SEQ's capacity to implement it), and equity (defined by the opportunity to reach all

students). The matrix utilizes the following ranking: Low (1), Medium (2), and High (3) to be able to compare each of the criteria for the various policy scenarios.

The decision regarding which policy alternatives to analyze takes into consideration the following previously mentioned perspectives and experiences (in no particular order): a) the role and resources of the decision makers (the regional education office of Quintana Roo, the client), b) the educational response offered by Quintana Roo, such as workbook delivery for remote learning, c) the perspectives of teachers from Quintana Roo regarding remote learning during the pandemic, d) information about students’ perspectives on remote education from MEJOREDUE survey, e) best practices and programs implemented by local governments and educational systems to address dropout, f) literature on student dropout before and during Covid-19 internationally and in Mexico and QR, g) analysis of a similar health crisis’ impact on education deep concerns for equity and focusing on students with higher dropout risk, and h) the context of Quintana Roo and the current situation with Covid-19. Taking all these factors into consideration, this section will analyze the following policy alternatives to address student dropout in Quintana Roo.

Table: Policy Scenarios ranked according to several criteria

Policy Scenarios and their relation to findings from the authors’ localized data analysis	Criteria 1: Effectiveness	Criteria 2: Cost (reversed) ¹⁴	Criteria 3: Cost Effectiveness	Criteria 4: Feasibility	Criteria 5: Equity	Total points
Tutoring Program (SEL & Academic) (To address trend of drop in enrollment during Covid-19 and to provide additional support to students)	3 High	3 Low	3 High	2 Medium	3 High	14
Early Warning Systems (To address inequality in enrollment and to create infrastructure to identify and intervene with students at higher risk for dropping out)	3 High	2 Medium	3 High	2 Medium	3 High	13
Remote Learning Content Delivery (To address the quality of educational content delivered in remote settings)	2 Medium	2 Medium	2 Medium	2 Medium	3 High	11
Remote Teacher Professional Development Program (To address the quality of teaching through materials delivered in remote settings)	2 Medium	2 Medium	2 Medium	2 Medium	3 High	11

¹⁴ The second criteria (cost) uses a reversed ranking, understanding that the higher the cost for a policy alternative, the less desirable it is.

Conditional Cash Transfers (To address trend of migration from private to public schools and to provide financial assistance so that students can continue their education)	2 Medium	2 Medium	2 Medium	2 Medium	2 Medium	10
Communication Campaign (To address trend of low enrollment and low attendance across the board and to raise awareness about the importance of students' educational continuity)	1 Low	2 Medium	1 Low	2 Medium	2 Medium	8

After evaluating the policy scenarios and their criteria, the authors found the best policy alternatives for educational continuity and to reduce school dropout during Covid-19 to be the following: Tutoring Program (SEL & Academic) and Early Warning System, followed by Remote Learning Content Delivery and Remote Teacher Professional Development Program.

Tutoring Program (SEL & Academic): A tutoring program is an alternative that was also considered by the consultancy team working in Sinaloa, Mexico (See Chapter 8). This program is ranked as highly effective because various studies have shown that receiving adequate guidance favors students' well-being and academic performance, pointing out the importance of the tutor-student relationship and the benefits it has on the latter (Sistema Nacional de Tutorías Académicas, 2011). The cost is ranked as low because the operation does not imply the construction of additional or parallel organizational structures to those that currently exist in the institutions, suggesting the promotion of an efficient use of personnel and facilities, equipment, and physical spaces, in the process of utilizing existing efforts and programs (Sistema Nacional de Tutorías Académicas, 2011). Taking these into account, the cost-effectiveness is high. The feasibility is ranked medium because, although it is possible for SEQ to modify the teachers' responsibilities, there could be some bureaucratic delays to make that happen. Regarding equity, this program is ranked high because it aims for every student to reach their full potential, aspiring to higher levels of well-being, integral formation, and offering special support for those who need it most (Sistema Nacional de Tutorías Académicas, 2011).

Early Warning Systems: According to Gómez Morín and Miranda, this system and its relevant uses make an immediate difference in reducing the number of students that dropout of school (Gómez Morín, 2013), resulting in high effectiveness. The cost is defined as a medium because QR needs to create the system and create the data for it and that has high costs. Therefore, the cost-effectiveness would be high, as the cost of bringing back or re-enrolling students into school could be greater than the effort of previously detecting possible dropouts. Regarding feasibility, to maximize limited resources, SEQ could partner with the Computer Science Department of a university to create the first version of an Early Warning System. Regarding equity, it is ranked high because this information is designed to differentiate students who are beginning to exhibit signs that can develop into obstacles to their continuity in school and can be used to design effective interventions for all the students, considering each students' needs and case (Gómez Morín, 2013).

Remote Learning Content Delivery: The improvement of content delivered in the remote learning modality responds to the challenges faced by students in accessing distance education and materials, as well as their feelings that activities were boring (MEJOREDUE, 2020a). This strategy of improving the quality of the content would be highly beneficial in increasing the

relevance of the content that students are learning during this time as well as ensuring that students have access to these materials, in turn providing them with more meaningful and accessible educational experiences to prevent dropout. The effectiveness may vary between different types of materials (TV, printed workbooks, internet) and would address current problems with lack of quality and access to distance learning materials. While the cost would be medium because of the time needed to develop the materials, this strategy would be feasible because of current delivery channels. Finally, this alternative would provide extremely high equity, closing gaps between the experiences that students from different SES backgrounds are receiving in education during the pandemic, by focusing on families in remote and vulnerable conditions with lack of technology.

Remote Teacher Professional Development Program: The alternative of providing professional development for teachers to improve the quality of their remote teaching pedagogy would be effective in creating communities of practice between teachers who can share what they have learned, especially in the last several months of distance learning. This strategy would respond to the problems students have faced in not receiving enough support, clarity, and feedback during the distance learning modality as teachers would become better equipped to support their students (MEJOREDU, 2020a). However, the effectiveness and feasibility of this strategy could be affected by the amount of time it may take for this program to be developed. The cost would be medium as teachers could design the training program based on their own experience. Finally, this alternative is highly equitable because it would provide effective teaching to students, which would complement the TV/internet/printed materials, especially for those students who have less access to materials.

Conditional Cash Transfers: Based on strategies that protect the rights of the students to receive nutrition and social support in Sao Paulo's \$3.5 million program and Juaneb, Chile's intervention that benefited 1.8 million students during the pandemic (UNICEF, 2020 and UNESCO 2020d), this intervention would be medium in all the criteria because it depends highly on the implementation and there is great uncertainty about its impact. There is still no evaluation of impact of the resources allocated and its relationship with education performance or dropout. Information about the effectiveness of these types of programs during Covid-19 does not yet exist.

Communication Campaign: The effectiveness of a communication campaign alone is estimated to be low because it is normally implemented in combination with other initiatives, as shown by Bogota's integrated plan where the communication campaign was only one of many programs to address the problem. For the communication campaign to have a positive impact, the cost would need to be medium, so the cost-effectiveness would be low for this isolated effort. The implementation feasibility is medium because of the amount of effort it would require and competition with other current priorities. Finally, the equity of this option is medium, because although it intends to reach as many people as possible, the most vulnerable people may be left out of the communication and it would be very hard to reach as many people as necessary.

Policy Recommendations

The problem of dropout pre-Covid-19 is strikingly different from dropout in the current Covid-19 context, as the long duration of school closures is unprecedented. If the policy alternatives that have been implemented to address dropout pre-Covid-19 were to be implemented in the current context, their effectiveness might vary grossly because of the differences between dropout then and now. Therefore, the policy recommendations are based on an analysis of policy alternatives previously used to address dropout, combined with a deep contextualization of how the problem of school dropout has changed during Covid-19 and how it is occurring in QR. These recommendations are meant to be creative and varied to reflect the complexity of the challenges of dropout in the current context, as well as the strengths and constraints of the QR education system. They are intended to be integrated and connected, not

isolated efforts.

These policy recommendations are based on Reimers' framework of educational change (2020b) to suggest a holistic approach for QR to address the current increased dropout rates, utilizing five frames "that offer a comprehensive approach to integrating much of what is known about how students learn and how schools change" (Reimers, 2020b, p. 47). Each of the recommendations will be categorized into the following timeframes: immediate (I) or long-term (LT) to advise the client regarding which initiatives to prioritize and where to start.

From an Institutional Frame: Creating Supporting Structures

(LT) Create a tracking system of students that includes current data already collected (student grades and enrollment status and school-level data), as well as beginning to collect new types of data about student characteristics. Centralize the information collected in the "Pase de Lista" monitoring initiative. Use this data to build a future Early Warning System that can predict students at higher risk of dropping out and address their specific needs. One of the new factors that could be considered in this early warning system can relate to the health situation of the student, the students' friends, and the students' families.

(I) Establish a partnership with the Computer Science Department of a university to create the first version of an Early Warning System.

(LT) Raise awareness within the Ministry of Education and with other Ministries and organizations in QR about the collective way of addressing dropout. Prioritize the indicator of dropout on the agenda. This prioritization must be backed up by norms, structure, and budget.

(I) Develop a specific team responsible for addressing student permanence in the school system and build the capacity of education officials.¹⁵

(I) Develop flexible modalities for reintegration into the school system to give the opportunity to students who have left the system who want to return.

From a Political Frame: Raise Awareness about Dropout and Focus on Equity:

(I) Develop a political discourse in which dropout has a place in the local education agenda. The importance of aligning the education policies and actions is vital to positioning dropout as an urgent need to be addressed and at the same time respect the right to education of every child.

(I) Focus on schools with the highest dropout based on ranking provided from data analysis.

(I) Monitor private school dropouts specifically to allocate necessary resources to destination schools. The authors have provided the client with a list of schools with the highest dropout rates based on detailed data analysis.¹⁶

(LT) Raise awareness with all high-level decision-makers about the need to recognize that dropout is a problem and that many actions can be taken to avoid it. Education is a human right and when students abandon school and disengage from this learning process, this violates that fundamental human right. Therefore, we cannot allow students to disengage from their learning process (Gómez Morín, L., personal communication, Dec 7, 2020).

From a Cultural Frame: Mindset about Dropout and Learning:

(I) Define a new way to measure more than just enrollment and attendance as was done before because students are no longer going to school physically. Use new indicators to measure this new kind of dropout using indirect indicators such as collecting data about students who have been excluded from distance learning activities.

¹⁵ A similar strategy to that used in Puebla, Mexico is suggested where the Ministry of Education hires trained psychologists to use a call center and talk to students who are dropping out or at risk of dropping out in order to ascertain and meet their needs.

¹⁶ Private schools with a high percentage of dropouts and their respective destination schools could be an early indicator of where to direct resources in the public sector. Destination schools may need extra resources as well as potential support for these new arrivals.

(I) Create a communication and awareness campaign to convince families (students and caregivers) to not abandon their learning process (Gómez Morín, L., personal communication, Dec 7, 2020). Focus on the importance of embracing the learning process and lifelong learning, rather than just learning to continue onto the next grade.

(I) Create collective responsibility to enable learning communities and develop a student peer support network. If one student notices that his/her friend has left the education system and then he/she brings his/her friend back, create positive incentives for both students.

From a Psychological Frame: Reduce, Modify, and Prioritize Curriculum:

(I) Design a *local* curriculum or strategy that prioritizes specific content and allows for flexibility (MEJOREDU, 2020a) based on three principles: significance, relevance, and utility (Cahapay, 2020).

(I) Promote strengthened relationships between students, teachers, and caregivers with improved communication. The focus of measuring and preventing dropout should be regarding students' engagement in their learning process, necessitating strong relationships between these three actors (Gómez Morín, L., personal communication, Dec 7, 2020). Without the physical school structure currently, it is important to rethink the communication strategies between teachers, students, and parents. Covid-19 has disrupted the relationship between caregivers, students, and teachers, necessitating new ways to measure and intervene regarding school dropout, further requiring strengthened relationships between these three actors.

(I) Assess the remote learning content delivery strategy from QR to address the quality of educational content for distance learning and improve the materials.

From a Professional Frame: Socio-emotional learning, academic tutoring program, and relationship building:

(I) Create a tutoring program that focuses on SEL and Academic aspects. Using a gradual process, the teachers will change their role slightly by focusing on supporting the learning and socio-emotional processes of their students in addition to focusing on content delivery for learning. This tutoring program is in line with recent research showing that 12-week tutoring programs can result in students making the same amount of progress that they would in 3-5 months of normal schooling (Donnelly and Patrinos, 2020). This will fill an important need because, based on survey results from June 2020 for basic education in Mexico, 53.2% of teachers commented that it was complex to provide SEL support to their students (MEJOREDU, 2020a).

(I) Build a strategy to incentivize teachers to be part of the tutoring program in partnership with local universities or civil society organizations.

(LT) Implement a remote professional development program to train teachers on two different specific aspects: 1) how to build caring relationships with their students and 2) on the quality of teaching through content delivered in remote settings, which would complement the remote learning content delivery improvement mentioned above.

Conclusion

Pre-Covid-19, school dropout referred to disengaging from physical attendance to the school building. The school made a difference regarding whether students stayed in school or not (Gómez Morín, L., personal communication, Dec 7, 2020). In comparing the situation before Covid-19 with the current situation, relationships between actors in the learning process have changed completely. As Shroff notes, "Homes have become schools, parents have become teachers" (Reimers, 2020a, p. 269). Then, the school was the main structure and place of learning, where bilateral relationships existed between students and teachers, as well as between teachers and caregivers. Policy interventions implemented in this current context need to consider how school dropout has changed and what are its current characteristics, causes, and consequences. It is vital to consider the prolonged duration of the pandemic on school closures,

having an impact on the factors that cause school dropout.

In a meeting with the Secretary of Public Education in Quintana Roo where the authors discussed this research and presented these findings, the client highlighted the importance of rethinking the current indicators of dropout, arguing for a new narrative that focuses on the “non-attendance” rate. Focusing on this indicator allows the client to respond to the impact of Covid-19 on the managerial processes in the current educational structure. While dropout indicators usually refer to the students who are not in the education system when the scholar cycle has ended, the indicators that measure student attendance and/or absence provide sound criteria to identify possible future student dropouts. Therefore, SEQ’s nuanced understanding of different indicators to measure dropout in different ways not only aligns with the recommendation the authors provided to redefine dropout and how it is measured, but also it is now being implemented in real-time to address the current school dropout situation in QR with a focus on student absence.

Therefore, based on this policy analysis, the authors recommend developing policies to make it attractive for students to continue their learning processes. School dropout must be redefined and measured differently to ensure that students do not disaffiliate from their learning processes, as education is a fundamental human right for all. In QR, schooling has been a way of life and an expectation, so focusing on understanding and reducing the dropout rates could make a difference in maintaining QR’s strong culture of schooling. Moreover, the policies should address a holistic approach to be able to confront the complexities of school dropout.

After understanding the issue of dropout before and during Covid-19, the authors highlight the importance of making this phenomenon visible, as it should be one of the main focuses in education nowadays. As the characteristics, causes, and consequences of dropout are changing globally because of Covid-19, this chapter aims to contribute to an international conversation about this phenomenon that could provide understanding and guidance to regions and countries around the world confronting this challenge. The authors hope that this chapter can contribute to a global conversation around school dropout, what it used to be and how Covid-19 has changed it.

CODA

This chapter “Addressing Negative Trends in Attendance and Pre-Enrollment in Schools to Prevent Dropout During Covid-19: The Case of Quintana Roo, Mexico” was a result of many conversations and interviews with teachers, decision makers, and experts on the topic. They all agreed that this health crisis has challenged not only the way they implement programs, but also made visible the gaps and inequalities that the research has been pointing out for years about educational systems (Quintana Roo’s teachers, personal communication, October 12, 2020).

In conversation with Mrs. Vásquez, she pointed out the importance of reframing the language when we talk about dropout (Vásquez, A., personal communication, January 19, 2021). From the formal and practical perspective, dropout is the process in which the students have already abandoned school after the scholar cycle has ended. On the other hand, absence is a process that occurs during the student school trajectory that encompasses absenteeism due to a variety of factors. Therefore, Mrs. Vásquez comments that dropout cannot be measured until the scholar year ends, but absenteeism can be measured throughout the school year. Mrs. Vásquez argues that the local authority still has room to improve in differentiating methodologically and administratively the semantics of both conditions (Vásquez, A., personal communication, January 19, 2021).

Based on this, the client, Mrs. Vásquez, led the state to implement a new strategy that was presented to the authors in January 2021 when it was launched called: “SOS, No one out, no one left behind.” The SOS strategy searches to bring back absent students from all educational levels by strengthening communication and attention to pedagogical, psychological, and management needs, and to implement actions that reduce the risks of dropout and low school achievement due to the impact of the pandemic. The main aspects that are expected to be addressed by SOS are the following: high level of absence due to the distance educational

processes, low academic achievement, socio-emotional effects on teachers, students, and parents, potential risk of dropping out and those who are dropping out of school, communication deficiencies between students, teachers, parents, and educational authorities (Vázquez, A., personal communication, January 19, 2021).

The SOS strategy aligns to all the five perspectives (from the framework that the authors used for the policy recommendations), with the psychological, professional, and institutional explicitly named as “attention to pedagogical, psychological and management needs,” while the political and cultural perspectives are implicit intertwined in the strategy. Therefore, when the authors presented the findings to the client, they confirmed that their policy recommendations were in aligned with the SOS program that Ms. Vázquez developed. In this way, the client was pleased that the authors’ research provided empirical support for QR’s newly launched strategy to address this challenge in their education system.

The education agenda during Covid-19 is volatile and the pandemic is still in a serious phase for Mexico and QR. The data analyzed were reviewed during a certain period, an update of the SOS strategy will need a follow-up to review its impact. This consultancy between the authors and SEQ was a voluntary, non-remunerated, engagement.

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Appendix

Note on Data Analysis

The authors conducted a detailed data analysis based on the local QR education system data provided to the authors by the client.

Note on Interviews

The authors conducted personal, private interviews with various members of Mexico and Quintana Roo's education system at various levels as well as other international actors:

- Early Childhood Education Teacher in Quintana Roo on September 20, 2020
- Educational Sub Secretary of Planning in Quintana Roo on September 23, 2020
- Ana Vázquez, Secretary of Education in Quintana Roo on September 21, 2020 and January 19, 2021

- Educational Sub Secretary of Planning in Quintana Roo on September 23, 2020
- Quintana Roo's teachers on October 12, 2020
- Peru MinEdu Head of Statistics on October 13, 2020
- Lorenzo Gómez Morín, on December 7, 2020

Chapter Eight

Increasing support to learners under the Covid-19 pandemic in Sinaloa, México

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Summary

This chapter is based on the consultancy between the authors and the Secretary of Public Education in Culture (SEPYC) in the state of Sinaloa, Mexico. The professional background of one of the authors of this chapter as a member of *Mexicanos Primero Sinaloa*, an education policy analysis and research non-profit organization in Sinaloa, and the ready access this provided to education authorities, explains why we chose this site for this analysis. Previous professional relationships with the client granted the authors access to private planning meetings and to information reported directly by primary sources within the secretariat about the impact of the pandemic on education since the outbreak. All the data analysis and the recommendations issued to our client were communicated in private to maintain independence from the institutional relationship between the SEPYC and *Mexicanos Primero Sinaloa*. This chapter includes descriptive information on the context, evidence on the impact of the pandemic on learners in Sinaloa, and a review of literature pertinent to the challenges faced by the SEPYC. The chapter also describes the policy alternatives recommended to the client, and a final section on the client's response to this work along with implementation plans for the recommended alternatives.

The problem from the client's perspective

The Covid-19 pandemic surprised Mexico's educational leaders right during a nationwide overhaul of the country's large education system. With over 36.6 million students, more than 265 thousand public schools and 2.1 million teachers, the federal government rapidly reacted to potential health risks and decided to close all schools on March 23rd, 2020. Several weeks later, the federal Secretary of Public Education (SEP) announced a distance learning strategy, using television and online tools as a medium of instruction. However, several structural challenges acted as relevant obstacles for the success of an education continuity strategy based on remote learning, such as low internet connectivity, levels of access to technology (Secretaría Transporte y Comunicaciones, 2020) as well as poverty affecting as much of 42% of the population (Fundación Quántitas, 2020).

Mexico's education system is highly decentralized "comprising 32 state-level education systems that follow a common national curriculum and general guidelines from the Federal Secretariat of Public Education (Federal SEP, from its acronym in Spanish). However, each of the State-level Secretariats of Public Education is entirely administered by local governments" (World Bank, 2021). As one of those state-level education administrators, the Secretary of Public Education and Culture of the state of Sinaloa (SEPYC), faced the specific challenge of continuing to offer access to education through remote means to more than half a million students and over 5,600 public schools at the k-9 level.

Before the arrival of the pandemic, SEPYC's action was focused on addressing the problem of high levels of educational inequality. In Sinaloa, only 3.7% of three-year-old children are enrolled in the first grade of preschool, a low percentage compared to the national average slightly under 50% (SEP 2020). And in terms of learning outcomes, PISA scores for Sinaloan students are roughly about 80 points under OECD average scores (CONEVAL 2018, 2020; Mexicanos Primero, 2018). In response to these challenges, the current state administration undertook the implementation of several projects aimed at increasing educational opportunity.

However, as schools closed due to the pandemic in March 2020, most of these programs were put on hold, which is an important negative effect of school closures.

Therefore, at the onset of this consultancy, our client wanted to better understand where and how to prioritize resources to maintain student learning during Covid-19. Following Bardach's (2012) recommendation to have a clear problem definition to focus a policy analysis, we determined that the guiding problem statement for this consultancy would be that "children are receiving too little support to meet the intended learning goals of the curriculum during the pandemic."

Covid-19 impact on education: response and effects

The federal and local response strategy

After an increase in the number of confirmed Covid cases, a total national school closure was imposed by Mexico's federal government from March 2020, subsequently extending into the current 2020-2021 academic year (Diario Oficial de la Federación, 2020). As schools closed, Mexico moved to a remote instruction model that utilized public television to continue instruction: *Aprinde en Casa* (Learning at Home) (Ripani & Zucchetti, 2020). Whereas only 47.7% of the population has access to the internet in rural areas, 92.5% of households have at least one television (Secretaría Transporte y Comunicaciones, 2020). In this context, the use of public television to disseminate educational content was an informed decision. This approach built on Mexico's long-standing experience of *Telesecundaria* (1968), "a national literacy initiative based on TV programs for secondary schools in rural and isolated areas" (Ripani & Zucchetti, 2020). *Aprinde en Casa* also relied on Public Private Partnerships (PPPs) to secure national content dissemination, ranging from traditional TV broadcasts to online streaming. PPPs also allowed the government to provide teachers with professional development opportunities to improve the use of ICT resources. For instance, in partnership with Google Education, over half a million educational figures (teachers, directors, heads of sector, supervisors, etc.) received training on the G-Suite platform (Aristegui Noticias, 2020). Indigenous communities were also reached in 15 indigenous languages through partnerships with local radio networks (Ripani & Zucchetti, 2020).

SEPYC, as did many of the other state level secretariats, determined to follow SEP "*Aprinde en Casa*" as the overall official framework of response during school closures. However, the Secretary of Public Education and Culture of Sinaloa, Juan Alfonso Mejía, also announced that schools and teachers in Sinaloa would have flexibility to dismiss the use of TV based content and to implement strategies based on textbooks and printed handouts, assigning learning activities through social media, and in some cases, online instruction through radio and digital platforms (Sánchez, 2020).

In addition, budgeting restrictions announced by the federal government (DOF, 2020) made the option of newly financed investments impossible in Sinaloa, hence constraining financial resources to support the alternative education strategy. Moreover, the official national and state education budgets approved for the year 2021 did not include specific funds to target the pandemic's effect on student learning (Leyva, 2020). This made evident that our policy analysis would have to prioritize the cost-efficiency of the alternatives examined to sustain education.

