Chapter 1

Leading Learning During a Time of Crisis. Higher Education Responses to the Global Pandemic of 2020

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Abstract The rapid disruptions caused by the Covid-19 pandemic in multiple sectors and areas of daily life provide a unique opportunity to study the university's capacity to respond to changes in the external environment, to be a *learning organization*, in service of addressing significant social challenges. In this book we study universities' responses to one such challenge: the disruption to educational opportunities caused by the interruption of schooling brought about by the pandemic.

In response to the Covid-19 pandemic, universities innovated on several fronts. Unsurprisingly, some of those innovations focused on internal actions implemented to mitigate the impact of the pandemic by transitioning to online teaching delivery or extension of semester break, etc. (Crawford J et al. *J Appl Learning Teaching* 3.1:1–20, 2020; Leon-Garcia F, Cherbowski-Lask A, Leadership responses to COVID 19: a global survey of college and university leadership. International Association of Universities – Santander Universities. IAUP. https://www.iaup.org/wp-content/uploads/2020/11/IAUP-Santander_Survey_to_COVID-19_Report2020.pdf, 2020). Beyond the solutions to mitigate the pandemic's impact on their communities of students, faculty, or staff, universities also innovated to mitigate such impact on the larger community. While the contributions of universities to alleviate the pandemic's impact have been most visible in public health (Daniels, R. J. 2020. Universities' Vital Role in the Pandemic Response. *Hopkins Bloomberg Public Health Magazine*. <https://magazine.jhsph.edu/2020/universities-vital-role-pandemic-response>), they have extended to other areas of relief and support as well. Almost half of universities participating in a global survey conducted by the International Association of Universities indicated that due to the pandemic, their community engagement had increased (Marinoni G et al. The impact of Covid-19 on higher education around the world. IAU global survey report. International

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Association of Universities, Paris. https://www.iau-aiu.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf, 2020).

This book is a study of one such response of universities to the pandemic which has not yet received sufficient attention: their support of schools at the pre-collegiate level through a variety of innovative approaches to mitigate the impact of the pandemic on opportunity to learn.

In this chapter, we argue that studying such innovations provides insight into the responsiveness of universities to complex societal needs and into their capacity to operate as learning organizations open to their external environment. We introduce the study, explain its value in understanding the role and nature of higher education's outreach, social impact, and capacity to deal with complex challenges, and summarize the chapters of the book and the results of a survey which was administered to over one-hundred universities to study the nature of their collaborations with schools during the first 9 months of the pandemic, between March and December of 2020.

1.1 A High-Impact Global Event

The global pandemic of Covid-19 marked a watershed moment for humanity. This highly impactful event caused many disruptions, directly and indirectly, interrupting the lives of many and altering the lives of many more. The pandemic will be remembered, to be sure, as a milestone, a marker of time, after which many aspects of human life were never the same. There is a serious risk that several of the changes caused by the pandemic will make the world less inclusive, less stable, and less sustainable during the coming years, creating challenges of a new order of complexity. The most recent forecast of global trends from the National Intelligence Council of the United States describes the impact of Covid-19 as having disrupted economies and political dynamics within and between nations, creating new uncertainties about the global economy, governance, geopolitics, and technology. The report concludes that the pandemic accelerated and accentuated pre-existing trends, bringing global health and healthcare into focus, revealing and widening social fissures, and highlighting deficiencies in international coordination. The effects of the pandemic extended into other domains, including disrupting global supply chains, increasing national debt, government intervention in economies, accentuating exclusionary nationalism and polarization, deepening inequality, exposing the digital divide, straining governance, and exacerbating the polarized information that undermines public confidence in government, among other challenges (National Intelligence Council, 2021, 11–13).

This description of the type of difficulties caused by the pandemic corresponds to what have been called “super wicked problems,” a term used by MIT president Rafael Reif to describe challenges like climate change: “it means an enormously complex societal problem that has no single right answer and no clear finish line, multiple stakeholders with conflicting priorities, and no central authority empowered to solve it” (Reif, 2021).