Effects on students

Due to SEP's decision to cancel all national standardized tests due to school closures for the second consecutive year (Medina, 2021), basing public policy decision-making on reliable data about the impact of the pandemic over student learning in Mexico and Sinaloa remains a major systemic challenge. Thus, this subsection is based on the analysis of surveys and studies that different institutions have conducted to explore and to estimate the pandemic's impact on student learning and is a rather limited assessment.

To account for the biggest challenges currently faced by students in Mexico, a survey coordinated by the Universidad Iberoamericana in Mexico City asked students what they

considered the worst effect of school closures. 71.8% of students¹⁷ responded that it was not being able to attend their schools, while 47.9% of teachers mentioned the challenges of using technology (Rendón, 2020).

Another survey, conducted by the National Commission for Educational Continuous Improvement (MEJOREDU), revealed that although 97% of the parents declared that their children had continued studying remotely, 4 out of 10 students did not engage in one or more of their subjects (Comisión Nacional Para la Mejora Continua de la Educación, 2020).

In terms of perceptions of what learning had taken place during the alternative strategy, 59.6% of primary school students and 44.1% of secondary school students in the sample declared that during the remote learning period they only reinforced previously acquired learning, which we see as problematic given the fact that the “*Enseño en Casa*” strategy does not explicitly pursue the reinforcement of previous learning but has instead been introduced as an alternative to continue to progress in the learning goals established on the curriculum.

With regards to student physical and emotional wellbeing, almost half of the surveyed students (49.9%) declared feeling stressed by the academic tasks they needed to complete remotely, and 39.8% of students declared feeling sad and low motivated by the situation (Ibid, 2020). These findings are consistent with those from a survey conducted by UNICEF, which show a 6.7% increase in children food insecurity during the May 2020 July 2020 period, alongside a 30% household income decrease in 41.8% of families that care for children (UNICEF México, 2020).

In Sinaloa, however, the results from the survey “Sinaloa aprendió en casa?” (Did Sinaloa Learn at Home?) conducted by SEPYC show significant satisfaction from the parents with the remote learning continuity strategy offered. With participation of over 19,500 teachers and 57,000 families, the survey’s results show that 9 out of 10 families rated teacher support as excellent or good. Furthermore, teachers stated having constant communication with 85 percent of their students, although only 38% said that they feel very good about the strategy (SEPYC, 2020).

However, while these data show an overall sense of satisfaction, demand side satisfaction is an incomplete standard of learning quality absent information from measurable learning outcomes. Consequently, we have limited knowledge on the real impact of the pandemic on student learning.

To account for potential learning loss in Sinaloa, we referred to literature that estimates learning loss projection models as a function of duration of school closures and on the study of summer learning loss and learning loss caused by other health and natural emergency scenarios. We also considered some of the first evaluations of student learning loss during school based on standardized tests.

According to Azevedo et al. (OECD, 2020), school closures longer than seven months could result in an average loss of 0.9 years of schooling, adjusted for quality. By the time we finished this chapter (February 28th, 2021), schools in Sinaloa had been closed for eleven months. Given that the extension of the school closure period in Sinaloa has been considerably longer than the seven-month period considered as the goalpost to estimate learning loss by the OECD, there is a high likelihood that the state could face a reduction in the average years of schooling in the state from the current 10.2 years level to 9.3 years, landing very close to the 9.1 average years of education of the state’s population back in 2010 (INEGI, 2021).

Furthermore, a recent study of the impact of the remote learning period on students learning, using standardized test results in Belgium, shows that after about a third of the 175 days of the school year were disrupted due to school closures, the results from standardized tests in math and language declined significantly, more so for disadvantaged students:

“Students of the 2020 cohort experienced significant learning losses in all tested subjects, with a decrease in school averages of mathematics scores of 0.19 standard deviations and Dutch scores of 0.29 standard deviations as compared to the previous cohort. Moreover, we observe that inequality within schools rises by 17% for math and 20% for Dutch. Inequality between schools rises by 7% for math and 18% for Dutch.

¹⁷ Only students from 4th, 5th and 6th grade were included in the survey.

The learning losses are correlated with observed school characteristics as *schools with a more disadvantaged student population experience larger learning losses*” (Maldonado, De Witte, 2020).

Likely that students in Belgium had more favorable conditions to sustain learning remotely than their peers in Sinaloa, and still experienced significant learning loss. Consequently, the request from our client to help in determining alternatives to increase learning support opportunities to student is very well justified, despite the favorable reviews of teachers and parents in Sinaloa give to the remote learning strategy sustained in the state.

In the following section of this chapter, we will briefly summarize knowledge and evidence sources we used to address SEPYC’s need to support student learning during the pandemic.

Theoretical and conceptual framework for the consultancy

This section describes the key themes we studied and analyzed to develop a deeper understanding of the challenges related to successfully sustaining remote education under a crisis scenario like the one of a pandemic. We also included in this literature review some references around structural and political considerations that are important to understand the governance challenges of Mexico’s education system, which also had to be considered in the design of the policy alternatives presented to SEPYC. With this section we hope to make explicit what were the theoretical, empirical, and conceptual underpinnings of our understanding of the situation and on which our policy recommendations were based. Section four presents the analysis of the implications of these references.

How people learn remotely

Our research starting point was around some of the more recent and fundamental ideas on what it takes for students to learn, specifically under digital and remote learning scenarios. Clark and Mayer (2016) highlight the importance of designing for e-learning against “information-acquisition ways of learning” which view learners as empty vessels meant to be filled by the instructor(s). We drew on theories of learning, motivation (Deci and Ryan, 2000), and student engagement (Lahaderne, 1968; Samuels and Turnure, 1974; Hecht, 1978; Cobb, 1972; and Finn and Rock, 1997) which seemed the most relevant based on the results of the surveys we summarized in the previous section.

We also decided to incorporate some of the recent knowledge about the diversity of strategies to sustain education opportunities remotely across the world. Drawing on the work by Reimers & Schleicher (2020) who contributed one of the first international comparative studies on the subject. We also drew on UNESCO’s guidance around key considerations for governments when assessing how to sustain education continuity during the pandemic. This information provided a framework to identify blind spots and opportunities for improvement in Sinaloa’s response prior to our consultancy, and to inspire and guide our own policy alternative proposals.

Throughout our consultancy many countries started to resume in-person instruction, and as a result we also analyzed the tradeoffs between remote and in-person learning experiences. Specifically, we decided to work based on four conditions considered by UNESCO (2020) as predictors of learning effectiveness: technological readiness, content readiness, pedagogical and home-based learning support readiness, and monitoring and evaluation readiness. These four conditions merged influenced strongly what we will refer to as “learning loss mitigation potential”.

Here, the evidence from the consequences of school closures over student learning in Belgium also plays an important role, as the work by Maldonado & De Witte (2020) greatly influenced our analysis when considering whether to issue our client any policy recommendations requiring in-person interaction. Closely to this, we also studied four key stages to manage the risks of reopening schools, identified by the OECD: 1) conduct a risk assessment for the staff; 2) develop clear protocols on social distancing; 3) revise attendance policies to accommodate health-related absences; and 4) ensure adequate training of teachers and staff.

Mexico's curriculum and standards

Our reasoning about how to improve support to students in Sinaloa during this pandemic needed was founded on the learning goals of Mexico's education system. *Audacious Education Purposes* (Reimers, 2020) contains a chapter by Elisa Bonilla which synthesizes the reform that created Mexico's current curriculum and learning standards. Although this reform is best known in terms of the changes it brought to the professional career system of teachers and other aspects of system's governance, it also focused strongly on improving the quality standards of teaching and learning in the traditional areas of the curriculum such as math, reading, writing, and social and science studies. The reform also included, as a priority, granting schools greater levels of curricular autonomy, and pursuing the development of personal and social skills, through arts, socioemotional learning, and sports.

Bonilla's analysis of the reform mentions an evaluation study conducted on the pilot implementation of the curricular autonomy component of the reform. The findings showed that this component boosted student learning; it improved student interaction (with a noticeable decrease in bullying); it strengthened sense of belonging to the school; it improved positive attitudes and values among the students; it consolidated interdisciplinary teaching teams; and it increased collaboration between students and teachers (Gómez-Morín, 2018).

All these references allowed us to assess the trends, trajectory, and opportunities that the Mexican curriculum and learning standards offered prior to the disruption caused by the pandemic. And they informed our understanding of the balances and specific considerations our policy alternatives should consider when securing curricular coherence and continuity.

Mexico's education system governance

The complexity and challenges of Mexico's education system governance were a key aspect to consider when assessing the technical feasibility and political viability in our policy alternatives. Here we drew on the work by Zorrilla and Barba (2008) and on the perspectives of Granados (2020), Santibañez (2008) and Corrales (1999).

Zorrilla and Barba (2008) acknowledge a tension between the centralized and decentralized governance that coexist in the national education system in Mexico. They propose the thesis that many of the country's lack of efficacy in improving student learning outcomes comes from poor management and deficient professional capacities of local state secretariats. Granados introduces the concept of "archipelago syndrome" (personal communication, 2020) to characterize how the lack of alignment around student learning emerges when bureaucracies and organizations tend to prioritize their own agendas over educational improvement and learning goals.

Santibañez (2008) and Corrales (1999), analyze the influence of politics within education in Mexico. Santibañez explains how agreements between the government and national teacher unions (SNTE) consolidated SNTE's political influence in detriment of greater levels of system efficiency. Simultaneously, Corrales provides an economic framework to explain how political stakeholders who assume most of the costs of quality-oriented reforms can usually be very successful in blocking said reforms if their benefits are spread out among diverse social groups. Since Sinaloa will face government level, local congress, and municipality's election in June 2021, political factors need to be considered both as an enabling and a hindering factor for the implementation of the recommended alternative.

A multidimensional analysis of the policy implications examined

Building on the previous references, section 4 discusses the key implications embedded in the process of creating policy alternatives to increase support to learners in Sinaloa. Following Reimers's (2020a) multidimensional framework to theorize the process of educational change, we analyzed and challenged our understanding of the problem facing our client and our ideas about possible intervention strategies through the five perspectives: cultural, political, psychological, professional, institutional, and political.

A cultural perspective

In Mexico and Sinaloa, the decision to sustain school closures has been strongly supported by families and teachers. This probably comes from an understandable fear of contracting the virus, and from the lack of information about the negative mid- and long-term consequences of school closures on student learning and wellbeing.

However, families have also shown high commitment to supporting students during the remote learning period. Primary school students received support from their parents (94.5%) and older siblings (28.5%). The larger community is also an important factor, as stated by middle school students, that found in friends (35.9%) and classmates (33.4%) an important source of support (MEJOREDU, 2020).

This data highlights the idea that, despite the economic challenges discussed in section 2, Mexican families and communities value education and are committed to it, even during a pandemic. Consequently, they should be included as a relevant asset in any learning support strategy. Moreover, according to Stefania Giannini (2020), “societies cannot transform if what and how we learn remains the same...It is a time for education leaders to use this period of disruption to ensure what people learn is truly relevant to their lives and to the survival of the planet”. This idea addresses the need for education systems to strongly emphasize the importance of creating a cultural change about what children should learn in school and about who should be involved in the process.

In this sense, any attempt to increase support to learners, should focus not only on the traditional goals of education for parents, such as good grades or for the system itself, such as higher standardized test results. It should go beyond the traditional role of teachers -and on a minor scale, school leaders- as those with primary responsibility for student’s learning. Instead, the current scenario calls for an open mindset that seizes the learning opportunities that can occur within the everyday experiences of children in their homes, with their families and in the everyday aspects of family life, such as cleaning, cooking, and communicating to each other.

However, it is also important to consider that any cultural change process around the goals and purposes of education for a society is a slow and gradual process. Given that the current scenario is defined by the urgency of avoiding a “generational catastrophe” (United Nations, 2021) the SEPYC should be aware of the importance of gradually prioritizing which academic and socioemotional learning goals and objectives are the most urgent to “protect” and to take recommendations to seize this crisis as an opportunity to reengineer its education system with distance and caution.

A psychological perspective

Clark and Mayer’s (2016) study highlights several gaps in remote learning scenarios, the most common being a tendency of learning designers to adapt the face-to-face approach of instruction to the online environment in its original form, expecting learners to adapt to the technology implemented. As learners in a remote setup, the children of Sinaloa are continuing to learn in the unfortunate situation caused by the pandemic, but at the cost of their engagement.

Additionally, for children accessing educational content through *Aprende en Casa*, the sheer cognitive load is immense, since remote learning requires visual and auditory attention, taking in various elements, and sorting through the information for it to make sense and developing greater levels of autonomy by expanding their executive function capacity.

In this situation, having extraneous information (such as too many colors and/or words on the tv or computer screen), or not enough required information (such as too few descriptive labels with the material/activities shown on screen) may hinder the learner’s ability to keep up with the pace of the lesson— most of which when delivered on TV based *Aprende en Casa* cannot be paused or replayed.

In fact, according to UNESCO (2020), “distance learning tends to require a high level of self-directed learning on the part of the learner, and study skills, which must be supported through new teaching, learning and guidance strategies”. These have not yet been developed as part of the *Aprende en Casa* overall strategy.

In such a scenario, it is to be expected that that student achievement and well-being would decrease. This idea is confirmed by MEJOREDU’s (2020) findings quoted on section 2. The levels of stress, anxiety and frustration could be attributed to a lack of self-determination

(Deci and Ryan, 2000)— wherein learners get to set their own goals and make their own choices— along with a lack of socio-emotional bonds, nutrition, and mental support that school spaces grant and that, according to UNICEF’s data for Mexico not all households were able to offer.

Deci and Ryan’s (2000) self-determination is possible when three things happen for the learner: feeling effective (competency), feeling in control (autonomy), and feeling interconnected (relatedness); all three of which might not be part of the current reality of the learners in Sinaloa.

Finally, scientific evidence supports the connection between student engagement and student achievement (Lahaderne, 1968; Samuels and Turnure, 1974; Hecht, 1978; Cobb, 1972; and Finn and Rock, 1997), as well as between peer conversations and achievement, with the two variables being positively correlated. Any alternative to increase and improve the learner support strategies in Sinaloa must keep these crucial realities in mind to mitigate the risks of learning loss, student disengagement and impoverished socioemotional well-being.

A professional perspective

UNESCO (2020) identified four kinds of readiness required to reopen learning spaces. One of the most crucial of the four, “pedagogical and home-based learning support readiness”, is directly related to the preparedness of teachers to design and facilitate remote learning. Though prior experience on remote learning scenarios based on television from the Telesecundaria (1968) model was helpful, it is not sufficient to support this approach as the sole strategy in a country where only 57% teachers reported using digital learning to complement traditional practices (TALIS 2018). Additionally, with only 67% teachers encouraging critical thinking in the classroom and only 38% presenting their students challenging tasks with no obvious solution (TALIS 2018), there is an increasing need to improve the development of crucial skills such as critical thinking, to help students navigate the uncertainty of the world around them.

To prepare children for the future Sinaloa must consider its professional network of teachers and school staff and equip them with the support they require at this time, especially because “most teachers are not adequately prepared for the transition of provision of school education, and families are not ready to facilitate and monitor daily home-based learning especially with multiple children.” (UNESCO, 2020). In this sense, any intervention strategy demanding changes in the pedagogy from teachers, should consider the human, technical and economic resources required to train and support teachers in the development of new skills, attitudes, and professional behavior.

An institutional perspective

The experience and TV content available from the Telesecundaria experience facilitated the “content readiness” listed by UNESCO as a key point for remote education continuity. This drastically reduced the time and pressure to create television based remote learning content. Other existing resources and capacities, such as Google Education (via PPP) and a signed contract with national TV stations were employed to further this idea, achieving access to educational content for over 98% of all Mexican students (Damian, 2020).

Content readiness, however, should include not just core academic subjects, but also the portions of the curriculum that schools can determine, and for the social development that are current expectations and key components of the national curriculum and standards.

The 2013 national education reform described by Bonilla (2020) determined the curriculum and standards currently available for all the country, including Sinaloa. Although not all aspects of this curriculum have been evaluated, curricular autonomy stands out as having the potential to improve student learning and more specifically in better student interaction (Gómez-Morin, 2018), which is crucial under the current remote learning scenario.

Additionally, Granados’ (2020) “archipelago syndrome” underscores the reality of “low management and professional capacities of local state secretariats”, a point also brought up by Zorrilla and Barba (2008), compounded by multiple political and bureaucratic agendas undermining the efficacy of the system in supporting student learning. Hence, all alternatives

that might require great levels of inter-departmental or multi-level collaboration should be considered with great caution.

A political perspective

As we were finishing this chapter, in February of 2021, the decision to reopen schools remains a major political concern facing the federal and state governments in Mexico. Not addressing the consequences of prolonged school closures, especially for those students with greater needs, will lead to learning loss, resulting in diminished professional opportunities for Mexico's students, and lower economic growth rates for the country (Hanushek, Woessmann, 2020). However, a federal government announcement has created the possibility that schools could be reopened partially and gradually as a Community Learning Centers (CLC) (SEP 2020).

Although re-opening schools might soon be a politically viable option in Sinaloa, at least in the terms of federal-local level coordination, the political influence of teacher unions should not be disregarded as it could make reopening politically unfeasible. Hence, all the policy alternatives in our consultancy should balance the tradeoffs between the requirements for greater student support and the resistance and power wielded by influential groups such as teacher unions, in Sinaloa.

Constructing, discussing, and assessing policy alternatives

Based on the data, evidence and literature reviewed and analyzed in the previous sections, a set of policy alternatives was created to address the problem which was the focus of our analysis. These alternatives were evaluated with four considerations in mind: cost effectiveness, political viability, potential of learning loss mitigation, and implementation feasibility. Through the following subsections, we explore each alternative, followed by a comparison (see Table 1).

Alternative 1: Personalized tutoring Programs

At the very beginning of our consultancy, SEPYC communicated to the consulting team their intention to explore free digital tutoring as an alternative. We were, hence, able to research global best practices that could inform Sinaloa's efforts to provide quality tutoring for students. The emphasis on quality was important after drawing on Clark and Mayer's (2016) emphasis on designing e-learning that was more than just an "information-acquisition way of learning" which did not engage students with learning. In this sense, research has shown that well-designed tutoring programs that use volunteers and other non-professionals as tutors can be effective in improving children's skills (US Dept of Ed, 2001). Given this, our tutoring program aimed to utilize teachers in training and high school seniors who have a volunteer service requirement for graduation.

Tutoring programs can allow more direct support with limited numbers of students as we consider access and safety in the Covid-19 context. Also, as a cost-effective alternative, SEPYC would focus on complementing *Aprende en Casa* lessons with tutoring support. The client will be able to address the problem of learner support through increased points of student contact improving the quality of the existing curriculum provided by *Aprende en Casa*.

In addition, this alternative allows SEPYC to facilitate deeper professional development for teachers-in-training. Moreover, if SEPYC was to include high school students as volunteers, they will enable many high school students to meet their graduation requirements, avoiding a bottleneck in their vocational high schools.

An important aspect of tutoring services that contribute towards the quality of a program is "frequent and regular tutoring sessions, with each session between 10 and 60 minutes daily" (US Dept of Ed, 2001). With consistency of interaction, tutoring can lead to a positive impact on learning outcomes (Access Center, 2004). According to the US Dept of Ed (2001), "Students who are tutored and tutors, in the case of peer or cross-age tutors, often demonstrate higher self-esteem and positive attitudes toward school." This addresses the issue of disengagement among students. At this point, it is important to notice how this alternative might also allow the development of connections to other relevant educational endeavors of high recognition in the country, such as the student self-teaching model named *Redes de Tutoria*,

created years ago by Dr. Gabriel Camara with support from Richard Elmore (MAPEAL, 2021).

As the consultancy process with SEPYC moved along, the client began implementing the tutoring programs. The tutoring alternative is mostly geared to mid-performing students who will benefit from the additional support. Carlos Parra, SEPYC's official in charge of the intervention, mentioned that they were able to launch the program quickly with 80 volunteers (telephonic interview, December 10, 2020), a pretty low number, relative to the total of over 560,000 students in K-9 levels.

Alternative 2: Community Learning Centers (CLCs)

After the announcement made by the federal government on December 8th, it became clear that utilizing schools as CLCs can provide Sinaloa with a space to provide instruction to its most vulnerable populations without needing to reopen schools entirely and reducing the political risk of the decision. In this alternative, the focus is on providing in-person instruction for the most at-risk students who already suffer from a lack of academic and socio-emotional skill development.

Sinaloa and other states in Mexico have been granted the possibility to organize CLCs when the school community has a consensus of approval and whenever the State can comply with 12 considerations that summarize key aspects to strengthen and to promote the educational process (SEP 2020). The most relevant of those considerations are:

- I. Voluntary attendance: Attendance must be voluntary by students and families. Focus on recruiting the most at-risk students first for in-person instruction.
- II. Staggered reporting times for students and instructors: May help mitigate overcrowding while also allowing instructors to maintain small cohorts of students.
- III. 40% daily limit of the school population: As suggested by the SEP (2020), when considering the capacity of the CLCs, this measure will help ensure appropriate numbers of students, while also allowing for appropriate triaging of students.
- IV. Establish a maximum number of students and teachers within each classroom: Set the numbers early and hold everyone accountable to maintain the ratios in the face of social distancing guidelines.
- V. Prioritize the use of open spaces: By not limiting the CLCs to formal institutions, SEPYC is able to strategically locate CLCs to the benefit of families which will help with attendance.

By utilizing schools as CLCs, SEPYC will be able to increase students' access to technology, facilitate both teacher-student engagement outside of the traditional school setting and student-peer tutor engagement, as necessary.

In addition, while there are academic benefits to increase in-person instruction via community centers, there are also the socio-emotional considerations that become even more important for at-risk populations. "Developing and maintaining strong connections with community resources can greatly enhance schools' capacity to support these youngsters" (DeAngelis, 2012).

These centers become safer places for meetups while including resources already in the community that can be leveraged by SEPYC that will keep the cost down. Moreover, by creating stable CLCs in neighborhoods, the SEPYC will not only be adapting to the Covid-19 context but also creating future protocols and implementation stations through crisis assistance and prevention systems.

The announcement by the federal government not only lowered political risk, but it also increased implementation viability, since there is a clear expectation that these centers should function in coordination and collaboration to other relevant public social services agencies, such as Public Health and others. However, this alternative entails in-person work from teachers, which teacher unions in Sinaloa have said would not be viable unless all teachers were fully immunized against the Coronavirus through complete vaccination (Ochoa, 2021).

Some possible alternatives to overcome or bypass potential denial to participate in CLCs from teachers could include engaging parents and community members as resource persons or

implementing alternative pedagogical approaches familiar to the Mexican context, such as the previously mentioned student self-teaching model by Redes de Tutoria developed years ago (MAPEAL, 2016).

Alternative 3: Targeted support for parents and caregivers

During our initial data analysis, it became evident that families play a vital role in student support, especially in remote learning environments. As previously mentioned, 94% of primary school students received support from their parents and 28.5% receive support from older siblings (MEJOREDU, 2020). When considering *Aprende en Casa* it is important to acknowledge the role of at-home supports, especially where there is little to no access to technology. According to UNICEF (2020), “all policy decisions on continuing education remotely should also be cognizant of parents’ capability to help their child learn in order to prevent further exacerbating the global learning crisis and amplifying the learning gaps across socio-demographic groups (Brossard, et.al).”

Formal support for parents can be provided through a range of different sources such as phone-based support centers, physical resources, parent education programs, and online forums (Centre for Community Child Health, 2007). However, informal support may also be provided by friends, family, and neighbors (Moran, Ghate, & van der Merwe, 2004). The pandemic has created a situation where the fundamentals of the structure of formal education can be revisited—for instance, increasing parental and caregiver involvement. Countries such as Bhutan, Guatemala, Oman, Cameroon, Eswatini, and Ecuador have begun engaging with caregivers to help them support learning and additionally, provide psychosocial support to children (Dreesen et. al., 2020).