On March 11 of 2020, Dr. Tedros Adhanom Ghebreyesus, Director General of the World Health Organization, declared that Covid-19 was a pandemic. At that point in time 118,000 cases had been diagnosed in 114 countries, and 4291 people had lost their lives. Over the next 13 months, those figures would grow to 164 million people infected, and 3,381,774 people having lost their lives (Johns Hopkins University, May 17, 2021).

In response to the pandemic, as a way to contain the velocity of the spread of the virus, segmenting the rate of infection over time to prevent the collapse of the medical infrastructure, many governments put in place measures that restricted physical contact among people, physical distancing measures, as well as restricted travel. The disruption of the ability to congregate, to move, and to travel impacted the functioning of many institutions: workplaces, schools, universities, businesses, houses of worship, and government itself.

The resulting direct impact of the pandemic included effects on people who were infected with Covid-19, in some cases taking their lives or deteriorating their physical or mental health. The direct impact also involved the economic and psychological consequences of having been infected or having had a family member become seriously ill or die. Many more people were impacted indirectly, including all those affected by the disruptions caused by the pandemic through jobs and income loss, mobility restrictions, disruptions to schooling, and severe limitations to other forms of association and interaction as well as the toll on mental health caused by living under stress during such a protracted period.

A considerable burden for governments was the financial toll created by financing the costs of the public health response to the pandemic, as well as the costs of the economic relief to individuals and businesses which some governments provided to mitigate the impact of the disruption to work and business.

The scale of the disruptions caused by the pandemic was unprecedented in recent history, causing a global economic recession not seen since the Great Depression (Reinhart & Reinhart, 2020). An analysis of the global economic effects of the pandemic forecasts multiple financial crises across the world, sovereign debt defaults in the developing world, a contraction in economic activity, decline in global trade, increased unemployment, a disproportionate impact on lower-income households, an additional 60 million people pushed into extreme poverty, and an increase in hunger. What's more, the economic recovery will be slow (Reinhart & Reinhart, 2020).

A disruption of such scale and depth will likely compound many pre-existing challenges. For example, the challenge of reducing poverty will be heightened in a context of economic recession or slow growth. The economic burden of the pandemic will compound pre-existing challenges faced by governments whose economies were already burdened with considerable levels of debt. The challenge of political polarization and challenges to democratic governance will be exacerbated as more people see their economic circumstances decline, and as the resulting marginalization and inequality intensify political competition. The rise of exclusionary nationalism will likely increase in response to growing domestic challenges, causing further retrenchment from globalization (National Intelligence Council, 2021).

Given the scale of these disruptions, the Covid-19 pandemic is a serious course-altering event, one that will change the life trajectories of individuals and the future of institutions and nations, setting them on paths which will make improvement of individual and collective well-being more challenging. Individuals, those who begin their careers in this economic depression, will find it challenging to recover. Those who prematurely end their employment because of the economic depression will experience reduced well-being for a long period. For institutions, whether they are businesses, universities, or hospitals, the economic toll of the pandemic will pose considerable burdens, driving some out of existence. This will hamper the innovation ecosystem. For nations, the burden of the adjustments necessitated by the pandemic will diminish prospects for development.

A United Nations report described these vast implications of the pandemic in this way:

The pandemic is more than a health crisis; it is an economic crisis, a humanitarian crisis, a security crisis, and a human rights crisis. It has affected us as individuals, as families and as societies. The crisis has highlighted fragilities within and among nations. It is no exaggeration to suggest that our response will involve remaking and reimagining the very structures of societies and the ways in which countries cooperate for the common good. Coming out of this crisis will require a whole-of-society, whole-of-government and whole-of-the-world approach driven by compassion and solidarity (UN, 2020, 1).

This UN report explains that the pandemic has exposed and aggravated pre-existing vulnerabilities, and that recovering from its impact requires not just restoring the conditions that existed prior to the pandemic, but “building back better,” pursuing the global development agenda, as articulated in the UN Sustainable Development Goals.

Recovery is an opportunity to address the climate crisis, inequality of all kinds and gaps in our social protection systems. Instead of going back to unsustainable systems and approaches, we need to transition to renewable energy, green infrastructure, sustainable food systems, social inclusion, gender equality, and stronger social safety nets, universal health coverage, better preparedness for health emergencies and multi-hazard risks (UN, 2020, 8).

Of course, “building back better” is no small challenge in the context created by the pandemic, especially because so much of “building back better” involves working on “super wicked problems” that require collective action, not well addressed by market forces and made more difficult by the current democratic politics in contexts of low trust and intense polarization. Further social fragmentation, accelerated by the pandemic, will compound the complexity of addressing these challenges (National Intelligence Council, 2021). Climate change, for instance, is likely to require several changes in government, private industries, and individual behavior that have so far proven elusive (Reif, 2021). Even mitigating the health impact of the pandemic itself has proven especially challenging in the oldest democratic republic in existence, the United States.

For higher education institutions, the financial impact may accelerate the decline of institutions, already severely strained, to the point of closure (Startz, 2020). For reasons that will be articulated in this chapter, universities may be well positioned

to contribute to the structural changes necessitated in society that will allow for the collective action necessary to “build back better.” Whether universities would take on the task of leading in imagining and building a better future, while at the same time having to address the impact of the pandemic on their own internal constituencies and possibly having to reimagine their own existence and future, remains to be seen. But it is at least worth considering that in reimagining their purpose, universities may decide to become more intentional in contributing to imagining and building a better future precisely because this crisis has made this need so pressing.

In this book we ask the question of whether and how, amidst the crisis created by the pandemic, universities have stepped up to serve society with respect to a singular impacted domain: education, and not just education within the university, but pre-university education writ large. In what follows, we explain the need to “build back better” in education, why universities might focus on that challenge, and what the answer to such a question could tell us about the nature of the university as a learning organization with the capacity not just to respond to changes in its external environment but to shape that environment in building a better future.

1.2 Impact of the Pandemic on Educational Opportunity

Institutionalized learning was disrupted by Covid-19 as schools and universities adopted physical distancing measures. On March 3, 2020, UNESCO reported that school closures in 13 countries had interrupted the education of 290 million students around the world (UNESCO, 2020). By the end of March 2020, 3 weeks after the World Health Organization had declared the outbreak, national school closures had impacted 1,581,173,934 learners. All remaining learners, out of a total of 1,712,374,616, had been impacted by localized school closures (UNESCO, 2020). By the end of July 2020, only a very small number of schools and universities had reopened. Soon after, most schools and universities around the world suspended in-person instruction, and many of them adopted alternative modalities of education delivery, including using online learning and relying on radio, television, mobile applications, and printed materials.

Some of these alternative education arrangements represented innovative uses of existing technologies, which was the result of novel forms of collaboration and partnership among various kinds of organizations, including collaborations between schools and school systems and universities (Reimers & Schleicher, 2020).

Early studies of these innovations showed that online learning modalities were not effective in creating comparable opportunities to learn to those provided by school-based instruction and that they were not reaching all students with the same levels of effectiveness (Reimers & Schleicher, 2020). For instance, a study of the education response to Covid-19 conducted between September and December of 2020 in Bangladesh, Belize, Costa Rica, Guatemala, Kenya, Mexico, South Africa, United Arab Emirates, and the United States concludes that “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” (Reimers et al., 2021, 18).

The resulting limited options available to learn during the pandemic led to a growing concern over the impact of the pandemic on learning loss, student mental health, student disengagement with learning and potential dropout, and over the long-term impact of these conditions on students and societies, as well as concern over growing disparities in opportunity to learn.