Considering this alternative, the cost-effectiveness would have to include the overhead for supervision and printed resources for parents without digital access, while content creation can be supported by NGOs working in Sinaloa on parent support, such as Proeduca or Save the Children Sinaloa. A key challenge to implementation feasibility is the difficulty to monitor and supervise. From an institutional perspective, to formalize parental involvement, the intervention requires to be monitored with the involvement of actors within the system (teachers/school leaders) and therefore must be monitored by schools. We recommend that the parental program be linked to existing conditional cash transfer programs for children in the early years, given that the early years are a critical development period, to which there is little political opposition.

Mexico is familiar with such linkages between early education and conditional cash transfers through the program Prospera and Educación Inicial (PEI) which offered a parenting program to cash transfer beneficiaries. The institutional architecture of PEI uses the convergence approach where different agencies combine efforts to bring the two programs—cash transfer and parenting programs—to the same populations (Arriagada, Perry et. al. 2018). As stated in the Mexican Constitution, education is a right of every child and, hence, can justifiably be linked to other such programs that provide parents with incentives.

A review of existing literature identifies the following key features in the delivery of successful parenting programs (Arriagada, Ana-Maria et al. 2018):

- I. Invest in strong program protocols and materials. With *Aprende en Casa* already providing learning resources, the intervention would therefore have to build on the existing resources by including communication to parents that assist them to provide learning support. For example, protocols regarding training workshops for parents on how to use the resources.
- II. Strengthen the social support among parents that participate. From a cultural perspective, resistance from parents can be expected due to the increased financial pressure during the pandemic, especially in lower-income communities. However, fewer than one in five (18%) Mexicans rate the quality of free public schools in their country as good or very good (Varkey Foundation, 2018).
- III. Build on existing delivery platforms that the target population is already using. For example, the Delhi Government (2018) in India, a middle-income country like Mexico,

provides parents with support via mass texting and recorded phone calls to keep parents engaged in their children's learning.

Finally, this alternative might be of foundational importance to any serious attempt to start a deep cultural change process and transform the way that parents, caregivers, and families engage in supporting school learning for their children.

Alternative 4: Combined alternative

In the true spirit of equity, our fourth policy alternative allows for targeted, specific interventions for different groups of children grouped homogeneously according to two parameters: student access to digital devices and student learning level. In this sense, *Aprende en Casa* serves as an effective building block but requires smaller scale and more targeted interventions that can be layered to ensure equitable last mile delivery of the content. We recommend using existing data and inputs from teachers and schools to create four student profiles based on digital and technology access and learning levels to determine the learning support intervention that is required for that group.

This would include deploying the three alternatives suggested above as additional learning support structures to complement *Aprende en Casa* for students with low levels of access or learning or both. Tutoring support delivered remotely is effective for students with low learning levels and high digital access, while parent support would be more relevant for students with high learning levels and low digital access. Finally, those with low learning levels and low access require a more traditional form of learning through physical schools or CLCs.

Such an approach will target significant costs such as printing physical resources and commissioning CLCs only for the students in most need of these interventions. This process will help expand the dissemination of education beyond schools to involve parents, voluntary tutors, and community centers managed by NGOs and schools as distribution channels. Figure 1 explains the distribution of the interventions across different student groups.

Figure 1: Policy alternative distribution for students levels of learning and technology availability

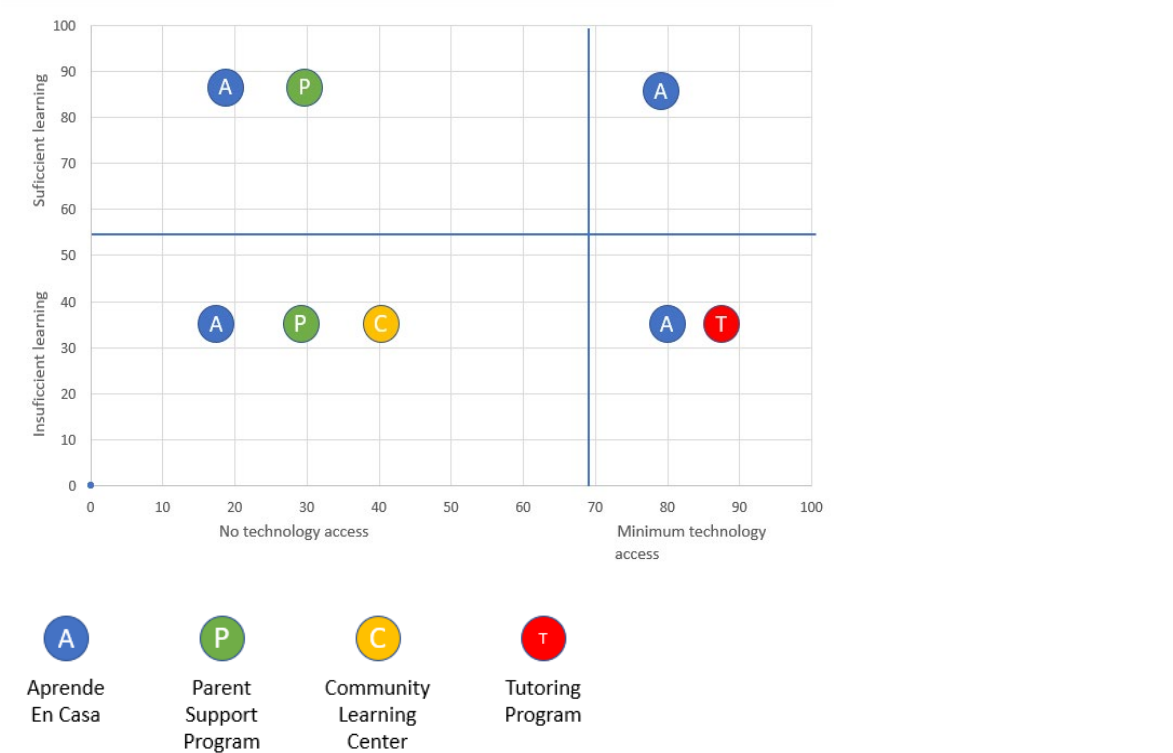


Figure 1: Student groups with respective interventions under the combined alternative 6.4. Source: Self estimation with data available on Sinaloa’s primary school student learning achievement in PLANEA tests and technology availability in the state by the National Institute of Education Evaluation (INEE, 2016)

Our Recommendation

Based on the comparative analysis of all the alternatives using the criteria of cost effectiveness, political viability, potential of learning loss mitigation, and implementation feasibility (See table 1), and considering that the personalized tutoring alternative was already being implemented, our recommendation was for SEPYC to undertake setting up Community Learning Centers. As seen on table 1, CLCs ranked as the best alternative on our comparative policy matrix.

Table 1: Policy alternatives matrix

S. No.	Scale: 1-5 (low-high)	Tutoring Program	CLCs	Caregiver Support	Combined
1	Cost effectiveness	4	4	3	2
	Comments	Input substitution of teachers with volunteers reducing costs. Tutoring interactions can be held remotely.	Usage of schools as community centers eliminate capital cost. Teachers supporting centers are already hired.	Content creation and printing materials for parents with low digital access are major costs.	Targets most operational expenses only to specific learner groups but would require management and capital costs for all interventions.
2	Political Convenience	5	4	5	4
	Comment	No political resistance from unions or other political costs anticipated.	Moctezuma’s announcement lowered political risk. Still, a political cost if Covid cases confirm, and	No political resistance from unions or other political costs anticipated.	No political resistance from unions or other political costs anticipated.

			<i>teacher unions might resist.</i>		
3	'Learning loss' mitigation potential	3	5	3	5
	<i>Comment</i>	<i>Volunteer tutor interventions have lower learning impact than professional tutor interventions.</i>	<i>In person interaction offers learning and socioemotional benefits</i>	<i>Quality materials for parents alone will not have the intended impact.</i>	<i>The combined alternative would target learning loss from different approaches.</i>
4	Implementation Feasibility (Readiness for- tech, content, pedagogy, home support, program management)	4	4	3	2
	<i>Comment</i>	<i>Tutoring programs can be managed by SEYC officers currently restrained from their school supervision responsibilities</i>	<i>Given similarities to regular in person school activities, alternatives do not offer much implementation uncertainty</i>	<i>Logistics of production and distribution of materials might distract from capacity building opportunities</i>	<i>Implementing this alternative would pose great stress to the system's technical capacities.</i>
	Overall feasibility	4.0	4.25	3.5	3.25

*Scale from 1 being the lowest to 5 being the highest

To facilitate implementation, Sinaloa will be able to benefit from the experience of similar countries within Latin America (Colombia, Argentina, Brazil) that had resumed in-person instruction by the time we finalized chapter at the end of February 2021. Similar benefit may be derived from other countries which have had schools open for many months, such as Uruguay. Many of these experiences have been systematized in a recent report by MEJOREDU, named ‘Experiencias internacionales de apoyo a la educación durante la emergencia sanitaria por Covid-19. Balance y aportaciones para México’ (International experiences of support to education continuity during the Covid-19 pandemic. Balance and lessons for Mexico) (MEJOREDU, 2021).

Many of the protocols and guidelines to reopen schools in Latin America and the Caribbean have already been systematized by UNICEF (2021) and can be accessed online. Using specific monitoring strategies, SEPYC could follow up on these processes and learn from the experiences of countries that resumed in-person instructions sooner.

A very important aspect when considering the CLCs alternative is to secure efficient mechanisms of coordination with their state and/or local health authorities. Sinaloa will need to consider how national and local handling of Covid-19 containment and testing will dictate their actual implementation.

Finally, we have developed a logical framework analysis to support our recommendation. As can be seen in table 2, our proposal is for SEPYC to open 540 CLCs, the equivalent of 10% of all public schools in the K-9 spectrum, benefiting around 54,000 students, representing slightly under 10% of the total student enrollment in the K-9 spectrum. This analysis addressed some of the key assumptions that should be met to secure the adequate performance of this intervention, and from there, achieve the intended impacts of greater learning and socio-emotional wellbeing levels on the impacted students.

Table 2 Logical Framework for Community Learning Centers

Narrative Summary	Performance Indicators	Monitoring and Evaluation	Assumptions and risks
<p>Goal</p> <p>All students (Pre-K to 12) in Sinaloa sustain on their educational trajectories, accessing an improved quality of education that helps them to achieve the curriculum goals and to recover from the long-term consequences of learning loss and the socioemotional effects of the pandemic.</p>	<p>Net enrollment indicators for 2021-2022 school year (and following)</p> <p>Student learning achievement</p> <p>Student socioemotional well-being</p>	<p>Net enrollment statistics informed by SEPYC's statistical analysis unit.</p> <p>PLANEA tests (spanish, math)</p> <p>New state-wide student socioemotional well-being measure.</p>	N/A
<p>Objective</p> <p>To mitigate the immediate effects of learning loss and emotional wellbeing detriment among the most marginalized pre-K to 9th grade students.</p>	<p>Percentage of students attending CLC that improved their learning and socioemotional well-being.</p>	<p>Learning and socioemotional well-being assessments designed and implemented by SEPYC in all CLCs</p>	<p>- SEPYC facilitates the financial resources and technical capacities to transfer CLC's success in mitigating learning loss and improving socioemotional well-being to public schools.</p>
<p>Output</p> <p>10% (54.000 students aprox.) of learners enrolled in Public Schools participate persistently in CLC throughout the second semester of 2020-2021 school year.</p>	<p>- Numbers of student enrollment</p> <p>- Numbers of student attendance</p>	<p>Reports issued by each CLC to its designated supervisor</p>	<p>-Sanitary guidelines are observed, no CLC close due to Covid-19 cases confirmation.</p> <p>- Effective coordination among health and education authorities.</p> <p>- Students grow or at least sustain their attendance.</p> <p>- Teachers sustain their attendance.</p> <p>-CLC functions effectively and receives useful support and monitoring.</p>
<p>Component Activities</p> <p>Open 540 CLC (10% Public basic schools) with capacity for 100 students (pre-k-9)</p>	<p>Number of CLC successfully opened</p>	<p>Number of official CLC authorizations by SEPYC</p>	<p>-Parents know and are willing to send their children to CLC</p> <p>-Teachers are willing to work in CLC and/or alternatives are developed to counter teacher's resistance to participate.</p> <p>- There are enough resources available to secure sanitary guidelines (cleaning and disinfection materials,</p>

			thermometers, face masks)
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Conclusions

After months of research on the effects of the pandemic on learners in Mexico, specifically in Sinaloa, it has become evident that our client is facing the great responsibility of effectively responding to a crisis that could shape the future of an entire generation. Although rapid actions have been put in place to sustain education opportunities, the students living under marginalized conditions need greater support to mitigate the immediate and long-term effects of the pandemic on their learning and socio-emotional well-being.

Through our consultancy and recommendations, we hope to contribute to our client’s responsibility in a way that acknowledges the complexities of the Mexican education system and considerations of what is currently known about how students learn and how to sustain learner support through the pandemic, providing clear guidance around key assumptions and implications for successful implementation.

CODA

The analysis and recommendations presented in this chapter were presented to the Secretary of Public Education and Culture of Sinaloa, Juan Alfonso Mejía in a private meeting held on February 2nd, 2021 (personal interview, February 2nd, 2021).

The comments by Mejía focused mainly on the CLC alternative, which by the time of our meeting had already been publicly announced by SEPYC and the state governor as the preferred alternative to increase learner support in the state, once the epidemiological monitoring committee of the pandemic in the state announced that minimum Covid-19 contagion levels had been achieved.

Although, the intensity of the pandemic activity has not yet diminished, teacher unions in the state have already publicly announced the two conditions that should be met for teachers to agree to return to in-person instruction: low coronavirus transmission rates in all 18 Sinaloan municipalities, and to have all teachers in the state vaccinated against Covid-19 (Hernández, 2021).

These prerequisites place considerable pressure on SEPYC, given that at current rates of vaccination, Mexico would only reach a 70% of immunization by the year 2085 (Vaccination tracker - Our World in Data). Therefore, according to Mejia, it is of critical importance that the plans to recover in-person interaction through CLC also include cost-effective incentives that could be offered to teachers to bypass the union’s decision of not supporting any plans to reopen schools.

A new personal phone communication with SEPYC’s officer in charge of piloting the tutoring intervention, Carlos Parra (telephonic interview, February 8th, 2021) provides insight on some of the early successes and challenges that the intervention is facing. First, the program is only working with second, third and fourth grade students from several teacher education public institutions.

Conalep, a technical vocational high-school subsystem originally considered in the proposal we presented to the client, decided not to offer its students the possibility to act as tutors for primary school students. As a result, the program adopted is focused in getting students from the Primary Education programs to support public primary school students. Neither middle school nor high school students are receiving tutoring support.

Currently, between 600 and 700 teacher-students are supporting between 200 and 230 primary schools. No information is available yet on how many primary school students are supported by teacher-students, on average. All the teacher-students acting as tutors received an online initial training and are currently being monitored by workers of their own teacher education institutions. To this day, it is not clear whether these workers are communicating directly with schools, teachers, and students receiving the support to gather any data that can help to assess the impact of the support provided by the tutors.

The teacher-students were instructed to support students targeted by the primary school teacher, focusing mainly on math, and reading and writing. SEPYC officials such as supervisors, and other figures were informed of this strategy to be ready to support primary school principals, in the event any support became necessary, although the specifications of such support were undefined. Most teacher-students started their tutoring program on January 11th, 2021 and are expected to complete the program by the end of June 2021. In some cases (around 25), teacher-students have had to be transferred to a different school, due to poor connectivity and responsiveness conditions by teachers and students.

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Chapter Nine

South African Curriculum: Infusing Competencies for a Changing World

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Summary

Are schools preparing our children adequately for the demands of the fast-changing world? In the broader context of unprecedented and exponential advances in digital technology, knowledge production, and globalization, the Covid-19 pandemic has necessitated a trimming of the South African ‘Curriculum and Assessment Policy Statement’ (CAPS) curriculum, thereby opening opportunity to rethink and rebuild the curriculum in the aftermath of the pandemic in a way that improves educational relevance. In this chapter, we analyze which policies might support the deliberate infusion of 21st Century competencies to better prepare learners for life during and after school. Pertinent literature and policy alternatives are reviewed and evaluated for consideration that would enable a phased approach to curriculum modernization, where Phase One starts by infusing competencies for the changing world, known as 21st Century competencies, into literacy in the Foundation Phase (grades R-3). Our analysis finds that by deliberately infusing competencies for a changing world into Structured Learning Programs in a student’s home language and providing adequate teacher support, schools can provide increased opportunities for learners to develop competencies for a changing-world and may enhance literacy outcomes as well. Further research is required to understand the relationship between competency development and literacy outcomes.

Introduction

The South African education sector is not adequately equipping students with cognitive, social, and emotional competencies to meet the demands of our fast-changing world (DBE, 2016; NDP, 2012). Too many students, particularly low-income students, cannot read for meaning by the age of 10¹⁸ (PIRLS, 2016). They are struggling to successfully complete secondary and tertiary education¹⁹ and leaving school ill-prepared to find or create employment²⁰. The odds that widespread learning loss and student dropout resulting from the Covid-19 pandemic will exacerbate existing poor learning outcomes and school leaver prospects are high. This will result in increased youth unemployment and poverty, thus widening inequality and negatively impacting quality of life for all.

Whilst a myriad of complex social and economic reasons contribute to this failure to prepare learners for success during and after school, there is increasing acknowledgement that there is a need to better equip learners with competencies they need to find or create work and thrive in the 21st Century and beyond (DBE Lekgotla, 2018).

The Department of Basic Education (DBE) has taken a multi-pronged approach to address this complex set of issues. Two such approaches include (1) A short-term – 3 year – education recovery plan in response to Covid-19, to address learning loss. (2) A medium to long-term curriculum modernization plan (2024 onward), aimed at addressing the issue of curriculum relevance and preparing learners for the fast-changing world. The DBE is working with the National Education Collaboration Trust (NECT) to establish a Competency-Infused

¹⁸ 78% of children are unable to read for meaning by Grade 4 (Howie, 2017).

¹⁹ Of 100 learners that start school, approximately 50-60 will make it to matric, 40-50 will pass matric, and 14 will qualify to go to university. Only 6 will get an undergraduate degree within 6 years (Van Broekhuizen, 2016).

²⁰ Q1 2020 unemployment rates for ages 15-24 was 59% and 43% for those aged 15-34 years in South Africa (Statistics South Africa (2019)).

Curriculum Task Team (CICTT) mandated to conceptualize and provide a set of policy and implementation recommendations for a modernized curriculum. It is important to note that the latter of the two approaches would not have been feasible without the trimming of the CAPS curriculum, which was made possible by the Covid-19 pandemic and is the focus of this chapter. While the pandemic has caused notable learning loss and has exacerbated many of the existing issues within South African basic education, it has also provided an opportunity to reimagine the curriculum. The proposed medium-term curriculum modernization aims to dovetail with the efforts of the short-term recovery plan and to ensure a cohesive rehabilitation and improvement plan. The NECT, being a key partner of the DBE, is our client in this consultancy. In this chapter, we use the term ‘21st Century competencies’ or ‘competencies for a fast-changing world’ (nomenclature used by the client) interchangeably with the often referred to ‘21st Century skills’.

Acknowledging the sheer size of the task of modernizing an entire curriculum, it is recommended that countries considering such a process take a phased approach to implementation²¹, selecting specific grades and subjects to start with and progressing to other grades/subjects over time. Countries may also choose to revisit and update the mix of subjects on offer and may consider encouraging interdisciplinarity as their education system shows signs of being prepared for such deeper, more demanding change. For the first stage, agreeing on which grades and subjects to begin with will require a thorough multi-stakeholder consultative process, not possible within the timeframe of researching and writing this chapter. We have therefore focused our policy analysis on the infusion of competencies for a changing world into grades R to 3 (also known as Foundation Phase) within literacy. A rationale for this decision will be provided in the following section.

The chapter starts by providing an overview of the South African context, exploring why the issue facing the client is important, and reviewing relevant literature on both the issue as well as approaches worth considering in response to the issue. We discuss key implications of the literature and go on to explore a set of policy alternatives that the client might consider. The chapter concludes with an evaluation of these alternatives and a policy recommendation to the client. This policy analysis should be a first step in unpacking how policy might address a phased approach to infusing competencies into the curriculum. Further analysis is required to more deeply understand approaches to consequent phases in a curriculum modernization.

Positionality

The authors of this paper are grateful to the National Education Collaboration Trust (NECT) for their input and involvement throughout the consultancy. In her capacity as Head of Education Innovation at the NECT Edhub, one of the authors, Shirley Eadie, provided the link between the NECT and the remaining authors, all of whom reside outside of South Africa. The case discussed in this paper is an extension of the ongoing work of two existing entities in which Mrs. Eadie is involved, both of which conduct work on behalf of and report into the national Department of Basic Education (DBE):

1. The Edhub is the NECT’s innovation unit responsible for conducting research and development into approaches that gear South African basic education for the future of teaching and learning in a fast-changing world.
2. The Competency-Infused Curriculum Task Team (CICTT) is a DBE mandated task team established to explore avenues for modernizing the South African curriculum over the medium term to address increasing demands placed on the education system in the context of a fast-changing and uncertain world. This team comprises members of the DBE, the NECT Edhub and UMALUSI (Council for Quality Assurance in General and Further Education and Training).

²¹ Private communication between Shirley Eadie and Charles Fadel, of the Center for Curriculum Redesign, December 2, 2020.

The findings emerging from this chapter have been shared with both the Edhub and the CICTT as they explore strategies, policies and practices that might enable the DBE to better understand and appropriately respond to curriculum modernization considerations, in the context of education recovery efforts from the Covid-19 pandemic.

Recognizing the complexity inherent in curricular evolutions and systemic change, recommendations provided in this chapter are by no means exhaustive and would require stakeholder inputs along with further research if they were to be implemented. The recommendations do, however, aim to contribute to creative, exploratory, rigorous, and well researched considerations for the future of South African basic education.

South African Education — Elusive Equity

South Africa is one of the most unequal countries in the world. The richest 10% of South Africans lay claim to 90% of national wealth; the largest 90-10 gap in the world (Spaull, 2019; Alvaredo et al. 2018; Orthofer, 2016)). ‘Social strata’ can be organized into five groups with exceptionally different per-person expenditure per-month (Schotte et al. 2018). The Chronic Poor make up 49% of society at \$30pppm. The Elite, on the other hand, constitute 4% of society at \$1457pppm, with White South Africans still making up two-thirds (65%) of the Elite (Schotte et al. 2018).

Inequity in the schooling system follows similar lines and has been described as bimodal (Van der Berg and Burger, 2003; Fleisch, 2008), illustrating the stark difference with which the two parts of the system perform. Approximately 25% of the student population attends well-resourced schools that perform on par with schools in developed countries. Meanwhile, the majority 75% of students attend low-resourced schools (Spaull, 2013) where children are not learning basic math and reading (Parker et al., 2020). School performance reflects the socioeconomic status of families, delineated along racial lines, with the lowest performing schools found in rural and township areas.

Poor learning outcomes in reading and numeracy in the lower grades has meant that students struggle to learn in higher grades (Spaull et al., 2015). Internationally, reading in Grade 4 marks a transition from “learning to read” toward “reading to learn” (Spaull, 2015). Yet the most recent student reading assessment of learners (PIRLS, 2016) reveals that 78% of South African children are unable to read for meaning by Grade 4, as compared to 4% internationally (Howie et al, 2017).

Public schools in South Africa are categorized by quintiles from 1 to 5, with one being the poorest, according to the poverty of the community they serve, as well as school infrastructure. Spaull & Kotze (2015) illustrate the high correlation between school quintiles and learning, by showing that the “effective” grade that children are in at each stage of the schooling process, is largely dependent on the school quintile they attend. In no-fee schools (poorest 80% of schools, quintiles 1-4), learners are approximately 2.5 years behind the curriculum in Grade 3. By Grade 9 they are 4-5 years behind the curriculum. This is a stark illustration of the compounding effect of not getting primary school learning right, and the recurring contribution to inequity.