A series of World Bank simulations of the global impact of school closures concludes that a 5-month closure with moderately effective alternative forms of education could lead to a loss of 0.6 years, reducing the average number of school years students receive at present from 7.9 years to 7.3 years. This would amount to a loss in \$10 trillion in lifetime earnings for the current cohort of students. In addition, close to 7 million students could drop out because of the impact of the pandemic on income for their families (World Bank, 2020, 23).

The magnitude of the shock that the disruption to education, resulting from Covid-19, is expected to cause will likely extend beyond the predicted impact on individual earnings; it would compound the disruptions likely to result from the slow economic recovery that is expected to follow the pandemic. It would also compound many of the other challenges expected to follow, from increased political polarization and governance challenges to the possibility of addressing other development goals, as described in the UN Sustainable Development Goals agenda. In effect, the education consequences of the pandemic could unleash a process of development in reverse, hence the priority of addressing how to “build back better” for education.

1.3 Response of Educational Institutions to the Pandemic and Why Universities Would Want to Help

Educational institutions, from pre-schools to universities, have used a variety of means to provide some form of educational continuity to carry out their instructional mission amidst the challenging conditions caused by the physical distancing requirements. For most institutions, this involved very rapid design and implementation of alternative means of delivery and continuous adaptation based on what they learned about the effectiveness of the approaches deployed.

In effect, schools and universities responded to the disruption caused by the pandemic with an unprecedented global effort in innovation in order to continue to operate and sustain educational opportunity in spite of the distancing requirements (Marinoni et al., 2020). These efforts, many dependent on the use of technology, quickly revealed that not all students had the same access to technology and other supportive conditions that would allow them to learn online (Ali, 2020). Other

students lacked the self-management skills to effectively learn online and to learn more independently than when they attended schools in person. These innovative efforts also revealed skill gaps among teachers for teaching remotely (Reimers & Schleicher, 2020). Finally, not all institutions were prepared to support the new teaching-learning environment, and their regulatory arrangements were not attuned with the new demands.

These challenges also made evident that students and the systems and structures supporting them lacked the skills needed to navigate a volatile and uncertain world, such as capacity to learn independently, resiliency, flexibility, and creativity. As such, they reinvigorated pre-existing interests in helping students develop a range of skills, in educating them holistically, and in significantly improving educational institutions, particularly through the adoption of technology.

The need to meet such ambitious goals with an appropriate level of resources and institutional capacity, at a time when they faced many demands resulting from the crisis, led some education authorities to seek collaborations and institutional partnerships with universities and other organizations. The secretary of education of Sao Paulo, Brazil, for instance, asked some of the most affluent business leaders in the State to partner with the Department of Education in creating a multimedia infrastructure to sustain educational opportunity during the exigency (Dellagnello & Reimers, 2020). He also developed a partnership with the State University of Juiz de Fora, for support in building a formative monitoring system that would help teachers and school leaders assess student engagement and learning as they studied remotely. Similarly, Colombia's Minister of Education built on a pre-existing partnership with a University (EAFIT) to support online learning, creating a robust multimedia platform to support remote instruction.

It is reasonable that some education system leaders should have reached out to universities for assistance in creating alternative means of delivery. Schools share with universities the purpose of educating students and, as such, they have knowledge of how to teach and support teaching. Some had prior experience teaching online and knowledge of digital pedagogies. In addition, because universities are larger and more complex, and have more resources and institutional capacity than schools, they can more easily and quickly develop innovative education approaches in a shifting context such as that created by the pandemic.

In addition to their greater relative capacity and resources, universities are ubiquitous. Today, more than ever before, most school systems, at the national or subnational levels, have access to at least one university. The considerable global expansion of universities during the last two decades made visible that the more than 28,000 universities throughout the world were a significant reservoir of global institutional capacity for rapid innovation in sustaining knowledge creation and dissemination.

Just as it was reasonable for school and system leaders to ask universities for help in sustaining education during the pandemic, it also made sense for universities to undertake such a task, for doing so would simultaneously address important needs while addressing universities' own challenges of relevancy, effectiveness, and sustainability.

Many universities see it as part of their mission to contribute to the development of the communities of which they are a part, through research, education, and outreach (Puukka & Marmolejo, 2008). Universities play a central role as anchor institutions in communities, they are drivers of economic prosperity, and outreach to PreK-12 is one of the ways in which universities advance missions and strategies related to economic development, as well as to support equity and democracy. But supporting schools and school systems within the challenging context created by the pandemic was not just an opportunity for outreach, it was an opportunity to advance knowledge on how to tackle complex challenges. As institutions interested in addressing “super wicked problems,” the challenges created by the pandemic, such as the interruption of schooling, provide an opportunity to exercise and develop the capacity to tackle such problems.

During the pandemic, just as universities contributed to providing viable solutions to the development of testing, vaccines, PPE production and distribution, and other technologies and processes to address the health aspects of the pandemic, they also contributed solutions to upholding the continuity of education provision for the education system as a whole.

Sustaining education during the pandemic required more than finding alternative means of education delivery that overcame the physical distancing constraints. The interruption of in-person instruction created, for schools as well as for universities, the occasion to ask again what should be taught and how and to reprioritize the curriculum. Their shared interest with schools in the central questions of teaching and learning made universities a logical partner for schools, school networks and school systems at a time when a rapidly changing context upended the ability to learn and to teach in the way institutions are most accustomed to.

Beyond the opportunity to generate and mobilize knowledge to help sustain education systems, the education crisis created by the pandemic also provided an opportunity to engage students in higher education in the search for such solutions, in ways beneficial to their own education. Prior to the pandemic, many universities were already grappling with the challenges of helping their own students develop the breadth of skills essential to participate in the twenty-first century, including teaching them civic responsibility and leadership (Nghia Tran, 2018; Matsouka & Mihail, 2016). The many challenges created by the pandemic provided a multitude of “teachable moments” from which students could gain essential competencies; helping pre-collegiate institutions continue to educate was one such opportunity.

In addition to their challenges with relevancy and effectiveness, universities have been struggling to identify ways to deepen their effectiveness while remaining sustainable in the face of growing costs and declining revenues. Universities, particularly in high-income countries with aging populations, were already facing challenges of how to find more sustainable ways to educate students, particularly as most of the recent growth in enrollments has taken place in the developing world. The number of students enrolled in higher education grew from 100 million students in 2000, to 250 million in 2020, and is expected to grow to 594 million by 2040 (Calderon, 2012). Most of that growth will take place in middle income

Fig. 1.1 Number of students enrolled, and projected to be enrolled (in millions), in higher education institutions by region from 2000 to 2040. Worldwide higher education enrollment by global region, actual from 2000 to 2015 and projected to 2040. (Source: Calderon, 2012)

countries in the developing world, with very limited growth in North America and Western Europe as shown in Fig. 1.1.

Facing spiraling costs and declining populations of high school graduates, universities in North America and Western Europe had increasingly sought to meet enrollment targets with a growing population of students from the emerging middle classes in the rest of the world. But the travel restrictions imposed by the pandemic prevented universities from relying on those students, leading to a significant loss in total enrollment and of revenue for many universities in Australia, Canada, the United Kingdom, and the United States (Burki, 2020). In Britain, it is expected that the Covid-19 crisis will produce losses ranging from 3 to 19 billion British pounds, most of it as a result of falling international student enrollment (about 2.8 billion British pounds) (Drayton & Waltman, 2020). In 2019/2020, the international student enrollment in US colleges and universities declined almost 2% in comparison with the previous year, resulting in a loss of 1.8 billion dollars from the prior academic year (NAFSA, 2020).