Low through-put rates and weak performance in high school have also been attributed to weak foundations in primary school (Spaull et al., 2015; Van der berg et al., 2016). Of 100 children that start school, approximately 60 will reach and write matric²², 37 will pass and 12 will access university. Only 4 will complete an undergraduate degree within 6 years (Spaull, 2019).

Van der Berg et al (2016) have identified four binding constraints to improved educational outcomes for the poor, including weak institutional functionality, undue union influence, weak teacher content knowledge and pedagogical skill, and insufficient opportunity to learn. These factors interact to produce poor educational outcomes for the poor, with unprecedented low literacy as the most important of these outcomes and a binding constraint to all further learning. They conclude that the central focus of South African educational

²² Grade Twelve is referred to as Matric in South Africa.

administration should be that “Every child must learn to read for meaning by the end of grade 3” (Van der Berg et al, 2016).

Furthermore, there is a growing body of evidence to confirm that South African teachers do not have either the content knowledge or pedagogical skill necessary to teach curriculum (Spaull, 2019). In a nationally representative sample of primary schools, it was found that 79% of grade 6 Mathematics teachers could not score 60% or higher on Grade 6 or 7 questions (Venkat & Spaull, 2015).

Curriculum modernization cannot be approached in isolation of the complex historical evolution of South African curriculum, along with resultant learnings and reservations. Following 42 years of colonial education under British rule (1910-1952) and 45 years of education under the Apartheid, South Africa moved into a post-apartheid educational era (22 years to date) (Weston & Mphahlele, 2020). Since democracy in 1994, three very different curricular reforms have been rolled out nationally, making the country wary of any new calls for widespread reform. The most recent (since 2012) saw a shift toward a performance-based curriculum, in the form of the Curriculum and Assessment Policy Statement (CAPS). CAPS provided high specifications on subject content, sequencing, and pace, however with little teacher training and professional development to equip teachers to successfully implement this shift. Summative assessment and textbooks were reintroduced as critical to the learning process (Muller & Hoadley, 2019).

Whilst curricular reform has sought to address the persistent pattern of low performance outcomes (Glewwe and Muralidharan 2015; Pritchett and Beatty 2012), Hoadley illustrates the stubbornness with which teaching practice remains constant. ‘Chalk and talk’ in teacher dominated classes, with passive learners, rote learning and limited coverage of an overly laden curriculum remain pervasive in most South African classrooms (Hoadley, 2018). It is however recognized that the CAPS curriculum does indeed include many of the so-called 21st Century competencies. It is widely agreed that South Africa falls short on in-classroom delivery, where having these competencies developed is left to chance. The question we explore further in this paper is how we might enable the development of competencies in a deliberate, comprehensive, systematic, and demonstrable manner (Fadel, 2015), within the current curriculum.

It is worth noting that despite the sober picture thus far, some limited but important progress has occurred post-apartheid in key areas of education. Most notable are advances in gross primary & secondary school enrollment (World Bank, 2020); an uptick in performance on international assessments; a fourfold increase in black university graduates between 1994 and 2014 (Van Broekhuizen, 2016), and an increase in the number of matriculants with the Mathematics grades required to enter engineering at university (Van der Berg & Gustafsson, 2019). Nevertheless, it is widely recognized that these improvements are off a very low base and are insufficient to catalyze the changes required for economic and social transformation.

Notwithstanding these improvements, learners who are fortunate enough to make their way through school and/or university are by no means guaranteed to find employment. Amongst a myriad of contributing factors to national unemployment levels, research shows that there is a skills mismatch between employers and school-leavers in South Africa. Shortages in individual basic competencies were shown to be particularly acute for reading comprehension, active listening, speaking, writing, critical thinking, and active learning skills (DHET, 2020). Emerging competencies for which demand is expected to increase in South Africa include analytical thinking, creativity, complex problem solving, resilience and emotional intelligence, amongst others (WEF, 2018). If the South African economy is to cope with substantial changes in the demand for certain skills because of the Fourth Industrial Revolution, ‘the types of skills obtained by labour market entrants will need to change’ (DHET, 2020).

Within this context and based on the evidence provided above, the rationale for recommending that the client begins the curriculum modernization process within literacy in the Foundation Phase can be summarized as follows: 1) Early grade literacy is foundational for the advancement of all learning subjects (Spaull, 2015). 2) Reading for meaning has been declared a national apex priority by President Ramaphosa (SONA, 2019). 3) Improved early

learning is predictive of school and high school completion (Van der berg et al., 2016). 4) Improved early learning is correlated with access to higher value-added jobs (DHET, 2020). 5) Embedding skills within knowledge domains, enhances both (Fadel, 2015).

We recognize that for some, a counterargument may exist for *not* starting here, given the high-stakes nature of early-grade literacy. However, this will need to be addressed in further detail with a cross-section of education stakeholders, at a national level.

Literature Review

Covid-19 Effect on South African Education

In South Africa, Covid-19 was met by wide scale school closures, with no practical way to shift to remote learning given lack of student access to the internet (Statistics South Africa, 2019; UNICEF, 2020). September 2020 schools reopened after several months of being closed, only to close again in January 2021, during the second wave of the pandemic. Widespread learning loss and higher student dropout are expected results of Covid-19, which will exacerbate existing poor outcomes (UNICEF, 2020). The challenge the Department of Basic Education (DBE) faces is figuring out how to trim down the curriculum (across grades), catch learners up on the lost learning, and prioritize 'learning' over just 'teaching' content (DBE, 2020). Recognizing that the “trimmed curriculum” presents a short and long-term opportunity to improve overall early grade learning, this paper focuses on how to improve learning post Covid-19 by infusing 21st Century skills and competencies into the foundational phase literacy curriculum.

The Need for 21st Century Skills in a Fast-Changing World

Globally, never has there been the volatility, uncertainty, complexity, and ambiguity (VUCA) as there is now, across all spheres of life (OECD, 2018). As the world transitions into the Fourth Industrialized Revolution (4IR), there is an increasing focus placed on ensuring the development of the whole child to enable them to adapt to work and life in this changing world. The WEF recommend eight characteristics – global citizenship, innovation and creativity, technology and interpersonal skills, personalized and self-paced, accessible, and inclusive, problem-based, and collaborative, and lifelong and student-driven learning that define high-quality learning in the 4IR (2016). These characteristics fit in the wider spectrum of skills encompassed by what is coined ‘21st Century Skills’ and are central to fulfilling workplace demands of the future (WEF, 2016).

Implications for South Africa—Adapting to a Changing World

Within South Africa, where small and medium enterprises employ 47% of the country’s workforce (OECD, 2020), there is an acute skills shortage needed for entrepreneurial as well as other enterprises in basic 21st Century skills such as reading comprehension, active listening, speaking, and writing (Asmal et al., 2020). In 2016, the WEF predicted that 39% of core job skills across all industries in South Africa will have changed by 2020 (compared to what was needed to perform such roles in 2015), placing heavy demand on skills such as: flexibility, ICT knowledge, and emotional intelligence. South Africa is among the global bottom performers for readiness in the workplace, with reported high shortages in cognitive skills and in higher skilled knowledge fields (OECD, 2017). This widely reflects the oversupply of low-skilled workers and undersupply of high skilled workers—coming hand in hand with the qualification mismatch, when workers hired often do not have the right qualification for the job (OECD, 2017). This mismatch between the supply and demand for workplace skills is expected to grow in coming years, further exacerbating existing income inequalities, and making it a challenge that the education system will need to address.

21st Century skills also comprise of socio-emotional learning (SEL). Research shows that social and emotional skills are within the top 10 skills employers are looking for in graduates (WEF, 2020). Important to the South African context, SEL benefits all children, but it disproportionately benefits children from low-income communities. Children from low-income families in South Africa typically experience higher levels of adversity and trauma

resulting from insecure access to housing, food, health care and safety (Franke, 2014). These external influences can place bodies under undue stress or high alert, interfering with growth and learning. Teaching students the skills to identify and manage emotions to self-regulate, along with addressing physical, mental, and emotional needs, can guard against these negative effects (Center for the Developing Child, 2016). The Aspen Institute (2018) provides evidence suggesting that placing a focus on cognitive, social, and emotional development – improves all the traditional learning measures that are often prioritized, including grades, test scores, graduation rates, success within and beyond tertiary education. Not only that, the development of such skills also contributes to improved mental and physical health, positive family, and work relationships, reduced criminal activity, more engaged citizenship, and better overall well-being and satisfaction (Durlak, 2011; Wong, 2016).

Having identified the issue of a skills mismatch in the country and understanding the direction and landscape of the future of employment, schools and education systems need to be more intentional in the ways they are preparing students for the workplace. More must be done to ensure that children are equipped with the skills to adapt to the changing world, where much value should be placed in equipping children with skills and competencies of the 21st Century and beyond. Teaching and learning must lead to children’s acquisition of such skills, starting from the earliest (foundation) phase of a child’s education, to provide them with the ‘right skill mix’—of both traditional technical and core sets of ‘soft skills’ to allow them to continuously learn and better prepare them to adapt to the changing world.

Education Frameworks

Several frameworks for 21st century teaching and learning have been incorporated into national and subnational programs across the world. We briefly explore three prominent frameworks and then dive into cross-country literature from regions where policies worked effectively in contexts like the one in South Africa. In addition, some case studies from countries that, despite contextual differences, offer important lessons for the successful infusion of competencies into a trimmed curriculum. Across all frameworks and cross-country examples, we find the common educational goal of preparing students for the 21st century, with the need in mind for redesigning current education systems. Furthermore, all three frameworks are centered on students and reinforce the need to equip learners with necessary competencies for the future, including socio-emotional learning (Horvathova, 2018).

First, the OECD *Learning Compass 2030* uses the metaphor of a compass to encourage learners to clarify their own vision, “navigating oneself across unfamiliar contexts in meaningful and responsible ways” (OECD, 2019). The framework outlines the components of knowledge, skills, and attitudes and values that interact with three cross-cutting, inter-related and transformative competencies anchored in the theoretical underpinnings of DeSeCo (OECD, 2003), and identifies three domains as key “Skills for 2030”; cognitive and metacognitive skills, social and emotional skills, and physical and practical skills. Furthermore, the framework breaks down four different kinds of knowledge that must still form the base of curriculum: disciplinary knowledge needed to “form” the dots, interdisciplinary knowledge to “connect” these dots across subject areas, epistemic knowledge to tie all of this to the real world, and procedural knowledge to be able to “connect the dots” across familiar and unfamiliar contexts. Together, these forms of knowledge are paired with the three key skill domains needed for transformative competencies for 2030 (OECD, 2017).

Next, UNESCO’s *Framework of Future Competencies* by the International Bureau of Education (IBE) recommends that a competence-based approach to curriculum design, development and implementation be taken (Marope, 2017). The framework consists of constituent elements (knowledge, skills, attitudes, values, technology, data, and information), along with micro and macro-competencies, culminating in an orientation around public good. The South African Department of Basic Education formally adopted this framework at the national education “Lekgotla” in 2018 (DBE, 2019), however, little progress has been made in applying this framework locally (Gravett, 2020). The framework attempts to prepare students for meeting the demands of a fast-changing world while looking at Industry 4.0 as a driving

force for complexity and volatility, requiring a new set of skills. These skills are identified as; 1) lifelong learning—with emphasis on adapting to new contexts, agility and resilience, 2) self-agency—defined as the ability to take self-benefitting and self-fulfilling action, the ability to interactively use a variety of resources and tools, the ability to interact effectively with others and the world, 3) transdisciplinarity, and 4) multi-literacy—that is, going beyond basic literacy to “learn how to construct knowledge from multiple sources and modes of representation”, including, “linguistic, audio, visual, spatial... and gestural ways of meaning-making” (Seel, 2012).

Finally, the Centre for Curriculum Redesign’s (CCR) Four-Dimensional Education (4DE) Framework is a deep synthesis of research and best practice of over 35 frameworks for 21st century education (Fadel, 2015), developed in collaboration with the OECD’s Education 2030 initiative. The framework is made up of “four dimensions,” including knowledge (what we know and understand), skills (how we use what we know), character (how we behave and engage in the world), and meta-learning (how we reflect and adapt). Each of these four dimensions is made up of several competency areas, comprising constituent sub-competencies, which have been further delineated into progression levels (Bialik, 2018). Cross-cutting themes and interdisciplinarity are emphasized in the knowledge dimension of this model. These themes are emphasized along with an essential focus on building skills, character, and metacognition, to create learners who are holistically prepared to know, to be, to act, and to learn in the world.

One of the strengths of the CCR framework is that it combines traditional disciplines (Mathematics, Language, etc.) with modern disciplines (Computer Science Entrepreneurship, etc.) to focus on core concepts “within and across disciplines” (Horvathova, 2018). This makes it conceptually and operationally less complicated to integrate new competencies in current content-based curricula such as literacy, science, and math (Fadel, 2020). At the same time, it necessarily demands that difficult choices be made about trimming the curriculum of anything that is non-essential to prepare students for learning curriculum-infused competencies for a changing world. We refer to the CCR 4D Framework in the subsequent sections, both in the case study of Brazil- a well-structured emerging reform drawing from the framework, and in contemplating South Africa’s own aspirations and needs for competency-infused learning.

Ambitious Education Programs for the 21st Century

In this section we explore the experiences of four developing countries in enacting national 21st Century competency based educational reforms in Singapore, Kenya, Zimbabwe, and Brazil, to inform our subsequent development of policy alternatives. We look at Singapore as an international gold-standard case-study bearing in mind limitations inherent to making cross-regional contrasts, Kenya, and Zimbabwe as comparable contexts in Sub-Saharan Africa where policymakers attempted 21st Century competency infusion, and finally Brazil, our closest example of a national program in a developing country, attempting to infuse these competencies into literacy training.

Singapore

Singapore’s early implementation of a national 21st century competency-based curriculum, since 2014, has become a benchmark for countries globally, owing to its rigorous design and top performance over the past decade in two leading international assessments, PISA and TIMSS (Sing-Kong Lee, 2017). For this reason, we include Singapore, while considering the significant differences in economic and educational development between the country and South Africa. In line with contemporary thinking, Singapore focuses on the whole youth, grounded in character development and “core values” that serve as a compass for life-long learning (ibid.). Its framework also holds social and emotional competencies to be the foundations on which youth acquire 21st century skills and competencies, which in turn leads to student outcomes that reflect Singapore’s societal goals, namely, forming confident persons who are active learners, contributors, and concerned citizens in society (ibid.).

At the core of Singapore’s educational success is the intentional and often iterative alignment of national goals and standards with curriculum and assessment (Liem, 2017). An important component of this alignment is the collaboration at multiple levels (national and local), by key stakeholders—policymakers, school leadership, teachers, parents, and teacher

preparation professionals—to design, communicate, and monitor education programs (Sing-Kong Lee, 2017). Additionally, researchers point to the importance of carefully designed support for program implementation, in the form of national standards, ongoing professional development, lesson plans and student assessment.

Kenya

Experimentation with 21st century competency-based educational reforms in Kenya and Zimbabwe provide a cautionary tale for how reforms can break down. In 2018, affected by low learner outcomes and high unemployment, the Moi Government in Kenya launched an ambitious decade-long competency-based education reform aimed at transforming the country's education system to support its participation in the global knowledge-based economy (Fominskina, 2020). Unfortunately, the initial pilot was mired in poor planning that led to ineffective implementation and the indefinite postponement of the national rollout. Fominskina (2020) describes school level challenges including: (1) the lack of effective teacher preparation—due to a cascade model that prepared two teachers per school in the theory of the reform, rather than needed pedagogy (Nyamai, 2020); (2) inadequate resource support- a lack of textbooks and other materials; and (3) suspending existing assessments before introduction of new ones (Fominskina, 2020).

Zimbabwe

In Zimbabwe, efforts to introduce competency-based educational reform in 2015 led to a chaotic situation (Djeneba, 2020). Like Kenya, Zimbabwe was motivated by a desire to address poor learning outcomes and high unemployment. However, quite similarly, the Zimbabwean reform was stalled due to poor planning and weak execution, particularly at the school level, from lack of alignment and provision of adequate teacher preparation, materials, and assessment (ibid.). This, in contexts like South Africa's, and with programs aiming to solve for the same problems—low learning outcomes and high unemployment—Kenya and Zimbabwe's programs point to the importance of strategic implementation which considers systems surrounding the infusion of competency-based curriculum, by planning for the provision of supports necessary to sustain effective rollout. Under-preparedness of teachers, assessments and learning resources can lead to critical misalignment between expectations and reality, potentially resulting in the failure of an important and ambitious program, as well as wastage of resources and key stakeholder buy-in established in attempting a reform of this kind (Djeneba, 2020).

Brazil

In Brazil, the Base Nacional Comum Curricular (BNCC) is an ambitious 21st century competency-based reform project currently underway. Based on the CCR 4D Educational Framework (Fadel, 2015), reviewed earlier in this paper, the BNCC aims to infuse the early literacy curriculum with 10 general competencies from the CCR framework, including lifelong learning, critical thinking, citizenship, ethics, and self-care. For Brazil, this reform places an unprecedented focus on literacy as well as 21st century competency infusion (Costin & Pontual, 2020). Effectively establishing the expectation for children to be reading and writing by 2nd grade (a grade-level sooner than in the past), the program seeks to address the country's poor educational outcomes by starting early in the system—targeting early childhood, primary and lower secondary schooling (ibid.). The program's theory of change depends on aligning, “the main education policies in Brazil's highly decentralized education system to these higher standards: local curricula (state and city levels), classroom materials, student evaluations as well as initial and ongoing teacher training; thereby improving student outcomes” (Costin & Pontual, 2020). Much of the BNCC curricular reform has focused on aligning these levers across cities and states to create a system-wide shift that can reflect learning in the country's National Student Evaluations (INEP, 2018) and preempt many of the capacity-level challenges faced in the reforms of Zimbabwe and Kenya. Initiated in 2018, it is still too early to evaluate the efficacy of the BNCC, as Brazil attempts to meet institutional needs across the areas of assessment, faculty training, and materials provisions.

Implications for South Africa—Competencies, Frameworks and Next Steps

Looking at several frameworks has allowed us to see that it is possible to work on developing a range of competencies for infusion into a trimmed curriculum, such as the curriculum currently being revised in South Africa in response to Covid-19. Based on the needs of our client, we plan to focus on a curriculum to develop students' literacy skills, critical thinking, creativity, and communication, mindfulness, metacognition, and growth mindset. Strong literacy skills in the early years are essential for, “fostering a host of other skills and enabling academic learning to take place”, as is critical thinking and creativity (Horvathova, 2018). Communication is an indispensable skill for the future, in an increasingly globalized world, and mindfulness is needed to improve upon it while teaching essential skills for “impulse control, self-regulation and empathy”, particularly in South Africa where these skills have previously gone ignored in traditional classrooms (ibid.). Finally, meta-cognition and growth-mindset have been identified by the NECT as important skills for South African students to continue lifelong learning through incorporating practices of reflection that encourage students to take on challenges (Horvathova, 2018). This combination of competencies is coherent within itself and has been arrived at after looking at extensive background work conducted by the NECT Edhub on the needs of South African students preparing for a changing world (ibid.).

Secondly, based on similarities in context and needs identified by the client, we will draw mostly from the CCR 4DE Framework, reviewed earlier in this paper. The 4DE Framework is a comprehensive system that centers around the need for developing students' skills in inter- and transdisciplinary ways that will prepare them for success in the future, “Deep understanding and actionability for the real world will occur only by embedding skills within knowledge domains, such that each enhances the other” (Fadel, 2015). The CCR has made significant gains in the level of detail included and practical support provided to jurisdictions working with their 4D-Education Framework. The CCR Framework is widely respected and has been described by Andreas Schleicher of the OECD as an innovation that crisply defines, “the spaces in which educators, curriculum planners, policymakers and learners can establish what should be learned, in their context and for their future” (Center for Curriculum Redesign, 2015), which will be a valuable guide framing our policy analysis and recommendations.

Lastly, we need to choose where to start rollout as it is not feasible to implement changes across the board without testing the program at a smaller scale, tweaking it for improvement, and then looking to implement in other areas of education. In the following section, we make the case for starting at early-grade literacy. Our literature review of infusion policy programs indicates the importance of systems-level thinking; it is not practical to roll out curriculum changes without the necessary provisions in teaching materials and capacity, as assessments. This was a weakness in some 21st century education infusion programs in sub-Saharan Africa, but an important consideration in the program currently underway in Brazil. Any policy will hence need to be supported with larger systems-level provisions in training, teaching materials, and evaluation systems. Focus on implementation is a particular strength of the CCR, with its detailed matrices guiding the alignment of assessments, teaching capacity, and so forth, thus strengthening the CCR as the most appropriate framework for our policy analysis.

A Review of Early Grade Reading Interventions

This section reviews the literature on effectiveness of early grade reading interventions internationally (Graham, 2018) and within South Africa (Taylor, 2019), to inform the design of effective policy alternatives for the infusion of 21st Century competencies into Foundational Phase Literacy instruction in South Africa.

Graham (2018), in a meta-analysis for the World Bank, analyzed 18 early grade reading evaluations, from developing and developed countries around the world, to determine their general effectiveness and identify common design features. Common elements included the use of EGRA literacy assessment subtests (letter-sound recognition, letter recognition, oral fluency and reading comprehension) to monitor the results of treatment versus control groups.

Additionally, effective interventions generally provided: instructional guidelines for teachers (e.g., scripted, or semi-structured lesson plans); supplementary instructional materials (e.g., books, student workbooks and other); tools and training for student assessment; as well as teacher coaching, in many cases.

The study (Graham, 2018) yields several key findings with implications for policy alternatives in South Africa. Foremost among them is the confirmation that early grade reading interventions are effective in both developed and developing country settings, often at national scale. Second is that while many times learning gains were statistically significant, this did not necessarily mean that children attained reading fluency (a key precursor to developing reading comprehension). The study cites two plausible reasons for this. The first is the multi-causal nature of learning to read and the second is that many children begin school unprepared to learn. This means that changing reading instruction, in and of itself, may be insufficient to compensate for other factors that also contribute to poor learning environments, such as deficient school leadership, lack of teaching resources, deteriorating infrastructure, poorly prepared and unmotivated teachers. Neither condition should be an excuse for inaction, but the combination of both within the South African education context (Spaull, 2017) suggests that a multi-faceted approach to improving literacy instruction in South African classrooms would be beneficial. Hence, while the infusion of 21st Century competencies is often seen as an end, it is also likely that their infusion can enhance student learning across subjects, including literacy.

The South African Early Grade Reading Study—EGRS (Taylor, 2019) is arguably the country's most important study of Foundational Phase Literacy instruction (Spaull, 2019). It also serves as a model for our development of policy alternatives in the subsequent section. Based on a randomized control trial, the study (Taylor, 2019) evaluated the impact of three separate literacy interventions geared to have more children reading by third grade: centralized training, direct teacher coaching and family workshops. The study followed children from first through second grade, divided into 3 treatment groups of 50 schools each, compared to a control group of 80 schools, for a total of 230 participating schools. Control group classrooms had access to materials only, with teachers receiving traditional-cascade model teacher training. Materials consisted of a *Structured Learning Program (SLP)*, that included daily structured lesson plans with additional quality teaching materials (big books, student workbooks with texts and other support materials). Beyond what the control group received each intervention involved direct support of teachers or families, as follows:

1. SLP Base + Training: Provided teacher training in the form of two, 2-day, annual direct Early Grade Reading centralized teacher training sessions a year.
2. SLP Base + Coaching: Provided a literacy coach, with monthly classroom visits, to support teachers and offer small cluster training sessions throughout the year.
3. SLP Base + Parental: Provided 30 parental workshops with an educational professional, to improve parental understanding and support of their children's reading development.