A further motivation for universities to help school systems mitigate learning loss and the interruption of learning is that the enrollment intake of universities draws from graduates of high schools. Any serious knowledge and skill gaps in a generation of learners would have ripple effects in their subsequent learning at the university level. Universities understand that the undergraduate experience can be greatly enriched and maximized if incoming students are more adequately prepared to cope with the academic and social demands of colleges and universities, and that the increased sophistication of the knowledge and skills necessary to participate in society make the typical 4–5 years of university life insufficient to develop the prerequisite technical and socioemotional skills. The teaching mission of the university builds on the work of teachers in primary and secondary schools. Any significant loss in knowledge and skills among high school graduates would, in time, affect teaching and learning at the tertiary level.

This obvious need for alignment across various institutions supporting the educational trajectories of students has in the past caused universities to seek ways to increase the coherence in that continuum. Some universities have established their own senior high schools, as part of the same university system. Others have engaged in various ways to influence the curriculum and instruction at pre-collegiate levels.

For instance, through rules governing college admissions, universities have influenced the high school curriculum as Harvard's president Charles Eliot did in the late nineteenth century with the creation of a contact hour standard for secondary education in what would eventually become the "Carnegie Unit" after it was endorsed by the Carnegie Foundation to define a standard of 120 h of academic work in a subject. University engagement in pre-collegiate education is also illustrated by James Bryant Conant, Harvard president and chemistry professor, who wrote about how the lack of a solid pre-collegiate foundation in mathematics would deter students from pursuing calculus in college, an essential subject to pursue advanced careers in the sciences. Conant also wrote about the necessity to learn to read German early on, to enable access to research in the field of chemistry (Conant, 1970, 189). The review of Harvard's undergraduate curriculum led by Conant, published in 1945 with the title "General Education in a Free Society," would have considerable influence in high school curricula. His involvement in the expanded use of the Scholastic Aptitude Test in college admissions would support access to college for students from public high schools, influencing the opportunities those schools would provide students to prepare for college. The books Conant wrote at the end of his life on the American high school and on teacher preparation influenced those two institutions.

Government policies have occasionally sought to foster greater collaboration between universities and schools, as did the National Defense Education Act of 1958 in the United States, a response to the soviet launch of Sputnik, that funded the involvement of research universities, such as Harvard and MIT, in designing pre-collegiate science, math, foreign language curriculum, and teacher preparation programs.

Another reason for universities to become interested in collaborating with schools, to continue functioning during the pandemic, is that they represent one of the few institutions with which most members of a society have contact, and they carry out a function that has long-term and high-value consequences for society. At a time when there are questions regarding the contributions that universities make to society, many of them would see it as aligned to their mission: as socially embedded institutions, to contribute to the communities of which they are a part. As such, universities would want to engage in efforts that mitigate the harm caused by the pandemic because it poses such a serious risk to development and well-being of society as a whole.

Universities have good reason to attend to their reputation in the eyes of the public, as public trust in them is declining. In the United States, for example, even though most people still hold a positive view and have more confidence in universities than in most other institutions, with the exception of the military, small businesses, and the police, the percentage of the population with a negative view of the contributions of colleges and universities to society has been increasing significantly in recent years. In surveys conducted by the Pew Research Center in 2019 asking people to evaluate whether colleges and universities had a positive or a negative effect on how things are going in the country, 38% responded they had a negative effect, a 50% increase from 26% who held the same view in 2012 (Parker, 2019). The Gallup organization found a similar decline in confidence in colleges

and universities, from 57% who expressed a great deal or quite a lot of confidence in higher education in 2015 down to 48% in 2019 (Jones, 2018).

The public has less confidence in colleges and universities than in the military (74% have a great deal or quite a lot of confidence), small business (67%), or the police (54%). However, there is more confidence in universities than in the church or organized religion (38%), the presidency (37%), the US Supreme Court (37%), the medical system (36%), banks (30%), the public schools (29%), organized labor (26%), big business (25%), newspapers (23%), the criminal justice system (22%), television news (20%), and Congress (11%) (Parker, 2019).