Taylor (2019) uses two different metrics to gage the effectiveness of each of the EGRS interventions. The first is a composite measure for literacy learning gains across a battery of student learning assessments²³. Based on this metric the Coaching intervention was the only one to show statistically significant results across all subtests, including reading comprehension. The Training intervention showed gains across multiple subtests, but not on reading comprehension, while the Parental intervention only registered statistically significant gains in phonological awareness. Using this same composite literacy metric to translate learner gains (after two years) into % of a year's learning (relative to the control group), the Coaching model showed a gain of 40% of a year. Results for the Training and Parental interventions were 19%

²³ Assessments were orally administered and included EGRA subtests and subtests from the literacy contractor. EGRA subtests examined: letter-sound recognition, word recognition, non-word recognition; paragraph reading). Subtests from the literacy contractor measured: reading comprehension, phonological awareness and writing.

and 13% of a year of learning, respectively. Again, the Coaching intervention, while significantly more expensive, showed the highest gains.

The second metric the study examines is “the treatment impact on the probability of passing the comprehension test” relative to the control group, referred to here as the Reading Comprehension Effect-Size. It is this reading comprehension-based metric that the study uses to compare the cost-effectiveness of the three interventions. Table I., below, shows that using this metric the Coaching model not only has the largest Effect-Size, but that it is also the most Cost-Effective of the three interventions, followed by the Training model. This even though the Coaching model at \$43/student, is nearly 30% more expensive per student than the Training intervention at \$31/student.²⁴

TABLE I: Comparison of Reading Comprehension Effectiveness & Cost-Effectiveness across EGRS Policy Interventions				
Interventions	Reading Comprehension Effect Size	Cost/ Rand	Cost Effectiveness / (,000 Rand)	Reference - Cost in US\$
training	1.59	397	4.01	\$ 31
coaching	9.88	557	17.74	\$ 43
parental	1.13	295	3.83	\$ 23
Source: Authors’ construction based on Taylor 2019, p.93.				

Developing and Analyzing Policy Alternatives

In this section we turn to a discussion of the relative merits and trade-offs implicit in three policy alternatives to infuse 21st Century competencies into the South African Foundational Phase Literacy curriculum. It is important to note that infusion of competencies into literacy instruction is not the only way that competencies for a fast-changing world could be taught. Clearly the decision on how they will be taught, in which grades, whether through infusion into formal subjects, or as standalone programs in formal or informal education, is a policy decision that must be made relative to each country's context. We note that other effective 21st Century competency programs exist as standalone programs in both formal and informal educational settings. Therefore, while infusing 21st Century competencies into formal education is considered an effective strategy, it is not the only way to cultivate such competencies and skills in children and youth. Decisions regarding policy alternatives to develop 21st Century competencies, need to be informed by the socio-economic realities and opportunities of specific country contexts.

In South Africa, the Covid-19 pandemic is expected to exacerbate already significant learning inequalities and deficiencies among learners across the country. Coupled with the likelihood of a deteriorated fiscal situation (Hanushek, 2020), national aversion toward additional curricular reform, and a national political/social consensus regarding the need to improve Early Grade Reading outcomes (Spaull, 2019), the CCR 4D Educational Framework (Fadel, 2015) provides the rationale for infusing competencies into traditional knowledge domains, such as Early Grade Reading, as a way of developing competencies for a changing world. Based on the results of this initial experience further opportunities for infusion of 21st Century competencies - across academic subjects or at higher grade levels - can then be determined.

As a starting point for the development of policy alternatives for infusing 21st Century competencies into South Africa’s Foundation Phase Literacy Curriculum, we build on the evidence base for effective literacy intervention of the Early Grade Reading Study (Taylor, 2019). In this section, we describe the three most promising alternatives of a seven considered.

²⁴ Each of the interventions showed an effect size that is significantly greater than the control group.

Each policy alternative stems from the use of a common materials base, referred to as a Competency-infused- Learning Program, or CLP. The CLP infuses age-appropriate protocols and activities to develop the earlier identified six competencies into the Covid-19 trimmed Structured Learning Program (SLP). The basic set of materials includes: Big Book (shared reading) + DBE Workbooks & Graded Readers (group guided reading) + Reading Worksheets (decodable reading). Starting from the CLP materials base each policy alternative is designed to support teachers to improve student learning in the classroom; these are:

- 1. CLP + Training
- 2. CLP + Coaching
- 3. CLP + Training + Parental

As seen in the early section on ambitious 21st century country reforms, when approaching curricular modernization within the context of a complex education system, it is important to acknowledge the consequent need for complementary adjustments to other levers within the system to enable coherence and to achieve change. Such levers include standards, materials, professional development, assessment, school leadership and parental or community involvement.

Criteria to Evaluate Policy Alternatives

Below, we lay out the policy criteria (and indicators) used to analyze each of the policy alternatives indicated above for the purpose of making a set of recommendations.

- 1. Competency Integration (indicator: Competency Integration Index, constructed by the authors based on expert opinion). This criterion reflects how well each of the six competencies, selected based on the client's needs and the skills highlighted in the CCR 4D Educational Framework (Fadel, 2015), can be demonstrably taught through each intervention. The six chosen competencies to begin literacy curricula infusion with are: creativity, communication, critical thinking, meta-cognition, growth mindset and mindfulness.²⁵
- 2. Feasibility (indicator: Feasibility Score, created by the authors based on expert opinion). Given the South African context, this criterion looks at how practical it is to implement each intervention at scale in most of the schools in the country.
- 3. Reading Comprehension Effectiveness (indicator: Reading Comprehension Effect-Size, published in the Early Grade Reading Study, Taylor 2019). The score represents “the treatment [intervention’s] impact on the probability of [a student] passing the reading comprehension test,” relative to the control group (Taylor 2019).
- 4. Reading Comprehension Effectiveness (indicator: Expected Reading Comprehension Effectiveness Index, a composite index constructed by the authors). This criterion considers the ability to systematically and demonstrably teach the six competencies in each intervention and the ability to scale that intervention to all schools. The index is constructed by multiplying indicators 1., 2. & 3., above.
- 5. Cost-Effectiveness (indicator: Expected Cost Effectiveness Index, authors construction). This criterion examines how much it costs per student to achieve Expected Reading Comprehension results across each intervention. The indicator is based on the Expected Reading Comprehension Index (above), which is then divided by the real cost per student per intervention of the EGRS study (Taylor 2019).²⁶

Constructing a Policy Matrix and Considering Trade-offs

In this section, we present a Policy Matrix, that compares the best interventions and the implicit trade-offs of choosing one over the other. Table II, below, provides the underlying

²⁵ This index measures the expected potential to teach each competency in a systematic way through the intervention, it does not quality as these are projected future results.
²⁶ The assumption made here, in consultation with the client, is that the operating costs to run the Competency-based Learning Program interventions (after the research phase) will not be significantly different than the costs to run the Structured Learning Program interventions of the EGRS study.

indicators described in the previous section that allows the authors to construct outcome measures for evaluating each intervention, in terms of Expected Reading Comprehension (column D.) and Expected Cost-Effectiveness (column F.).

TABLE II: POLICY MATRIX								
	DATA Sources:	author with expert opinion	author with expert	Taylor 2019	author	Taylor 2019	author	Taylor 2019
	INDICATORS	A	B	C	D	E	F	Reference
	Operation				A*B*C		F=D/E	Only
	POLICY ALTERNATIVE			Reading Comp-rehension Effect Size	Expected READING COMP. Effective ness INDEX	Cost per Student (per 1000 Rand)	Expected COST Effective ness INDEX	Cost per student in
#		Competency Index	Feasibility Score					
4	CLP BASE: +Training	1.00	1.00	1.59	1.59	0.397	4.01	\$31
5	CLP BASE: + Coaching	1.00	0.50	9.88	4.94	0.557	8.87	\$43
7	CLP BASE:+Training + Parental	1.00	0.50	1.59	0.80	0.692	1.15	\$54
Source: Author’s construction, data sources indicated above. Costs per student in 1000 Rand and in US\$.								

Comparing the three interventions on outcomes (columns D and F) the Coaching intervention (5. CLP+Coaching) is more than twice as likely to be Effective and Cost-Effective than the Training intervention (4. CLP+Training), despite a nearly 30 percent higher cost per student (\$43 vs \$31). Similarly, the Training intervention, is expected to be more Effective and Cost-Effective than the Training + Parental intervention (7. CLP+Training+Parental), due to the difficulty of scaling a parental intervention (Column B.) and its very negligible impact on Reading Comprehension (Column C.)

The main policy trade-off between selecting the Coaching versus the Training intervention has to do with the differential cost of implementation. Despite Coaching being far more effective, its’ 30% higher cost per student, makes it much more costly to scale than a centralized Training intervention.²⁷ The implication is that one size does not fit all and there is room to consider a combination of interventions, depending on educational priorities. For example, it may be useful to invest in the more expensive Coaching model in large urban schools, with especially low learning outcomes, given its higher impact and the ability to spread the fixed cost of a coach over a greater number of students than in smaller rural schools.

Recommendations

From the policy analysis presented in the paper flow several recommendations:

- 1. Design and Evaluate Pilot CLP Interventions: A pilot of both the CLP+Coaching and CLP+Training interventions (against control group schools of similar SLP interventions), would be valuable to determine whether at a similar cost the competency infused interventions could improve learning, of competencies and/or literacy measures.
- 2. Consider Using a CLP + Coaching Model in Large Priority Schools: If the CLP based interventions are successful, then the national authorities should consider scaling a combination of these interventions, depending on context. A CLP + Coaching for large, urban, priority learner schools and a CLP + Training model for the rest.
- 3. Test the CLP Models in the Upper Grades: Ideally the national authorities would also consider designing and trialing a competency-infused intervention, possibly in a different academic subject area, and in the upper grades to determine where competency-infused learning has greater effect on student learning outcomes at all levels and across different subjects, school completion and future employment.

Conclusion

The Covid-19 pandemic has abruptly called on nations to revisit and revise their education

²⁷ As noted in Taylor (2019) Cost-Effectiveness is sensitive to how Effectiveness is measured. The alternative of a “Total Literacy metric” in the EGRS study made central Training appear to be more cost-effective than Coaching,

plans. No longer can teachers be expected to deliver on overburdened curricula or make use of outdated assessment protocols. Learning loss arising from school closures has demanded that curricula be stripped down to essential content and core concepts. As children return to school, and as we collectively rebuild education in the aftermath of the pandemic, we are presented with the choice of what to discard and what to shine a light on. South Africa has the unique opportunity of taking the newly trimmed curriculum and rebuilding it to not only address the learning deficits and inequalities arising from the pandemic, but also, to boldly reconstruct it in a way that better prepares learners from this ambiguous, uncertain, and volatile world.

As our client, the National Education Collaboration Trust (NECT), provides support to the Department of Basic Education (DBE) in considering ways in which the South African curriculum might be modernized over the medium to long term to address the need to better prepare learners for the fast-changing world, there are indeed a myriad of ways in which this may be approached. The intention of this policy analysis has been to highlight one such avenue: a competency-infused learning program intervention that deliberately, comprehensively, systematically, and demonstrably (Fadel, 2015) infuses selected competencies into early-grade literacy with teacher coaching and training variants carefully designed and tested according to school needs, with the idea that success may be scaled up from provision in schools with the direst need to elsewhere in the country. We hope that this analysis provides useful evidence to support the case for medium-term curriculum modernization via a phased approach to rollout beginning with early-grade literacy, and that the policy alternatives considered provide insight into where and how this modernization might commence in a systematic manner that we can learn and iterate from.

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Chapter Ten

Supporting the Education of People of Determination in the UAE during the Covid-19 Pandemic

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Summary

This chapter provides an overview of private education for People of Determination (POD), the legal term for people with disabilities, in Dubai, United Arab Emirates (UAE) before and during Covid-19. We first provide the country context for POD, including the implementation of monumental laws prior to Covid-19, as well as Dubai's private education sector's response to the pandemic. We then explore the challenges of the current policy surrounding remote learning, including the insufficient financial liquidity and technological ability for families as well as limited, communal assistive technology and training available within schools. Our consolidated literature review that explored various country contexts such as Australia, Qatar, Singapore, and the United States suggests inclusion-supporting tools and strategies such as access to technology, parental involvement, and teacher professional development. With this evidence, we discuss and evaluate three potential policy options using a criterion of access, efficiency, quality, and sustainability/longevity, ultimately selecting a Hybrid Model. The Hybrid Model combines both in-school center and remote learning, while utilizing the Inclusion Taskforce for support and communication. Ultimately, the Hybrid Model ensures Dubai POD Advisory Council's vision and fulfills United Nations Sustainable Development Goal Four.

Introduction

Around 15 percent of the world's population live with a form of disability and despite numerous advantages of inclusive education, segregated models of education delivery continue. The system has been rooted in social stigma and discrimination against people with disabilities (PWD), leaving more than 190 million children isolated from the school community and quality learning (UNESCO, 2020).

The present Covid-19 crisis has exposed underlying vulnerabilities and inequalities of the education system. Affecting over 91% of the world's student population, remote learning practices have been implemented by countries to reduce the disruption to learning. Nonetheless, PWD face even greater challenges resulting from the shift to online teaching, including digital exclusion and the threat of being left behind due to the absence of "appropriate assistive equipment, access to internet, accessible materials and support" (UNESCO, 2020). For instance, an estimated 0.5 percent of books in developing countries are accessible in the formats needed for students with disabilities (UNESCO, 2020). If made readily available, information and communications technology (ICT) applications and distance learning could support and encourage PWD, advancing their economic and social possibilities in society by expanding the scope of opportunities available to them.

This chapter examines the afore-mentioned context within Dubai, United Arab Emirates (UAE). Educating PWD in Dubai has recently shifted according to unprecedented needs within the Covid-19 pandemic. Prior to Covid, previous existing policy ensured inclusivity. The "Dubai Inclusive Education Policy Framework" was created with the support of the UAE's pledge to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), in addition to federal and local legislation that requests inclusion of all learners regardless of ability. Federal Law 29/2006 and Dubai Law no. 2 (2014) express Dubai's responsibility in ensuring the educational and social inclusion of all children (KHDA, 2017). To

align with the UAE's ratification of the UNCRPD, this legislation reflects international best practices, in which the fundamentals of equity and inclusion remain at the forefront of the framework. It obliges providers of education to ensure that education for People of Determination (POD) - the UAE's term for individuals with disabilities - "have equitable access to quality inclusive education with their peers" (KHDA, 2017). The Knowledge and Human Development Authority (KHDA) is the government entity that implements this goal in the private education K-12 system by providing: Least Restrictive Learning Environment through Individualized Educational Planning (IEP), Universal Design for Learning, teacher training, and staffed disability centers equipped with adaptive technologies.

Covid-19 in the UAE shifted education to remote learning from March to June 2020. Official spokesman of the UAE Government, Dr. Omar Abdulrahman Al Hammadi, stated that the current academic year saw "1,025 schools deploy the distance learning system, representing 82.86 percent of the total number of schools. Meanwhile, 212 schools chose the in-person learning system, representing 17.14 percent of the total pool" (Gulf Business, 2020).

Since the new academic year in September, the KHDA resumed in-person learning. However, families have autonomy to choose whether to partake in fully in-person, fully online, or blended learning. The Ministry of Education (MoE) for the UAE and the KHDA in Dubai released protocols for in-person schooling, with strict rules for school building procedures, contact tracing, and school transportation. The return to in-person learning excludes POD, specifically those with physical disabilities, due to immunocompromization, dependency on caretakers, and higher risk of physical exposure to the virus. The continuation of remote learning for POD has diverged KHDA's educational offerings: the pandemic continues to widen the accessibility gap, and therefore learning gap, based on the exclusion of POD in K-12 private schools. The primary problem is that although schools are returning to in-person learning, per the KHDA directive, students with physical disabilities cannot attend schools during Covid-19, as research on Covid-19 indicates that individuals with physical disabilities are at a higher risk of infection (U.S. Department of Health & Human Services, 2020). Therefore, some PODs are opting into fully online learning to curb the risk of infection.

To determine the number of POD who may require remote learning, we analyzed the Ministry of Community Development's database for the Sanad card. This card reflects the number of people registered for accommodations in Dubai. The database reveals 541 people with physical and multiple disabilities registered for accommodation between the ages of 0-20 (Ministry of Community Development, 2020). However, reports from Dubai Health Authority indicate that 3.2% of around 280,000 students in private Dubai schools have a disability (Al Faisal et al., 2017). The disparity in numbers may indicate lack of knowledge or access to the Sanad platform. Overall, these 9000 students (3.2% of students) are the primary focus of this policy recommendation.

In a recently conducted survey, approximately 60% of teachers in private schools and 50% of all principals at public and private schools do not believe that POD are adequately supported in the UAE (Erfurth & Ridge, 2020). Consequently, Dubai would benefit from our assessment of existing best inclusive education practices for distance learning and reviewing available literature on how to address gaps in assistive technology and relevant remote learning training. Ultimately, this evidence can be used to evaluate and improve the educational circumstances for POD post-Covid, as well as create recommended programs in preparation for future crises with similar educational, adaptive needs.

To create a viable program to address inclusion, we use the eightfold path of policy analysis presented by Eugene Bardach. Bardach's (2012) eight steps outline the process of designing a policy recommendation and are as follows: "Define the Problem, Assemble Some Evidence, Construct the Alternatives, Select the Criteria, Project the Outcomes, Confront the Trade-offs, Decide! Tell Your Story" (p. xvi). In our use of these steps, some have been used in conjunction with others to effectively tell our story. In the end, Bardach's framework for policy analysis proved an invaluable tool in leading us through the process of creating the policy recommendation we present below.

To create a well-informed policy recommendation we performed qualitative interviews with POD currently living in Dubai and utilizing the education system during remote education and the transition to into in-person learning. Additionally, we obtained public, quantitative data cataloging the lives and educational experiences of POD and special educators in Dubai before and during the Covid-19 pandemic. This was provided by KHDA and the Dubai Ministry of Education public-access databases.

We selected this policy area due to our expertise and prior work in inclusive, special education in Dubai and education politics and policies. One of this chapter's authors previously conducted education research in the UAE for inclusion of POD, providing us with a background understanding of policies and norms prior to the Covid-19 pandemic. Additionally, one author is a certified special educator in the United States with deep knowledge and understanding of special education guidelines and best practices. Two authors currently live in the UAE with ready access to UAE education information but are potentially restricted by the rules and regulations of the Emirates.

POD Pandemic Context

We begin our process by contextualizing the problem POD are facing during Covid-19 in Dubai private schools. More specifically, we must identify the true, deep rooted problem that must be addressed, starting with the surface level problem we appear to be facing. In the UAE, the first problem is the way in which the pandemic decreased the number of schools meeting inclusive criteria, as outlined by Federal Law 29/2006 and the KHDA school evaluations. Taking this first problem, we then followed a root cause analysis, through which the process led us from our first problem to the true underlying issue. While performing our root cause analysis we consulted various resources to help us uncover the true concern we must address.

Prior to the Covid-19 outbreak, Dubai schools faced inadequate support in the form of curriculum modification and support, with almost a quarter (24%) providing unsatisfactory provision and only about a third of schools doing this well (35%) (Sheikh). Now, teachers create lessons for a physical environment and transition the material to an online setting, in which the second problem arises: schools transitioned their focus to in-person curricula, forgoing improvements in remote learning curricula. This mode of creating lessons leaves POD disadvantaged, as the materials are not initially intended for remote learning. In one interview, a student stated, "I couldn't even see the worksheet because [my teacher] took a blurry picture of the printed worksheet" (AlJassim, personal communication, September 3, 2020).

This lack of curriculum contextualization leads to the third problem: the current curriculum requires POD to access assistive technology to complete lessons. This requirement presents an accommodation gap, and therefore a learning gap, because POD are no longer receiving technological accommodations in school centers per the 29/2006 Law. This gap contrasts pre-Covid-19 realities. Findings from the KHDA's inspection highlight increasing inclusion in Dubai schools pre-Covid compared to prior years. According to the 2019 data, the number of students with accommodations increased by around 3,500 in a population of 278,794 private school students (KHDA).

The KHDA also provides rankings on each physical school. One of the categories includes, "the provision for, and achievements of, students with special educational needs and disabilities" (KHDA, 2017). Within this category, the KHDA combines their own evaluation with schools' self-evaluations on inclusive measures. According to the KHDA, 71% of all private K-12 schools, which is an increase of 5% from previous years, received a "Good" or "Better" quality of education from possible ratings of, in descending order, "Outstanding," "Very Good," "Good," "Acceptable," "Weak," and "Improved" for inclusion.

Due to Covid-19, the KHDA collaborated with the MoE, as well as entities in Sharjah and Abu Dhabi, to reinvent a tool for evaluation: Distance Learning Evaluation (DLE). DLE provides information on the quality of remote learning in private schools, including "Students' distance learning and wellbeing, teaching and monitoring of students' learning, and leading and managing students' learning." (KHDA, 2020). The tool is currently in the development phase; though comprehensive data is yet to be available; some data has been collected. The three

evaluation categories include: “developed,” “partially developed,” and “not developed.” Though these are useful categories for data collection, they are deficient in action points previously present within in-person school evaluations. According to available data for the 207 schools evaluated thus far, 139 (67% schools) met the “developed” criteria, 67 (32% of schools) are “partially developed” and only one school is “not developed.” The observation notes often include measures of inclusive learning. For example, evaluators report “equity of access” and “learning opportunities” at the “developed” Al Ittihad Private school. Missing data consists of schools that opened this academic year and schools whose evaluations were postponed due to unnamed reasons.

As the need for assistive technology by POD increases during Covid-19, this yields our fourth problem: the KHDA established a nation-wide government mandate which states that families are responsible for providing the technology students need for remote learning. However, families often cannot afford assistive technology and do not have the digital literacy to support their children. This disparity leaves POD without the technology that makes a remote learning option viable, especially when facing financial burdens that accompany the pandemic. According to one report, “another issue facing some parents is the financial hit they have taken as a result of Covid-19... Parents of special needs children...have had their income reduced and say they are concerned their children will suffer” (The National, 2020).

Insufficient financial liquidity and technological ability for families leads to the root, and final, problem: families rely on schools for support, but schools have limited, communal technology in disability centers and limited professionals trained to use these technologies. This assessment of the issue is mirrored by the UAE’s Al Qassimi Foundation, which stated in a July 2020 report that a key educational challenge is “scarcity of distance learning resources and little to no training for administrators, teachers, students, and parents” (Erfurth & Ridge).

The final problem, on which we will base the rest of our policy recommendation, is valuable to Dubai’s vision in upholding Universal Design for Accessibility under Federal Law 29/2006. By internalizing access to and training for adaptive and inclusive technology during remote learning, Dubai’s private schools can support and include POD.

Literature Review

Continuing with our identified problem, existing information can assist in underscoring gaps in technological access and training related to distance learning. Additionally, evidence can assist in identifying what needs cannot be met, even if all parties have full access to technology, and whether remote learning can be conducive to the adaptations required for POD. The Dubai private education sector will also benefit from assessing any existing best practices of inclusive education for distance learning, as well as reviewing available literature, discussed below, on how to address gaps in assistive technology and the relevant training for remote learning. Ultimately, Dubai can utilize this information to assess the educational situation and available resources for People of Determination post-Covid, in addition to proposing additional programs in preparation for future incidents.

When assessing and assembling evidence to analyze Covid-19 impacts on students with disabilities, we focused on “Facing Forward: Schooling for Learning in Africa” which allows cross-country comparison by grouping countries based on density of educational challenges and economic and social challenges (Bashir et al., 2018). With this categorization, education progress achieved can be contextualized, allowing other countries to research the viability of interventions and implement relevant policies. With Facing Forward in mind, we focused on educational challenges, specifically choosing countries with laws addressing inclusion pre-Covid. We therefore excluded countries that, according to existing policies, remain in the phases of exclusion, segregation, or integration for people with disabilities (PWD). We assessed the applicability of these laws to the pandemic by narrowing our choices to signatories of the Secretary General’s “Disability-inclusive response to Covid-19 - Towards a better future for all.” This document emphasizes that a “disability-inclusive Covid-19 response and recovery will better serve everyone and prevent the gains made in the inclusion and rights of persons with disabilities from being lost” (UN, 2020).