The disruptions caused by the pandemic provided, therefore, an opportunity for universities to demonstrate that they create value for society, beyond the students they educate directly and in addition to the knowledge they advance. Those contributions of universities to the greater social good were clearly visible during the pandemic through the role played by teaching hospitals, and by their faculty and staff involved in the health sciences and public health, as those professionals engaged with the larger health ecosystem in providing a response to the public health emergency.

For similar reasons to those that drove universities to assist in mitigating the health impact of the pandemic, given the significance of the educational impact of the pandemic and the great salience of its consequences to multiple dimensions of future development, it is reasonable that universities would seek to partner with school systems to sustain educational opportunity during the education crisis of Covid-19. The pandemic provided the university with “A Sputnik moment” to influence school education.

1.4 Why Study How Universities Collaborated with Schools During the Pandemic

The reasons to study whether and how universities engaged with schools to sustain educational opportunity during the pandemic include the insights that such a study could provide about the evolving nature of higher education and its mission, and in particular about the nature of universities as learning organizations capable of learning from and with their external environment. The pandemic is just one instance of a larger class of unpredictable events, and it provides an opportunity to understand how universities respond during an unexpected crisis. On a more practical level, this study might help universities keen to collaborate with schools learn from global experience and perhaps even inspire those in the university community to pursue collaborations along the lines of those examined in this book.

In a world rapidly changing, there is continued interest in ensuring that what students learn in college and what they learn at all levels is indeed relevant and prepares them for the demands of this volatile and uncertain world. Doing this requires that educational institutions be adaptive and in good communication with their

external environment, and that they are able to adjust what they teach and how they operate in response to those changes—that they are, in effect, organizations that can learn. This comparative study will help answer two fundamental questions: Did the high-impact disruptions in the external environment caused by the pandemic show the university is a learning organization? Did the response of universities to the pandemic in fact support the idea that they are institutions open to their external environment, capable of learning from and with their environment?

Arguably, as learning organizations, universities are very much open systems, that is, systems in interaction with their environment, with the capacity to identify changes that can influence them and adapt in response to those changes, in their external environment (von Bertalanffy, 1938; Senior & Swailes, 2010; Argyris & Schön, 1978; Senge et al., 1990). The characteristics of open systems are their relations to and interactions with the environment as well as their ability to scan and discover changes in that environment (Birnbaum, 1988; O'Connor & McDermott, 1997). Universities have not just the capacity to adjust to changes in the external environment, but also to create alternative futures. Through their functions in teaching, research, and outreach, universities can very much imagine and build imagined futures. They are singularly positioned to contribute to “building back better,” to use the exhortation of the United Nations in response to the pandemic, particularly in domains that involve collective action challenges, as mentioned by MIT’s president with respect to climate change (Reif, 2021).

The literature on educational institutions as learning organizations highlights seven features that define them as such:

1. Developing and sharing a vision centered on the learning of all students.
2. Creating and supporting continuous learning opportunities for all staff.
3. Promoting team learning and collaboration among staff.
4. Establishing a culture of inquiry, innovation, and exploration.
5. Establishing embedded systems for collecting and exchanging knowledge and learning.
6. Learning with and from the external environment and larger learning system.
7. Modelling and growing learning leadership (Kools & Stoll, 2016, 3).

Studying how universities engaged with pre-collegiate educational institutions to support educational continuity during the pandemic will help us understand how socially connected the university is to its surrounding context, and how it interprets its responsibility to be an engine of social innovation at a time of great unexpected need. We will also be able to ascertain whether such involvement builds on pre-existing institutional relationships or creates new partnerships.

Such study will also illuminate how such outreach is aligned with the university’s mission and how it relates to the research and teaching missions.

Recent studies of the university argue that, as a result of the growing complexity of roles that the university has taken on, along with how society defines the contemporary university, universities are operating in a context of “super complexity” (Scott, 2020, p. 27). As a result of such super complexity, the onset of the pandemic met universities in a stage of searching for more sustainable ways to advance their mission, perhaps for some even in search of renewal of such a mission.