From the remaining list, we chose a mix of member, potential member, and non-member states of the Organization for Economic Cooperation and Development (OECD) to contrast resources available for providing inclusive education. Member states must, “demonstrate a ‘readiness’ and a ‘commitment’ to adhere to essentially two fundamental requirements: (i) democratic societies committed to rule of law and protection of human rights; and (ii) open, transparent and free-market economies” (TUAC, 2018). From this analysis, our team grouped countries by transparency of data for inclusive, actionable policies during Covid. We focused on how countries managed access to technology, parental involvement, and professional development surrounding students with disabilities, as these categories are necessary for successful inclusion during Covid.

Our criterion corresponds to three recurring themes across the comparative UAE and international education spectrum, finding positive and significant progress in Australia, Qatar, Singapore, and the United States for inclusive education in response to Covid-19. The preliminary theme demonstrates a variety of attempts at providing access to technology as schools transition their focus to in-person curricula. Overall, POD learning is hindered without initial and intentional creation of remote learning material. Additionally, the literature examines the lack of curriculum contextualization, recognizing that the present curriculum requires POD to access assistive technology to complete lessons. This requirement shows an accommodation gap due to the lack of technological adaptations for POD. The second theme centers on familial responsibility in providing technology for students' needs, the lack of understanding on digital literacy in support of their children, or financial strain incurred. This leaves POD vulnerable without support that makes remote learning viable. Teacher professional development, our final theme, reveals that although teachers receive some, if any ICT training, it rarely focuses on assistive technology. In documenting diverse approaches to teacher professional development, a consensus resonated that although most countries shifted to remote learning, it is insufficient to assume teachers can use ICT.

The existing literature on inclusive education shows that although Covid-19 has disrupted education significantly for POD, countries incorporate these themes into successful inclusive education. Following the presentation of the literature, there are further measures to be taken in relation to the three themes and continued exploration regarding parental involvement and specifically teacher professional development in relation to an ideal model of inclusive educational responses during Dubai's Covid response.

Access to Technology

For our context, we classify technology as assistive technology designed for equitable education access for PWD. Gyamerah states that although technology-based education offers many benefits, it can widen the existing inequalities if all measures are not taken into consideration (2020). Therefore, remote learning could transform the education sphere towards full inclusion if implemented with care.

In Singapore, assistive technology plays a large role in the country's response to Covid for PWD. Customized assistive technology and communication devices are loaned to students and families without prior access (Teng, 2020). This includes technology to enhance assistive technology, such as full-home internet access, with “more than 20,000 computing devices and 1,600 Internet-enabling devices” loaned (Teng, 2020). Similarly, the department of private schools in Qatar distributes one computer per household to disadvantaged students and the Ministry's Special Education Affairs Department provides computers to families affected financially by the pandemic (Ministry of Education and Higher Education, 2020).

In Australia, the decentralized response permits exceptional, independent allocation of resources. For example, Victoria's government announced, “your child may use a range of equipment and technology that is necessary to their learning at home. The school will work to provide access to appropriate equipment free of charge” (Coronavirus Victoria, 2020). Schools also provide contact information of an individual allocated to troubleshoot assistive technology. In addition, the federal government uses portals such as the Positive Partnership program. These online modules include workshops and webinars to implement assistive technology (Positive Partnerships, 2020).

Parental Involvement

We define parental involvement by additional responsibilities for parents, relationship to school systems, or financial burden incurred while learning at home. If parents choose to keep PWD at home, Australia disperses resources to parents (Coronavirus Victoria, 2020). In Victoria, an online parents' portal includes resources supportive of PWD. Tasmania also provides social and emotional learning support for parents, including access to the school's social workers (The Department of Education Tasmania, 2020). In the US as well, parents are present in-home education and attend IEP meetings, with online learning requiring an adult on-site to facilitate (The Center, 2020). The literature describes many resources and websites available for parents to access, helplines to call, and activities to assist in home learning. For example, the California Department of Education hosted webinars and online platforms such as "Distance Learning Resources for Parents and Educators" (California Department of Education, 2020).

Professional Development

Professional development refers to guidance for teachers adapting inclusion during Covid. Qatar and Australia fully implemented professional development for teachers. Resources in Australia include a "teacher resource hub, a Facebook group and a best practice evidence guide for teachers on setting up online learning" (Australian Government Department of Health, 2020). In addition, the Digital Technologies Hub creates informal teacher networks by sharing strategies and advice for inclusion of PWD within primary and secondary schools. To ensure social and emotional learning for teachings, the government also uses "Be Your Staff Wellbeing," providing resources and remote therapy. Also developed, the Qatari Ministry of Education and Higher Education trained teachers and support staff, in collaboration with Mada Assistive Technology Center, on classroom techniques and assistive technologies pre-Covid. Despite high levels of ICT-literacy among educators, and the continual utilization of realizing digital and knowledge economies, "governments in the Gulf have identified widespread capacity gaps among national and expatriate teachers alike" (Sparks, 2020).

As evident in this literature review, the themes of technological access, parental guidance, and professional development appear in most of the four countries. Each theme examines and represents a complex interweb of the inclusionary needs of students with disabilities, along with the ability to cater to such needs. This analysis emphasizes that inclusion during Covid-19 requires countries to either fully or partially develop the three discussed themes. However, in comparison, Dubai partially implements technology access and parental guidance without implementing professional development for teachers. Therefore, countries that fit the scope of our thematic rubric best align to Dubai's perspective and assist in our interpretation of the literature presented. This will facilitate our shaping of recommendations, policy analysis, and guidance below in helping develop our Dubai to POD inclusion during Covid.

Three Potential Policies

We have identified three policy recommendations as potential solutions that we will analyze as we move forward in discussing the best suited policy to address the inequality in education access in the UAE for POD during Covid-19. Our first recommendation is leaving the situation as it currently stands, with minor alterations. Students of Determination will continue to learn remotely from home, as they have been since the beginning of the pandemic. However, in addition, teachers will be asked to prepare curriculum packets of all the documents students will need in a two-week period to be mailed to their homes.

Our second policy is to return all students of determination to school, as is the current norm for general education students. POD would resume school in the classrooms they previously attended before online learning was enacted. For example, schools in Manitoba, Canada recognize that remote learning may not be for everyone and could allow schools to better equip students with safer accommodations, following guidelines and health protocols, to allow all students to attend school in the least restrictive environment. Additionally, British

Columbia has outlined the possibility for in-person learning for POD, stating “If operationally feasible, school districts and independent school authorities should also consider offering priority care to parents/caregivers of students with unique needs (e.g., students with disabilities) and low-income parents with no other child-care options.” (Baker, 2020). Students who need intensive support, hands-on services, or who are working on abilities specific to the school setting or vocational environment may require in-person learning possibilities in which to fully access the curriculum (Ullman Shade & Ware, 2020).

Our final policy is a hybrid model, with students and Learning Support Assistants (LSAs) coming into schools on a rotating basis. In our hybrid model, students will have the option to attend in-person learning for a maximum of two out of three, possible UAE weekdays - Sunday, Tuesday, and Thursday - allowing for deep cleaning of the classrooms to take place on Monday, Wednesday, and over the weekend. All students will be in school at least one day of the week, with certain students attending in-person learning twice a week, as is needed, or dictated by their IEP. While in school, students will be able to access the physical materials needed to continue with individually run online learning for the rest of the week when they remain at home.

After examining further literature for our context, and analyzing available hybrid programs currently in action, we have found that within the U.S., the Massachusetts Department of Elementary and Secondary Education (MADESE) has administered a model where students with disabilities receive an IEP through remote learning, in-person instruction, or a combination of both, focusing on “a strong emphasis on providing in-person instruction to the greatest extent possible” (Exceptional Children Special Education Advocacy, 2020).

MADESE stated that without the existence of in-person learning, PWD must receive instruction either at home or via a hybrid model, prioritizing in-person, and mixed delivery of lessons. Even if most students are not present in school, schools must consider administering smaller programs that run daily for one or more cohorts of high-needs students. They further emphasize that this program must be structured through an instruction and service model of delivery instead of depending only on resources and supports models of independently completed packets and assignments.

Furthermore, the Virginia school district has implemented a hybrid model complete with phases to best serve PWD. To ensure equitable access, the district aligns this plan with Virginia Department of Education’s Phased Guidance for Virginia Schools and the CDC Guidance for Schools. This guidance proposes Phase 1 of the return to learning proposal as a gradual return to in-person learning while ensuring the health and safety of students and staff (Newport News Public Schools, 2020).

Concerning Phase 1, identified PWD will return to school for in-person learning using a hybrid model of instruction “which includes 2 days per week of in-person learning and 3 days per week of virtual learning, or a 4 day per week in-person learning and 1 day of virtual, depending on the school” (Newport News Public Schools, 2020). This hybrid model can best be used as a timetable, in which various student categories can utilize their instruction days. Using a set schedule, students will participate in an adaptive curriculum with synchronous (live instruction) and/or asynchronous (independent learning) activities that are provided by teachers. The district also employs ‘Related Service providers’ who collaborate with teachers and other service providers to assist parents with coordinating schedules, IEP meetings, and to arrange for services needed on in-person learning days.

In addition, the Oklahoma Department of Education has also written a policy brief discussing the importance of a hybrid model of learning for PWD. If in-person instruction is not possible due to constraints, teachers may still be able to continue full-time or part-time instruction in-person in self-contained classes, where in-person services can be based in the home or community-based settings. Furthermore, some schools within Oklahoma have selected a model of service such as “(i.e., Mondays, Wednesdays, Fridays – Virtual services, Tuesdays and Thursdays- Onsite services)”; and where IEP teams would determine these instructional delivery options (Oklahoma State Department of Education). The US context connects to the UAE vision due to the underlying similarities of rights granted under ADA and UAE Federal Law 29/2006.

Assessing Potential Policies Through Four Criteria

With our three potential policies chosen, we move forward in judging these policies using selected criteria. These criteria are a way to ensure the plan is viable, that the chosen policy will solve the problem we are trying to address, and that the policy introduces the values Dubai wishes to embody. We have chosen four criteria on which we will judge the three alternatives laid out above: Equity in Access, Efficiency, Quality, Sustainability/Longevity. These criteria were chosen based on a connection to the Universal Design for Learning (UDL), which Dubai ensures through Federal Law 29/2006, as well as being specifically guided by the themes (CAST, 2018). One of the main pillars of UDL is to meet the needs of all students, from which we ascertained the equity in access criteria. Efficiency is also a core part of the UDL framework, in which every aspect of the learning is actively accommodated by students’ needs and interests. An accessible and adaptable learning system is intrinsically high in quality because it ensures students receive the highest quality of education available to them. Finally, the inherent flexibility involved in UDL ensures sustainability/longevity, as programs and curricula are easily adapted to the changing needs of students or their environment.

Equity in access reflects access to assistive technology and other materials needed to succeed in learning environments, directly connecting to the theme of access to technology, as well as comparing PODs access to educational opportunities regarding their general education peers. Efficiency considers how manageable a policy is regarding the additional work it requires of teachers to ensure the needs of POD are met, in conjunction with our previously mentioned theme of professional development, which would help ease any potential burdens a policy may add. Quality references the quality of education available to POD under a policy, which again relates to professional development and access to technology, as those are two main pillars of ensuring a quality education for POD. Finally, sustainability/longevity considers whether a policy has future implementation potential and whether it becomes redundant when Covid-19 restrictions are at ease. This definition relates to the themes of professional development and parental involvement, components which ensure the durability of a policy and ease the transition in and out of a remote learning context. Although a cost benefit analysis would have been beneficial, we had no access to financial data regarding government’s programming.

Utilizing these criteria, we then move forward in predicting outcomes for our policy recommendations, remaining realistic and future-focused on our problem as we do so. To do this, we created a policy matrix, as seen below, which allowed us to easily lay out the outcomes we predict of each alternative based against our criteria. When determining the outcomes of the different alternatives along the axis of our criteria, we remained realistic when considering future uncertainties due to the pandemic. Based on the present situation in schools during Covid, we assessed the norms and school policies currently enacted in all schools in the UAE. These mandates include that all schools must close for two weeks upon a confirmed case in the building, all individuals within schools must wear masks, and students must remain socially distanced at all points (KHDA, 2020). The current regulations aid us in determining potential outcomes from our alternatives. We categorize the outcomes as either “Poor,” “Moderate,” or “High” regarding how they address a particular criterion to rank outcomes and create comparability between the criteria and the alternatives.

Table 1. Policy Matrix Predicting the Outcomes of the Three Potential Policy Recommendations

	Equity in Access	Efficiency	Quality	Sustainability/ Longevity
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All Online Learning	Poor, POD in low-income and rural regions do not have equitable access to personal technology	Poor, not currently efficient, teachers have double the workload catering to online and in-person students, as well as creating additional curriculum packets	Moderate, quality of physical materials will be improved but online materials have proven to be of poor quality	Poor, as soon as Covid-19 passes, students will return to school, wasting any potential investments
All In-Person Learning	Moderate, equitable only if schools can consistently and safely remain open, but is not realistically equitable	Moderate, appears efficient, but only works if schools do not close due to a case of Covid-19 in the school	High, no materials needs to be adapted to online learning	Moderate, schools will close at any case of Covid-19 in the school, but the easiest for transitioning once Covid-19 passes
Hybrid Model Learning	Moderate, students have full access one day per week instead of five, but it is better than the current situation of no access	Moderate, all students obtain materials, but the teacher must do everything three times and is unable to assist remote students on days with in-person students	High, no materials needs to be adapted to online learning	High, easier to transition into full person when Covid passes, as well as easy to use again if a potential need for hybrid learning arises

With the policies, criteria, and outcomes at hand, we now must look closely at the outcomes, rather than just the alternative policies themselves, to truly weigh the importance of the different potentialities summarized above. Our three available policy options are as follows.

Maintain Remote Learning with The Current Policy

In the current policy, POD remain at home, while general education students attend in-person learning, without minor adjustments regarding mailed curriculum packets. These curriculum packets would contain all the documents teachers intend to use in a two-week period in their lessons. However, if changes are made to lessons or documents after the packets have been mailed out, teachers may upload the documents online as they have been doing thus far. The current policy fails in three of the four criteria, necessitating an alternative policy. Equity in access may exist for students in high-income households with access to personal, assistive technology at home, but low-income and rural households do not have similar, necessary access to obtain an education (Erfurth & Ridge, 2020). Furthermore, teachers must create two simultaneous curriculums, as well as the newly implemented curriculum packets, more than doubling their workload: one curriculum for in-person learning of general education students and one for remote learning of POD, in addition to preparing all documents needed by POD for a two-week period. In terms of quality, our qualitative interviews determined that the standard of learning for PWD has decreased in a remote setting. This decrease is in part due to the lack of training for general education teachers in remote, inclusive learning (Erfurth & Ridge, 2020). For example, one student with cerebral palsy notes that a teacher took a picture of daily homework and uploaded it to the online portal for her. However, this picture was often blurry and inaccessible, leading to her inability to accomplish the required task. The curriculum packets would improve the quality of the documents provided, but only the ones mailed out. This does not account for last-minute changes in lesson plans that would necessitate uploading the documents online, which continue to be of poor quality. Lastly, although a revised version of remote learning for POD may prove useful in crises, the current model invests in remote

learning and does not take in-person accommodations into consideration. Therefore, once the threat of Covid diminishes, the investment in remote learning also dissipates.

Pre-Covid Education Policy For PWD, Like The Current Requirements for General Education Students

This policy dictates that all students should return to the already opened physical schools, regardless of ability. Following the theory of change, this policy fails in the equity in access, efficiency, and sustainability/longevity criteria. Equity in access is not achieved due to the inability of immunocompromised students to attend schools, leaving students behind due to difference in ability and widening the learning gap for POD. Efficiency for teachers and schools also decreases as with each Covid outbreak, UAE law dictates that schools must shut for two weeks. In these two weeks, teachers must adapt the curriculum for all students, only to return and re-adjust the curriculum when in-person learning resumes. The difference in transmission times may lead some students to develop symptoms later, requiring some students to stay in isolation longer than others, per UAE Covid-19 laws, and requiring teachers to continue planning two curriculums. According to the KHDA, “students who would like to resume onsite learning without completing their 14-day quarantine [from onset of symptoms], should produce a negative PCR test” (KHDA, 2020). This policy also does not meet sustainability and longevity requirements, as preferred by UDL to ensure flexibility, due to the re-shutting of schools upon Covid exposure and due to the possibility of future pandemics and natural disasters.

Implement a Hybrid Model

This policy, although imperfect, best meets the client’s needs for equitable access, efficiency, quality, and sustainability/longevity. In this hybrid model, schools build upon their old structure of providing a disability center, with public resources, for POD. After completing a Covid test, which is free of cost for all POD in the UAE (The National, 2020), POD can physically access this center either once or twice per week, based on Individualized Support Plans, to utilize the public, assistive technology. Unlike pre-Covid, the disability center will be isolated from the rest of the school, only allowing LSAs, sanitization staff, and POD. In the disability center, there will be one designated trained LSA who is Covid tested once per week on a rotating basis, as well as one sanitization staff member. The LSA will ensure efficient use of assistive technology and will obtain virtual guidance from the greater re-implemented Inclusion Task Force in case of any issues. The Inclusion Task Force consists of technicians and LSAs who will commit to communication between teachers, students, and their families.

Although students have equitable access to technology upon entering the support center, they only meet this criterion up to twice per week. With advance planning and communication from the Inclusion Task Force, families, and teachers, it may be possible to meet the full needs of all students with up to twice per week access at each school. Planning of the curriculum is especially necessary for students with more severe needs, as limited access may not prove sufficient. Additionally, the efficiency criteria can be met with the support of the re-implemented Inclusion Task Force. The same individuals who were involved with the mandatory task force in each school prior to Covid, will continue during Covid. In this manner, the general education teacher will not be solely responsible for accommodating all students with different needs but will rather have a support system surrounding them. Quality of education also increases with this proposal since POD receive in-person support where necessary to accomplish tasks and lessons, while depending on remote education for the remaining three to four days of the week.

Finally, the hybrid model meets the needs of the government for sustainability/longevity. Post-Covid, the centers and staff will be available for in-person learning for POD. In case of any further crisis, this model will be available for transition of POD learning in the future. For students with temporary immunocompromisation, hospitalization, or various needs, this model can be implemented as well. The hybrid model has not been considered in the past due to limited knowledge of Covid and its lasting effects, cost of Covid testing, and the dismantling of Inclusion Task Forces once remote learning began. However, updated knowledge and timelines present that Covid will have lasting effects, especially for POD, prior

to dissemination of a vaccine. With new government efforts, the cost of Covid testing has also been cut by 39%, from 220 to 85 Dirhams in all Seha testing locations (UAE Health, 2020), which is more affordable for support staff weekly testing. In addition, Inclusion Task Forces were created to meet Dubai's requirements for in-person learning (KHDA, 2017), but they were dismantled for online learning as the requirements did not meet remote learning needs. However, an adjustment to the requirements and functions of the Force can lead to successful re-implementation in schools.

Analyzing the Hybrid Model Based on the Five Perspectives

Upon analysis of the tradeoffs using our four criteria, the hybrid model fits the government's needs by fulfilling equity in access, efficiency, quality, and sustainability/longevity. To ensure a holistic policy, we analyzed the hybrid model from the five perspectives of education change: cultural, psychological, professional, institutional, and political (Reimers, 2020). The hybrid recommendation combines pre-Covid structures and current policies, with necessary additional measures, including sanitization, access limitation, and Covid testing.

The cultural perspective is based on POD experiencing an inclusive school culture within Covid-19, which requires progressive development of attitudes, behaviors, systems, and beliefs that enable the hybrid model of inclusive education to become a norm. Currently, POD, unable to attend physical classes, are unable to partake in a social and cultural contract with the education system, in which the system "provide[s] opportunities, inclusion rights, and the resources and support mechanisms available to them and their families" (KHDA, 2017). Dubai's school culture of inclusion recognizes that all students must be given opportunities to become successful learners, to form positive social relationships with peers, and to become fully participating members of the learning community (KHDA, 2017). However, approximately 60% of teachers in private schools and 50% of all principals at public and private schools do not believe the needs of students of determination are sufficiently supported during Covid-19 (Erfurth & Ridge, 2020). This data encourages Dubai to effectively address the scarcity of distance learning resources and training for administrators, teachers, students, and parents by providing a hybrid model to create an inclusive school culture.

Regarding the psychological perspective, reports indicate a disconnect in the prioritization of theories of learning and the science behind educational approaches in the current switch to remote learning. Erfurth & Ridge report that POD lack necessary learning and psychological support and are less likely to have required access for distance learning or a dedicated space for learning, causing negative impacts, especially when considering additional education and emotional needs (2020). Dubai has attempted to adapt IEPs to at-home settings. However, issues are exacerbated by students' lack of access to skilled professionals at home (e.g., learning aids, tutors, therapists, related service providers). Additionally, the MoE has sent advisory plans to private schools, providing the freedom to choose whether the same plan is implemented, or another is created, causing great disconnect on the consistency of educational approaches for teaching and learning pertaining to Students of Determination (Erfurth & Ridge, 2020). Within the hybrid model, necessary learning, professional, and psychological support is implemented through the Inclusion Task Force, specifically with the on-site LSA. The isolated disability center in each school also creates consistency of equitable access for POD, teachers, and families.

The professional perspective, in contrast, is conceivably the most important consideration in the government's narrative. All school entities reported that they received very little, if any, training for effective standards in remote learning. Based on our root cause analysis, this lack of teacher training for digital technology connects to an undersupply of general, distance learning training, although most stakeholders feel well prepared. 15% of private school teachers stated receiving no training, while only 23% received more than a full day of training (Erfurth & Ridge, 2020). The same pattern was found with private school students, with 88% receiving less than one day of training and 42% of students surveyed reported not having participated in any formal distance learning training prior to remote learning (Erfurth & Ridge,

2020). Moreover, this response indicated the quantity of training, but the data did not explore the quality of training initiatives provided.

According to TALIS results of ICT for teaching in the UAE, teachers ranked below OECD average at 10% for “Percentage of teachers reporting a high level of need for professional development in ICT skills for teaching” (OECD, 2019). Presumably, a similar demographic of teachers reported feeling prepared with technology. However, only few, select professionals within school disability centers are trained on the available assistive technology, which are communal for the school. This percentage of trained teachers would represent a low number in the general demographic. It is worth noting that within surveys, assistive technology often does not constitute ICT. In the hybrid model, these trained professionals are re-implemented as support staff for in center and remote learning. In-center, the trained professionals (LSAs) will provide physical support with assistive technology and ensure that IEPs are met. Virtually, LSAs will expand the communication network between POD, families, and teachers, maintaining parental involvement, and therefore sustainability, throughout the hybrid model. In this way, general education teachers will not feel the pressure of time and resources in learning new skills to accommodate POD, while simultaneously learning new skills to accommodate a remote general education classroom. Instead, LSAs, as part of the Inclusion Task Force and Disability Center, will provide support to all teachers, guiding them to create an inclusive classroom for all.

The expected norm also applies within the professional perspective to parents, transformed into teachers’ assistants in remote learning. Data states that 88% of parents of students in private schools reported less than one day of training. Less than half of the parents reported that they did not receive any training for distance learning prior to the switch to remote learning (Erfurth & Ridge, 2020). As parents take on the additional responsibility of teaching, training may develop community and empower their new role. In the hybrid model, parent involvement is a core aspect of the fourth criteria, sustainability/longevity. Although the model does not aim to train parents, it does require that the Inclusion Task Force communicate with parents and guardians of POD via email or phone on a weekly basis. In this manner, the Task Force can provide guidance on best methods, or refer parents and guardians to on-call technicians for technology support. Parents, in turn, communicate with the Task Force, and thereby teachers, on the progress and needs of the student, creating a 360-degree circle of communication and support for POD.

With respect to the institutional approach, Article 12 of 29/2006 Law states the duty of the stakeholder as acquisition of “equal opportunities for obtaining education in all educational institutions, if needed, with providing the curriculum and through any other methods as appropriate” (MoE, 2006). This mandate has been enforced in remote learning as access to training and technology, though both remain scarce and insufficient. Additionally, Article 13(5) further states that “providing technical and educational assistance to all educational institutions that wish to receive people with special needs and considering requests for funding for the equipment and technologies and rehabilitating the educational environment of the institution” is required (MoE, 2006).

The current narrative does not align with this goal. For instance, Al Noor, a training center providing services to POD, volunteered assistive technology and training to 200 students. However, Al Noor cannot sustain this model and continues to ask for community support. Regardless of financial stability, the director, Ramnath, shared, “...those who require physical support or extra individual attention would likely suffer because the center’s trained interventionists are unable to fully deliver these services online” (Hamdoun & Katusak, 2020). The current education model must shift to and align with the current reality, instead of imitating interventions for in-person learning. Appropriate access to technologies and equipment, accompanied by training, will have a positive impact on the present crisis.

Additional examination, as per the TALIS study of 2018, reported that pre-Covid, 31% of principals reported shortages or inadequacy of digital technology for general instruction, showcasing the even greater shortage of adaptive technologies during the pandemic (OECD, 2019). The hybrid model meets the demands of Federal Law 29/2006 by providing access to communal resources and trained professionals. Instead of placing the responsibility on private

care institutions, the model utilizes already available resources in school disability centers as mandated by law. The model also bypasses existent shortages of adaptive technologies by implementing the rotating model of usage and only allowing access up to twice per week per student. This efficiency of use is based on circular communication between POD, parents, the Task Force, and teachers, since assignments and need for assistive technology must be predicted in advance to meet students' needs.

Finally, from the political perspective, the government is legally required to meet the standards of 29/2006 Law. However, Dubai is struggling to balance standards with their national mandate where the onus is on the families "to create an appropriate learning environment at home by providing internet services, other distance education resources like computers, tablets, and smartphones" (Bashir, 2020). In a personal account, a single mother in Dubai shared that she spends around \$4,000 USD a month on her child with disability's various therapies, technologies, and learning support staff. This amount is in addition to the \$11,500 of tuition that she must pay to the school (Haza & Rizvi, 2020). In this sense, there is a political struggle in the use of technology between meeting the educational needs for POD during distance learning and highlighting the lack of alignment between key components of the educational adaptations when viewed from a political lens. With the hybrid model, the use and spread of technology will be equitably allocated, which is especially beneficial to those who do not have access at home. Although the tuition amount stays the same, students will have community access to the necessary LSAs and technologies without further cost, meeting the requirements of Federal Law 29/2006.

Significance

With our policy options fully realized and reasoned we now move forward to share our policy recommendation with the Dubai private education sector. The policy recommendation, implementing a hybrid model of inclusive learning, considers prior legislation, current mandates, and successful implementation from comparative, international policies, and perspectives. The hybrid model meets Dubai's needs for equity in access, efficiency, quality, and sustainability in looking to current values and ahead towards an inclusive future for the country.

Prior to Covid-19, Dubai aspired to establish itself as the most inclusive city worldwide by 2020. Implementing monumental laws, collaborating with school leaders, and establishing Inclusive Task Forces led to a shift from segregation to inclusion in schools city-wide. However, the current model of remote learning, whereby POD remain at home and students who are physically able return to school, leads to gaps in equitable education during and post Covid.

The hybrid policy unifies technological access with professional support to fulfill the Dubai POD Advisory Council's vision, who recommended inclusion of disability issues in a Dubai 50-year strategic plan (Hussein, 2020). Implementation of our policy recommendation will also guide Dubai to fulfill the United Nations Sustainable Development Goal Four (2015), equitable education, and utilizes this unique opportunity to implement best education practices for inclusion of all individuals.

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Chapter Eleven

The Effect of the Covid-19 Pandemic on Richardson Independent School District

Melanie Shimano, Yiqin Wang, and Joshua Sparks

Summary

School administrators' and educators' roles in supporting their students' well-being has become an even more prominent challenge as schools operated in remote or hybrid learning environments during the Covid-19 pandemic. This chapter reviews specific educational challenges and opportunities related to student well-being considering the Covid-19 pandemic for the Richardson Independent School District (RISD) in Richardson, Texas in the United States. In analyzing educator and administrator interviews, school data, and literature review, we build a case study that explores how school districts can utilize their direct resources such as educators, school culture, and student management systems to support student well-being. We also build an analytical framework that considers cost effectiveness, implementation time, equity, efficacy, number of school-related groups impacted, and relevance to student well-being to review four program recommendations for RISD: (1) an online community of practice for district educators, (2) a shared student profile for educators to better understand student circumstances, (3) a student mentorship program with local young adults, and (4) notes to parents to encourage awareness and positive conversations about school attendance. Lastly, we outline several evidenced success factors for RISD and other school districts when considering new program implementation.

The Effect of the Covid-19 Pandemic on Richardson Independent School District

The Covid-19 pandemic has shed light on how education systems provide support for students' holistic well-being, which includes much more than simply lesson plans and academic support (World Bank, 2020). At the surface level, schools need to provide a substantive education through curriculum that aligns with educational standards; however, schools also support student learning by helping their development in emotional skills and competencies, social skills and competencies, and physical health (The Aspen Institute, 2019).

Richardson Independent School District (RISD) in Richardson, TX is not immune from the challenges that education systems around the world face during the pandemic. Although the district and individual school leadership is responsive, supportive, and action-oriented, the district still faces many academic, social, and emotional challenges, which we further outline in this paper. Furthermore, students, teachers, and the school communities in RISD have too few social and emotional support systems considering the Covid-19 pandemic. The odds are too high that the pandemic will exacerbate the availability of monetary and human capital resources and inhibit RISD's ability to support students' mental well-being in remote learning environments and heterogeneous socioeconomic populations.

In this policy analysis, we evaluate these challenges and potential alternative solutions that RISD can implement to continue to provide required support during and after the Covid-19 pandemic. We first outline the problem through specific examples, which are founded in empirical evidence from district data and teacher and district leader interviews. Next, we review related literature and case studies that outline research and the effect of programs implemented to address student well-being directly or indirectly; then, we outline specific implications that this literature review has for RISD. Finally, we review five potential solutions that RISD may consider addressing the challenge of having too few social and emotional support systems that address student well-being and conclude with a final program recommendation that outlines

specific considerations to ensure a successful program. While these recommendations are specific to RISD, we hope that the literature review, program recommendations, and program considerations provide a framework for other school districts to consider as they innovate how they can continue to support student well-being during and after the Covid-19 pandemic.

Positionality

This case study was generated as a consultation project between three students at the Harvard Graduate School of Education and school administrators and educators at RISD. One of the chapter authors has also been a high school teacher in RISD for the past two years, where he also serves as a football and basketball coach. The consultation project lasted for approximately three months at the end of 2020, during which time the authors interviewed ten RISD administrators, teachers, and staff from different positions of power and schools within the district and reviewed RISD student performance, demographic, and remote learning data. In addition, the authors reviewed past and current literature about schools' roles in supporting student well-being and how this can impact students' future academic, professional, and personal outcomes. While one of the author's district positionality allowed the authors to have direct access to district data and more trust with the interviewed educators and staff across the district, this also afforded minor limitations in the authors' recommendation language and identifying the interviewed educators' specific positionality. Lastly, the authors also did not have direct access to students or parents during this project due to limitations related to the consultancy scope of work and time afforded.

Overview of Richardson Independent School District

Richardson Independent School District (RISD) serves approximately 39,000 students from ethnically diverse backgrounds (37.8% Hispanic, 29.8% White, 22.9% African American, 7% Asian, 2.9% two or more races, 0.3% American Indian, and 0.1% Pacific Islander) (The Texas Tribune, 2019). Additionally, the student population consists of a relatively large percentage of students who are identified to have risk factors including 55.7% poor students, 26.7% limited English proficiency students, and 49.9% at-risk students (The Texas Tribune, 2019).

It is important to note that the proportion of poor students and at-risk students in RISD is like that in all Texas public schools. However, the proportion of students with limited English proficiency in RISD is over six percentage points higher than the average proportion of similar students in the entire state. Additionally, while most of the neighborhoods in RISD have an average household income of approximately \$75,000 per year, there are some neighborhoods where the average household income is only \$29,000 per year and the poverty rate in the district is approximately 10% (US Census American Community Survey, 2018). RISD also does not always have up-to-date data about each individual students' household makeup, since some students may spend time in different family or friends' households during different time periods in their schooling (Teacher A, Zoom interview, December 4, 2020).

RISD Operations During the Covid-19 Pandemic

Operational Plans and Background Information

Like most educational systems operating during the Covid-19 Pandemic, RISD has experienced several operational and educational challenges over the past ten months since Covid-19 forced schools in Texas to shut down during spring break in the 2019-2020 academic year. The district leadership—Superintendent Dr. Jeannine Stone and Deputy Superintendent Tabitha Branum—and individual school leadership pivoted their roles to focus on (1) clear written and video communication to teachers, staff, students, and families in light of social distancing rules, (2) continued curricular activity and participation in remote learning environments, (3) regulations for in-person activities pending local health statuses, (4) additional material and financial support for required technology and activities in classes, and (5)

incorporating constant feedback loops with other leadership, teachers, staff, students, and parents so that they could pivot initiatives if the new measures were not meeting expectations.

For example, a team of the school board and district administration created *The Blueprint* (Richardson Independent School District, 2020) for their school district's Fall 2020 return to school plan and kept in constant communication with parents and students through email, phone, mailed letters, and general website announcements about Fall 2020 reopening and remote learning options. Students and their families had the option to either participate in the upcoming school year as a remote learner or as an in-person learner, which resulted in approximately 38.2% of students participating in remote learning and 61.8% of students participating in face-to-face learning during the Fall 2020 semester.

Originally, RISD restructured these classes at a district-wide level to accommodate fully in-person or fully remote classes regardless of the student's designated school. After operating under this plan for one month, district and school leadership determined that this plan did not achieve their intended efficiency outcomes. This resulted in transitioning back to a school-specific, hybrid class learning model.

RISD Challenges During the Covid-19 Pandemic

RISD leadership recognizes that their school campuses provide much more for students than only curriculum and academic learning opportunities as evidenced by an emphasis on required social emotional learning (SEL) classes in primary schools, increased availability for individual and group school counseling starting in Fall 2020, and a commitment to continue school-based extracurricular activities and sports when safe. However, students and teachers still experience too few social and emotional support systems considering unprecedented circumstances of the pandemic. In this section, we investigate this problem-statement through RISD-specific examples.

Decreased Enrollment

One major challenge that the Covid-19 Pandemic highlighted for RISD, is the number of resources available for students to continue their education at home, without school or any in-person support, and potentially without proper internet access to online learning materials. Furthermore, RISD enrollment decreased by 5% for the 2020-2021 school year, however, enrollments in campuses with 100% low socioeconomic students, decreased by 25% (Branum.T, zoom interview, Sep 18th, 2020). In addition to the potential learning loss for students who do not return to campus or who are at risk for dropping out of school considering Covid-19-related challenges, decreased enrollment could also have a significant financial impact on the district, as school funding is directly tied to schools' student enrollment. Not taking action to address potential learning loss of students who do not return to school or who are at risk for not returning to school may also continue to propagate income disparities in the surrounding area.

Decreased Student Engagement and Participation

Furthermore, teachers throughout the district have reported in interviews that remote learning students have exhibited decreased engagement in their classes during the 2020 Fall semester. Although most teachers have spent a considerable amount of time reorganizing and rebuilding their curriculum to accommodate both socially distanced, in-person, and remote learners, virtual learning students are still not as active in their classes compared to in-person learners or compared to themselves in prior in-person classrooms. Student engagement problems during remote learning at RISD range from (1) students who do not participate or turn on their cameras in class, but turn in asynchronous assignments to (2) students who log into remote classes so they do not register as truant in the school system, but who do not actually attend class to (3) students who do not attempt to attend class remotely or in-person (Teacher B, Zoom interview, December 4, 2020, Teacher C, Zoom interview, November 30, 2020). Approximately 1,900 students are within the third group in RISD, which could amount to a decreased \$10.4 million in state funds for next year's budget (Donaldson, 2020).

Increased Teacher Workload and Stress

Although all RISD teachers are now required to teach hybrid in-person/remote learning classes from their campus classrooms, RISD began the academic year with remote learning for all students due to increased Covid-19 cases in the Dallas-Fort Worth metroplex region (Teacher D, Zoom interview, December 4, 2020). This required teachers to readjust their curriculum and student engagement strategies several times during the beginning of the school year. Even more experienced teachers need to revise and prepare more online-based materials, spend additional time contacting students and parents to hand out required printed material for classroom activities, contact parents and caregivers more frequently due to students' decreased engagement and academic performance, and take on additional teaching roles due to decreased substitute teacher availability (Teacher A, Zoom interview, December 4, 2020; Teacher C, Zoom interview, November 30, 2020). Additionally, being limited to video conference meetings or text-based conversations to abide by social distancing requirements has contributed to communication barriers that make teachers feel isolated from their peers and students (Teacher D, Zoom interview, December 2, 2020).

Decreased Student and Teacher Social Interactions

Remote learning has contributed to less opportunities for teacher-teacher, teacher-student, teacher-parent, and student-student interactions. Because students are not allowed to work in proximity when they attend class in person and because students usually do not participate in Zoom breakout rooms, teachers have struggled with how to cultivate a meaningful classroom environment with both in-person and remote learners (Teacher C, Zoom interview, November 30, 2020). Additionally, the in-person and remote learners were initially not even able to see each other in the class because the teachers needed to use and face their computer with their web camera. However, this was recently resolved when district administrators purchased iPads for all the teachers to use as a second "monitor" in their classes (Teacher C, Zoom interview, November 30, 2020). This decreased opportunity for interaction especially troubles teachers who teach students who are entering middle school and high school since these students do not already have established social circles or relationships at their new school.

Increased Amount of Student At-Home Responsibilities and Disruptions

As mentioned previously, 55.7% of RISD students are identified as poor. These students likely have parents who need to maintain in-person jobs, which means that these students may also need to take on additional household responsibilities such as taking care of very young or very old family members or facilitating learning for their younger siblings (Branum.T, Zoom interview, November 17, 2020). Furthermore, some students will even spend their days at different family member's or friend's houses, which can disrupt their learning process or material availability such as access to textbooks or printed packets. Although some students have shared this personal information with some of their teachers, not all teachers are aware of each student's personal situation regarding remote learning or the pandemic in general. Even though teachers can contact parents via phone or email to discuss students' personal situations, parents may not always be responsive or may not feel comfortable sharing this information with all the teachers.

Addressing RISD Challenges Through Literature Review and Related Implications

Few currently available studies can directly answer questions about the long-term impacts that the pandemic will have on students, teachers, and schools. Nevertheless, we conducted a literature review to explore research and case studies that point to related evidence-based challenges and potential solutions in student well-being. This includes how schools, teachers, and school communities can help support this, specifically in remote learning or heterogeneous socioeconomic populations.

Focus on Student Well-being

In this policy analysis and literature review, we focus on student well-being, defined as “the psychological, cognitive, social and physical functioning and capabilities that students need to live a happy and fulfilling life” (OECD, 2015), and teacher and community well-being to support student well-being. This is primarily because of RISD’s commitment and emphasis on supporting the “whole child” as evidenced in their mission statement--“to ensure that ALL connect, learn, grow, and succeed” --and interviews with school leaders and educators. We specifically focus on evidence centered around remote learning environments and equity in resource access by looking at factors such as student retention, engagement, and social emotional learning, in addition to tools shown to help measure and monitor longitudinal trends in all these elements.

Consequences of Well-being Deficiencies

RISD’s continued trend in absenteeism and dropout could have severe negative consequences, especially in widening education equality between socioeconomic classes. Many of these unenrolled students come from low socioeconomic backgrounds, which implies that they are less likely to pay for education outside of the public school system, and more likely to be working or taking care of family members (Richards, 2020). Student retention, absenteeism, and dropout are well-known and researched challenges in schools, and previous longitudinal studies show that these outcomes are largely due to differences in family characteristics, previous school experiences, and personal and psychological characteristics (Gleason, Dynarski, 2009). Specifically, factors such as family’s low socioeconomic status (Rumberger, 1995, Alexander et al, 1999), students being held back (Goldschmidt, Wang, 1999), students having adult responsibilities (Gleason, Dynarski, 2009), students moving and changing schools (Astone, McLanahan, 1994), and students’ motivation to learn (Waldrop, 2010, Archambault, 2009) were all significantly associated with student absenteeism and dropout.

Although these determinants may affect different students in different ways, RISD may not be able to control elements related to some of these determinants such as a students’ low socioeconomic status or a student having adult responsibilities. However, district leadership and teachers may be able to influence factors that happen inside of the classroom or that could be supported from inside a school environment. Furthermore, Goldschmidt and Wang (1999) show that these different student-related indicators have different effects on student dropout, namely, that students being held back is the strongest predictor of early dropout and disciplinary problems are the strongest predictor of late dropouts. This does not suggest that RISD should not hold back students or graduate students who have not learned material; rather, schools and teachers may be able to focus on elements that precede dropout such as engagement with material and relationships with teachers as outlined below.

Retention and Engagement in High School Online Classes

Literature on virtual high schools that were in operation before the pandemic shows that retention is associated with students being “highly motivated, high achieving, self-directed and/or who liked to work independently” (Barbour, Reeves, 2009). However, these schools retain high achieving students who were also less likely to drop out of in-person schools (Barbour, Reeves, 2009). Nonetheless, de la Varre, et al (2014) note that students in virtual

Advanced Placement classes were more likely to drop out of these classes based on “scheduling and time constraints, academic rigor and motivation, technology problems, problems with online medium and lack of teacher immediacy, and parental influences.”

Although this research focuses on a decidedly different population than RISD, we also see these problems in RISD classes based on interviews with district leadership and teachers. RISD may consider these findings to make sure that (1) there is an appropriate amount of schoolwork dedicated to each class based on what teachers can reasonably cover in an in-person or remote class, (2) teachers have proper materials and preparation for online learning, (3) teachers spend time in their classes to develop meaningful relationships with their students, and (4) parents and caregivers are involved in their students’ school life.

Peer-peer relationships to improve student Well-being

Peer relationships have been considered an important factor casting positive effects on young students' psychological well-being (B Gray et al., 2018) and student-to-student interactions have been found to be a key contributor to students' overall connectedness to the school (Waters et al., 2009). In a survey conducted by Annie Gowing (2019) with 336 adolescents near Melbourne, students commented that "their friends and peers were the main reason they enjoyed being at school," and a similar study from Fuller et al. (1999) concluded that stronger peer connectedness enhanced students' resilience. Related, Goswami (2012) found that students' positive relationships with school peers have a significant association with their subjective well-being. These mixed-method studies shed light on the effect of promoting students' well-being through building positive peer interactions, which can also improve school connectedness and attendance rate.

The importance of student-student interactions and relationships is critical to consider as many RISD students have opted into a virtual-only learning environment. Although RISD students can choose between virtual or hybrid learning models, social distancing requirements for in-person learning environments has unavoidably decreased the daily interactions among students. Additionally, students' choice to participate in a virtual learning model may be heavily influenced by their personal or family health conditions or their parents' preferences, which are outside of control of the student. It is important for RISD to consider how to continue student-student interactions when there are several related health-related.

Student-Teacher Relationships for Better Student Engagement and Well-being

Both educational and psychological research demonstrate that more positive and stronger student-teacher relationships lead to better student outcomes. Furthermore, Ansari (2020), et. al. show that even though teachers represent a relatively transient part of a students' life, a positive and close student-teacher relationship can lead to unique and cumulative long-term positive effects on academic outcomes, educational aspirations, and social behavioral skills (Ansari, et al, 2020). Furthermore, student-teacher conflict-based relationships had less of a negative effect than the positive effect of closer student-teacher relationships, and these outcomes are not domain-specific. Because these outcomes describe effects in both social and academic settings, this suggests that positive and close student-teacher relationships may also promote engagement and motivation in the classroom.

This further suggests that deeper student-teacher relationships should be prioritized in all RISD schools. Elementary school teachers have an opportunity to develop these relationships in their mandated social emotional learning (SEL) periods, and middle and high school teachers may find this more manageable during their block schedule days when they have more dedicated time with their students. RISD may want to consider additional avenues to help teachers develop their personal relationships with students through professional development or other means.

Quality Teachers to Support More than Student Well-being

While "quality teacher" is a stakeholder-relative term (Henard & Leprince-Ringuet 2008), we define quality teacher here as those who use a student-centered approach to educate the whole student (Henard & Leprince-Ringuet 2008). In addition to benefits mentioned previously, Chetty, et al found that as students transitioned from a below-average teacher to an above average teacher, that student's income increased by 3.5% per year, translating to approximately \$10,000 per year (Chetty et al, 2010). High quality teachers and increased lifetime earnings could lead to a dramatic life shift for students of low socioeconomic backgrounds.

Ensuring Quality Teacher Performance During the Pandemic

School officials can facilitate and support both formal and informal professional development to encourage teacher growth and to train teachers on different values, strategies, and skills that they can use to maximize student outcomes and educate the "whole child." Villegas-Reimers (2003) establishes that professional development has a positive impact on three areas: (1) teacher beliefs and practices, (2) student learning and outcomes, and (3) implementation of educational reforms. Furthermore, research indicates that professional

development also raises student achievement because teachers enhance their own knowledge and skills and improve classroom teaching (Suk Yoon, et al 2007).

The World Bank (2020) recommends three key principles for school officials to consider when thinking about professional development for teachers during the pandemic that support teacher effectiveness: (1) supporting teacher resiliency, (2) supporting teachers instructionally, and (3) supporting teachers technologically. It is important for school leaders to consider these factors to ensure that they are not overwhelming teachers with too many additional tasks, which may contribute to high rates of teacher burnout (Jacobson 2016). Providing teachers with support, practices, and skills that target their pedagogical needs can help teachers continue to provide students with the quality instruction that they need. Lastly, due to the changing nature of technology-required pedagogy, teachers need support and should be taught the best practices for utilizing technology in the classroom and how to build effective lessons with that technology.

It is important to note here that this additional and continued professional development should not exacerbate the stress and additional workload that teachers have already voiced concerns about. Rather, RISD may consider how their professional development requirements can help with immediate educator needs. This is already being accomplished to some extent with featured teachers showing how they navigate different technology in hybrid learning classrooms during remote professional development sessions. However, RISD may want to consider how they can support teachers along all three of the recommended principles equally: supporting teachers' resilience, instructional practices, and ability to implement technology.

Parental Collaboration and Involvement to Improve Student Outcomes

Research shows that increased parental involvement in their child's school-related activities is positively associated with their child's well-being; this positive association holds across ethnic groups and gender (Bogensneider, 1997; Shumow and Lomax, 2002). However, even if parents want to be involved with their child's learning and school life, factors such as "inability to get time off from work", the "inconvenience of school meeting times" and the "lack of knowledge about how to participate in school activities" may present challenges for parents to participate in school activities to no fault of their own (OECD, 2015).

The Covid-19 Pandemic amplified the need for parental collaboration to support children's learning and mental health (Brossard et al., 2020) since most students needed facilitation with learning in their own homes. However, this became a burden for RISD parents since the Pandemic may have impacted them by sudden unemployment, risk of contracting the virus, work from home conditions, or childcare options if they work in person while their children are at home all day (Frontiers Institution, 2020). The scenario is also exacerbated for low socioeconomic families (Brossard et al., 2020). Parents' incapacity to collaborate with schools put student well-being in RISD at a higher risk.

Implications for RISD Related to Support for Student Well-being

The literature related to adolescent and student well-being suggests that RISD may have an opportunity to best support student well-being through the direct contact and relationships that the students cultivate in school, namely their personal and academic relationships with teachers. Furthermore, it is important for RISD to consider how they can support other factors in a students' environment that contribute to student well-being such as a teacher's or parent's capacity to engage with students in a meaningful way.

While well-being is an active field of educational and psychological research and an important indicator as demonstrated above, it is important to note that it is very difficult to accurately capture "well-being" as an individual metric. Specifically, well-being of students and young people is decidedly different than well-being for adults, and the former field of research is relatively new (McLellan & Steward, 2015). Some recent studies use carefully constructed student surveys that combine data on questions related to a student's interpersonal relationships, life satisfaction, competencies, and negative emotions (McLellan & Steward, 2015).

Additionally, similar surveys combine this data with the student's standardized math and ELA scores (Howard, et al, 2018) to determine a "score" that can help quantify a student's well-

being. However, these surveys may also have different implications for different domains or schools or for different vulnerable or non-vulnerable populations, so RISD should consider using a group of other approximate measures--such as student attendance, participation in class, academic performance, negative behaviors, and involvement in extracurricular activities (Archambault, 2009) --to continue to monitor elements of student well-being.

Proposing and Evaluating Alternative Programs to Address Student Well-being Challenges

General Theory of Action

As discussed above, we focused on improving student well-being as our final goal. The theory of action assumes that children who (1) experience of personal functioning, (2) pursue of meaningful goals and self-actualization (Huppert, 2014), (3) build positive-relationships with others, and (4) experience personal growth (Ryff, 1989) embody a higher level of well-being, thus better retention, more engagement, and positive social-emotional statuses. In this section we analyze five alternative solutions including a business-as-usual scenario in which the current condition in RISD will continue undisturbed. We evaluate the alternatives according to the selected criteria and the potential outcomes. Since the consequences are usually not linear and the results of one program may lay a good foundation for another program, we compared each alternative under the established criteria and then put together the final policy recommendation.

Evaluation Criteria

We evaluate these programs based on five factors: (1) cost effectiveness, (2) efficacy, (3) equity, (4) time to implement, and (5) future cumulative effects, which are further outlined in Table 1. Despite the consensus of focusing on student well-being, the administrators of RISD have made it explicit that the district's capacity in implementing potential new program is constrained and they intend to only focus on programs that meaningfully impact students' social emotional needs within the financial budget and without adding significant burden to teachers' current busy schedules. In other words, the “efficacy” and “cost effectiveness” criteria are the administrators’ top priorities when analyzing our policy recommendations. Building upon these expectations, we have further considered that making sure our programs provide equal opportunity to students from different backgrounds is critical given the district’s diversity in socioeconomic statuses and the literature that suggests the students from lower socioeconomic families may be more likely to experience situations that lead to decreased well-being. Although there is some recent promising news about Covid-19 vaccines, we include time to implement the program as a key criterion due to the uncertainty caused by the pandemic and its aftermath. Finally, since each program impacts a different number of RISD community parties, we use the criterion “future cumulative effects” to evaluate programs long-term effectiveness and to evaluate how many different parties could benefit from the intervention.

Types of Criteria	
Criteria	Concept/Meaning
Cost effectiveness	The amount of financial burden the recommendation will place on the client.
Efficacy	The ability of the recommendation to produce a particular outcome.
Equity	The ability of the alternative to provide the client’s target groups with differentiated levels of need depending on the amount of support required.
Time to implement	The amount of time it would take the client to implement the alternative into their current system that is in place.

Relevance	The connectedness between implementing a policy to achieve the final goal.
Future Cumulative Effects	The number of RISD community parties that will experience positive long-term effects as result of this program

Table 1 (Bardach, 2019)

In the following sections, we analyze each of the program alternatives from the lens of each of the criteria.

Baseline Condition: Business-As-Usual

RISD’s current measures to continue educational opportunity involve offering hybrid remote and in-person classes through the Spring 2021 semester and offering in-person sports and limited extracurricular activities on district campuses. Furthermore, teachers will be expected to continue teaching from physical classrooms where they will enforce social distancing and related health protocols with peers and students.

Because district employees must abide by social distancing protocols and because there is no comprehensive communication tool for the district, teachers will continue to adapt and develop lesson plans individually or with teachers who they know in their campus. This strategy is challenging for teachers who are the only teacher for a given subject in their school since they may not have any peers who they know they can collaborate with. Because this pain point has been realized by all teachers in the district, teachers may evolve to develop their own means of communication across district or other schools. However, it will be challenging to ensure this is done in an equitable way and that all teachers will receive support from these mechanisms.

Students will continue to have the choice of participating as a virtual or in-person learner. As the Stanford Education Data Archive (SEDA) data showed, student outcomes have been sliding from 2008 - 2018, and learning gaps have been widening among black and poor students, even before the pandemic. Due to decreased engagement and participation for remote learners and decreased social interactions between all learners, students may fall further behind in their coursework or learning outcome expectations, which affects their learning in future academic years and teacher responsibilities in subsequent years. Furthermore, students who do not communicate any hardships with teachers or school leadership may continue to harbor additional responsibilities without support from their school. The district level will hopefully realize that in addition to the hybrid options, more personalized caring and flexible learning options should be provided to address various challenges that families are facing in the pandemic.

RISD may experience a \$10.4 million decrease in funding due to decreased enrollment and increased absences and truanancies during the 2020-2021 school year (Donaldson, 2020). However, it is important to note that some of these anticipated financial deficits will be offset by \$5.5 million in grants from the Texas Education Agency (Plusnick, 2020), although this and potential future emergency grants will not completely offset the amount of funding lost from decreased enrollment and attendance.

In conclusion, RISD will likely be able to iterate and develop “on-the-fly” solutions to treat symptoms that arise from Pandemic-related challenges. However, this may result in excessive emergency spending, time commitment, and stress since these solutions may not address any problem's root cause.

Alternative I: Online RISD Community of Practice for Pedagogy and Lesson Plans

The *RISD Online Community of Practice* will enable teachers across the district to collaborate and share resources specific to age groups, subject matter, or pedagogy on an online platform. In this platform, teachers can share videos, photos and text-based content that contain examples of how they prepare for teaching or implementing hybrid class activities, website links of outside resources that help with specific subject matter, technology setups that promote a more engaging classroom environment, or other tools, tips, and notes that may help other

educators in the RISD network better work and connect with each other, students, and parents. Because all teachers are operating under unprecedented circumstances, they need to reinvent and spend several hours revising their curriculum to achieve the same learning objectives in a remote, in-person, or hybrid learning environment. The RISD Online Community of Practice will allow teachers to build and access a collective knowledge repository of different resources so that each individual teacher does not need to reinvent how to teach a particular concept online. Connecting educators and creating a central resource for curriculum, activities, and student engagement will prevent unnecessary, doubled efforts to create similar materials, and therefore, provide additional time for teachers to engage personally with their students on academic and personal matters. Because teachers can have such a significant, positive impact on student social behaviors and academic outcomes (Ansari, et al, 2020), it is important for RISD to provide opportunities for teachers to organically develop meaningful relationships with their students.

This “community of practice” will also promote an optimal learning environment for teachers by coordinating a group of RISD teachers who engage in shared activities on the platform and share resources related to a set of values and their commitment to their students (Lave & Wenger, 1991). This RISD Online Community of Practice would organize teachers by grades (e.g., first grade teachers) or subjects (e.g., Algebra I teachers) to share relevant resources mentioned above. This online community could be housed on an online platform such as YellowDig, Flipgrid, or Discourse, as further outlined in Appendix C.

Because this would be a social platform and would depend on teachers participating and posting on the platform to make it useful and effective, RISD will allow teachers to earn a proportion of their required professional development hours by preparing, posting, and commenting on content on this platform. Furthermore, school leadership will dedicate time during district-wide professional development days for teachers to post and explore the community content.

Benefits

The theory of action here builds off previously discussed literature on the need for administrators to support teacher resiliency, instruction, and technical needs. This assumes that if teachers participate in this forum and share resources with each other, they will use the collective knowledge and be more efficient when preparing for classes and that they will connect with other similar teachers across the district. This may also lessen feelings of isolation and anxiety among teachers and allow teachers to spend more time engaging with students, which may improve students’ well-being. Furthermore, some forum platforms are free to use and implement, which may allow RISD to implement this program with minimal costs and minimal time invested. Additionally, this program would involve all teachers in RISD, which means that this would impact all students in the district.

Limitations

Because this program depends on teacher participation, and because teachers have already noted that they are doing much more work than usual, there is a risk that this program will not be used as intended if the proper motivation and training is not implemented at the beginning of the program. Additionally, this program will likely require a group of teachers or staff “champions” who actively use and help monitor the content so that there is always new content for people to engage with on the platform. This program may also require additional financial and time resources depending on the platform selected, which may not be feasible within the RISD budget.

Alternative II: Student Profiles of Shared Teacher Information to Monitor Behaviors

The *Student Profile* program will allow teachers to informally record positive, negative, and neutral comments about students’ behaviors in the FOCUS system that RISD uses to record students’ attendance, grades, schedules, and parent contact information. These profiles will enable teachers to “monitor” student experiences and behaviors in other classes or at home. This will allow teachers to better support students’ specific needs, which may be difficult to monitor in remote learning environments.

These profiles may better support personal, close teacher-student relationships, which can increase student well-being and academic performance (Ansari, et al, 2020, Pane et al, 2017). Furthermore, as more teachers participate to create these profiles, RISD may implement simple, automated, text-based analytics through the backend database to automatically “red flag” specific students’ profiles for review by specific teachers or school leaders.

Benefits

The theory of action here builds off previously discussed literature on the benefits of student-teacher relationships for improved student well-being. This assumes that if teachers better understand how students are behaving in classes with other teachers and if teachers can know about challenges that may prevent students from fully participating in class or in their academic work, then teachers will be able to better assess changes in students’ behavior and social relationships and better understand how they may be able to connect with students on a personal level.

Because teachers use FOCUS every day to log student attendance, this program may not add a significant amount of additional work for teachers. Although FOCUS already has the capacity for teachers to input student referrals without resulting disciplinary actions, “referrals” have a negative connotation in the district (Teacher E, zoom interview, Dec 8th, 2020), which may inhibit teachers from resorting to this method to log student insights. Teachers cannot currently view the specifics of other teacher’s referrals—even for their own students—which does not aid in a collective student background profile. Lastly, creating one additional database field should not incur any significant costs to RISD, and the technical implementation time will mainly depend on the IT and data teams’ capacity for working on this field with FOCUS.

Limitations

Although this program’s technical implementation is relatively simple, this program will require a significant time investment from the district and a team of “champion” teachers and staff. They will need to determine “Student Profile Guidelines” to ensure that teachers receive adequate training to use and comment in these fields and that they provide appropriate notes (for example, they should not share any sensitive health information). Additionally, this program’s success also requires that teachers constantly participate in these comments and that student profiles are up to date. This requires school leadership’s support to provide teachers dedicated school or professional development daytime to fill out information about their students.

Alternative III: Student Mentorship with Local Organizations and Universities

The *Student Mentorship Program* is designed to provide better social and emotional support for middle and high school students who show high levels of disengagement. The program will focus on improving student well-being and encouraging their engagement in school and learning and builds upon information contributed to the Student Profiles mentioned above. Red-flagged or otherwise identified students will be invited to join a two-year program (following parent/guardian consent) where they are paired with college-level students or graduates who have been trained to communicate with students to help fuel their motivations. These mentors will have access to students’ school behavior profile (attendance, academic reports, and social emotional behaviors) so that they can provide specific interventions through ongoing individual meetings with their mentees. The interventions are intended to address obstacles related to various aspects of students’ social emotional life and provide suggestions for students to better organize their time according to their personal requirements (i.e., preparation for assignment deadlines or consultation for college applications). Mentors will also work with students’ families to promote home-school interaction and create a consistent and supporting environment. If students require a more intensive intervention, they will also have mechanisms to report to district leadership.

The program theory of action assumes that mentors will help students build personal connections and that this personalized and supportive attention will improve student well-being, personal fulfillment, and intrinsic motivation for school activities. Furthermore, some benefits

of these relationships can be cyclical, for example, once students establish a sense of fulfillment and a clear trajectory of their life, they may engage in more school activities, thereby leading to a likelihood of better social and emotional behavior and mental well-being status. Although research demonstrates that the student-teacher relationship is an important factor to support student well-being (Ansari, et al, 2020, Pane et al, 2017), it may be more cost effective for RISD to partner with an outside organization to help build these personal, mentor relationships with students to support their mental well-being.

Benefits

This program's efficacy has been demonstrated in prior research. In 2016, What Works Clearinghouse (WWC) stated that programs connecting young students with trained mentors who closely monitor students' mental and physical well-being and academic progress casted positive effects on students' outcomes (Jessica, Kristina, Deborah, Mindee, Sandra & Angie, 2018). Additionally, RISD district leadership has already acknowledged the benefit of personalized mentorship programming and has identified two outside organization partners who RISD may be able to partner with. Although this program requires a heavy operational investment to train and manage mentors, it may be easy to recruit mentors from the University of Texas at Dallas, which is less than a 10-minute drive from most RISD schools.

Limitations

Because it would be extremely cost-prohibitive to provide individual mentors for all RISD students, this program is not equally accessible to students in the district. Additionally, even when this program only serves students identified as needing additional SEL support, this program management may be too much of a burden on RISD resources, and the district may want to outsource this management to an already established partner. Furthermore, if this program begins over remote instruction, this may not be able to serve targeted students who do not have adequate digital infrastructure such as internet connectivity.

Alternative IV: Automated Nudge Notes to Inform Caregivers and Increase Student Attendance

The 'Nudge' Notes program is a low-cost and useful tweak to RISD's current communication plan with parents that will send automated, targeted messages to inform parents about their students' attendance and in-class performance through positive messages that encourage parents to talk about the importance of attendance with their children. Although RISD caregivers can access their students' attendance records through the FOCUS parent portal, this requires parents to log onto the website to access this information and this data does not provide additional context for how poor attendance might affect related student outcomes. It is worth noticing that there are more than 70% nonwhite families in the district and the nudge notes will also be written in the first language of certain families.

This intervention is based on behavioral economics nudge theories (Thaler, Sunstein, 2008) and a study that found that sending a "single postcard that encouraged guardians to improve their student's attendance reduced absences by roughly 2.4%" (Rogers et al, 2017). Furthermore, RISD can improve on this program by adding in additional personal information from students' profiles described in Alternative II. This program assumes that receiving these messages will encourage parents to have more targeted conversations about school participation with their students, and that students' behavior and well-being will improve with actively involved caregivers.

Benefits

Similar parent-focused postcard message research shows empirical benefits to sending these targeted messages to parents (Proving Ground, 2020, Rogers et al, 2017). This program is also cost-effective; Rogers, et al note that these messages only cost \$0.22 USD per postcard. Additionally, the timeline for this program is relatively easy to implement since this builds off current RISD infrastructure and parent messaging.

Limitations

Although RISD has the internal infrastructure to implement this postcard messaging program, RISD district leadership has noted that they would feel more comfortable partnering with an outside organization who will take care of this messaging for them, such as School Innovations & Achievement (<https://www.sia-us.com/meet-us>). This would generate significant costs for the program but may be more cost effective if the district data team is not prepared to implement these simple analytics and messaging on a regular basis. Additionally, if RISD did not want to partner with an organization and did not want to implement their own automated messaging system, the district could implement a low-cost solution where teachers hand-write postcards. However, this may contribute to a significant time investment for teachers and school administrators.

Alternative Program Comparison

Evaluation Criteria

After closely following established, research-based policy analysis techniques (Bardach, 2019), we confined our alternative solutions to the above mentioned four programs in addition to the business-as-usual scenario. Each alternative targets improving students’ well-being following a certain theory of action and is evaluated based on our selected criteria--cost effectiveness, implementation time, equity, efficacy, relevance, and future cumulative effects--as outlined in the policy matrix in Table 2. In this matrix, we also score each alternative program relative to the other alternative programs on a scale of 0-4, where 0 is the worst relative program and 4 is the best relative program. We weighted each of these criteria equally to emphasize the equal importance of all the factors. This allows us to objectively evaluate the “best” program as the program with the highest score in this matrix.

Table 2: Alternative Program Comparison Matrix

Alternative Scenario	Cost	Implementation Time	Equity (Number of students served)
Business-as-usual	0 Piecewise and quick cost decisions to fix short-term solutions without long-term strategy	4 No implementation time required	0 “Serves” all enrolled students, but no proactive measures to address equity
Online Community of Practice: Teacher online curriculum/pedagogy sharing community for PD	2 Free- \$10,000/year depending on the forum platform adopted + work hours required for training and to promote usage	1 1-6 months for choosing platform, training teachers, uploading notes, making community guidelines, and incorporating into PD full district session next year	4 Serves all students by way of teacher community, culture, and collaboration supported in PD hours and PD days
Student Profile: Teacher sharing about student behaviors and progress	4 Cost of adding a data field in the attendance database (minimal) + work hours required for training and to determine comment guidelines	3 1-3 months depending on RISD data/IT relationship with FOCUS + to develop comment training and guidelines	3 This aims to address all students, but this might be utilized more with students who are at positive and negative ends of behavior and performance spectrums
Student Mentorship: Student mentors from local colleges (Education, Social Work, etc.)	1 Training student mentors, potential contract with an outside vendor to manage this program	0 6-12 months depending on relationships with local schools, certifications/clearances needed to interact with younger students, training for student volunteers, and potential outside vendors	1 Serves only students identified as “at risk” who may need additional SEL support and guidance
Nudge Notes: regular, automated notes to parents about students’ attendance and participation with specific notes	3 Cost of postcards and printing services + work hours to write a script that connects to attendance data (approximately one week of data team’s time)	2 2-12 months depending on program method (fully automated printed messages or teacher-signed notes) and if notes include specific “red-flag” comments	2 System affects all students, but notes mainly impact students with poor attendance results

Table 2: Alternative Program Comparison Matrix—Continued

Alternative Scenario	Efficacy/ “Hit the target (student wellbeing)”	Future Cumulative Effects	Total Score
Business-as-usual	0	0	4

	Does not directly address student wellbeing	Does not have added affect students, teachers, administrators, or parents	
Online Community of Practice: Teacher online curriculum/pedagogy sharing community for PD	2 Mainly impacts teacher wellbeing, although this impacts student wellbeing by means of teacher wellbeing	3 Affects teachers, administrators, and students	12
Student Profile: Teacher sharing about student behaviors and progress	3 Allows teachers to spend a more targeted approach regarding student support	3 Affects teachers, administrators, and students	16
Student Mentorship: Student mentors from local colleges (Education, Social Work, etc.)	4 Direct focus and individual attention to students' wellbeing	1 Affects only students	7
Nudge Notes: regular, automated notes to parents about students' attendance and participation with specific notes	1 Puts responsibility of student wellbeing action item onto caregivers who receive the nudge notes, which may not be read	2 Affects students and parents	10

Best Recommendations for Each Selected Criteria

The Student Profile program is the most cost effective of these alternatives because this builds directly on existing database infrastructure, and should incur little, if any, direct financial costs to the district. Although this will incur indirect costs related to employee implementation and training time, these costs may be like other alternative programs outlined here.

The business-as-usual baseline scenario takes no time to implement because there is no new program outlined in this case, and the most time effective alternative program is the Student Profile program. Again, the Student Profile program should be able to operate relatively quickly because this program builds on existing technology infrastructure and because teachers are already familiar with the FOCUS software, which should require some, but minimal, training.

The Online Community of Practice program is the most equitable, as this program impacts all RISD students by way of impacting all RISD teachers. Other programs target students who demonstrate specific behavioral or well-being deficits, which do not address students who do not show any behavioral issues. Although RISD may want to only target students who demonstrate a well-being attention need, this may draw regular teacher attention away from students who may then need to be targeted in one of these programs.

The Student Profile program and Student Mentorship program are equally relevant to the goal of improving students' well-being, as they focus directly on students while other programs focus on teachers and parents. Although improving teachers' well-being and parents' engagement have significant relations with student well-being, focusing on students directly can help hitting the target more effectively.

Both the Student Profile and Online Community of Practice programs build a foundation for greater future cumulative effects. Although the RISD Online Community of Practice alternative does not build off an existing program in place for school operations, this program will impact current challenges in addition to how teachers and school leaders approach problem-solving in the future. These programs directly impact teachers and administrators.

However, they also provide the most opportunity for teachers to build better relationships with students and parents and can serve all students, rather than only students who are identified as needing attention.

Program Recommendation

In the program evaluation matrix above, we determine the RISD Student Profile program to be the most cost-effective, relevant, and impactful program overall, and we recommend that RISD implement this system “add-on” through the FOCUS platform. Additionally, we recommend that RISD also implements the RISD Online Community of Practice program because this is determined to be similarly cost-effective and impactful. Furthermore, the implementation process for both programs builds on several similar key characteristics that may be best addressed together. Namely, both programs rely on (1) teachers spending time to contribute content to these platforms so that they are useful and (2) school and district leaders providing opportunities and meaningful incentives for teachers to participate in these platforms not entirely in their free time.

Although the technology infrastructure in both programs may be simple to implement, it is important to note that the value of these programs stems from the social networking effort that drives the community of practice and resulting culture. This means that as part of the implementation process, RISD needs to identify at least one “program owner” who will take on responsibilities to manage and promote activity on each of the platforms, likely for an additional stipend to support time spent on this work. This should be someone at the district level or an educator who aspires to obtain leadership experience or who may want to work at the school leadership or district level in the future.

For the Student Profile program, RISD may want to suggest that school leaders set aside specific time so that teachers do not feel like these student notes are an extra menial task to complete. The contributions in this platform will also be critical data that can help RISD better understand how different reported student behaviors are associated with academic performance and how different teachers participate and report on student performance. This can also provide real-time, concrete evidence for trends in student behaviors in a consolidated database instead of through a mix of formal referrals and informal emails, text messages, and calls to caregivers. For the Online Community of Practice program, RISD may want to recognize a small group of “champion” teachers during specific time periods who will commit spending their professional development required hours contributing to this platform.

When implementing these programs, it is important to consider the following evidenced success factors for these programs:

1. **Monitor Trends in Platform Participation:** The program or platform “owner” should evaluate and manage behaviors with free tools from the selected platform to determine the amount of private, public, and browsing activity. This can help RISD iterate the program implementation and strategy to be more helpful for specific RISD communities.
2. **Avoid Strictly Competitive (e.g., micro credential-based) or Strictly Cooperative (e.g., discussion-based) Environments:** Hlapanis and Dimitracopoulou (2007) find that, on average, men tend to perform better in competitive online community of practice environments and women tend to perform better in cooperative environments, so RISD should make sure to reward and emphasize both kinds of participation to ensure equity.
3. **Emphasize Practical- and Reflection-Based Participation:** While the Student Profile program is rooted in practical evidence for connecting with and understanding students, the Online Community of Practice can aid in deepening teachers identities as educators and RISD community members through written and spoken reflection (Kelly, et al 2007).
4. **Promote True Professional Development:** While RISD is committed to teacher and leader professional development, it is important that their participation in these platforms is linked to specific gained skills and experiences for promotion, if desired.

For example, teachers' Online Community of Practice posts could contribute to an e-portfolio for future career development (Evans & Powell, 2007)

5. Build a Culture of District-Wide Mentorship: RISD can build on existing one-on-one mentorship programs with new teachers and scale this to larger-scale and larger-impact mentorship among teachers in different schools with different roles, which can contribute to improved professional support, teaching practice, and social emotional needs.

Conclusion

The authors propose four program recommendations to promote education continuity during and after the Covid-19 pandemic, and they recommend that RISD implements both the (1) Student Profile and (2) Online Community of Practice programs to better support their teachers' social and emotional needs during and after the pandemic, which will subsequently allow teachers to better support students' well-being in schools. The Nudge Notes and Student Mentorship programs could promote student well-being; however, these programs will likely be less cost- and time-effective. RISD leadership is currently taking great strides to manage their school system that is academically rigorous, abides by constantly changing health regulations, and ensures social and emotional support for students and teachers. However, these programs--in addition to the other alternative programs outlined--allow RISD to strategically home in on pertinent pain points across the district and build a foundation for continued educational opportunity as the pandemic subsides.

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