Examining how universities collaborated with schools to sustain learning during a time of crisis might shed light on how the university interprets its mission during a time of great volatility and interest in accountability and emerging questions about its social role and value. A pandemic is undoubtedly, thankfully, a rare event with high impact on society. It is in fact rarer an event than a solar eclipse, a major earthquake, in most countries rarer than a breakdown of democratic rule, or a civil war. High-impact events of this sort have in the past influenced how universities interpreted, and re-created, their mission. For instance, the second global wave of democratization after World War II and the third wave beginning in the mid-1970s (Huntington, 1993) led universities to embrace the goal of expanding access with unprecedented vigor.

Clearly, there are multifaceted ways in which universities could respond to the pandemic, ranging from how they themselves adapted teaching and learning to the conditions created to the pandemic, to how they managed to carry out other aspects of their mission, including extension and outreach. As part of their outreach mission, the role of universities in attending to the public health aspects of the pandemic is an immediate and obvious area of response. But, as institutions where learning and teaching are core to their mission and that have historically played a significant role defining how learning and teaching should take place, not just while students are enrolled in university but also before, examining whether and how universities focused on the larger social enterprise of teaching and learning, when the enterprise was threatened by a major global disruption, makes sense as well. After all if, as some have predicted, the pandemic accelerated the transformation of teaching and learning at all levels, it is reasonable to ask what role universities have played in that process, not just for their own students but beyond, for the larger teaching and learning ecosystem.

The engagement of universities in the redesign of learning and teaching systems in response to the context of socially distancing created by the pandemic fits squarely within the contemporary interest in more effective and open learning systems within universities, and outside of them (Scott, 2020).

At the root of the study of how universities responded to a significant disruption in their context is the question of how socially embedded universities are. A century ago, the idea that research in universities was carried out by researchers working in the isolation of the ivory tower was replaced by the argument that research was the product of researchers interacting with society; the related argument of the “Triple Helix” explained research as the result of close collaboration between universities, industry, and government (Engwall, 2020, 5). The concept of the “Triple Helix” is the foundation of the idea of the “entrepreneurial university,” the university that serves as an engine of societal improvement. In fact, as universities more formally engage in supporting social entrepreneurship, they are, in reality, relying on a “quadruple helix” framework (Garcia-Gonzalez & Ramirez-Montoya, 2019).

This entrepreneurial, socially embedded university is the idealized model of the American university, which contemporary discourse on “world class” universities propagates as desirable: a university with porous borders with society, open to social change and its impact (Ramirez, 2020, 131).

However, at the same time that universities are lured to pursue the “world class” aspiration, they are also being requested to connect their work more effectively to local needs and realities. In fact, engagement has become so prominent that it is now considered a key component of national or state policymaking, a tool of institutional profiling, and an indicator of performance as part of the broader accountability and system-steering agendas (Goddard et al., 2016).

A related theme, which begets interest in how universities have engaged with pre-collegiate institutions to support education during the global pandemic, concerns the democratic imperative which some authors argue is part of the university mission in our times:

Put most simply, the urgent task before us to reinforce, and maybe reforge, the links between higher education and democracy which, perhaps too complacently, was taken for granted in the twentieth century in the age of mass higher education, now drawing to the close. The twenty-first century university needs to be an open institution –spatially, by opening up closed-off, policed corporate-like academic precincts; scientifically and academically, by embracing open knowledge systems and welcoming new (and challenging) knowledge traditions (and rejecting the exclusionary and hierarchical tendencies of performance and ranking regimes- and, maybe, the seductive discourses of ‘excellent’ and ‘world-class’); and socially, by meeting the needs of everyone, not just of enlarged elites. (Scott, 2020, page 111)

1.5 The Current Study

To conduct this study, we identified 20 universities around the world that had become involved with pre-collegiate institutions during the pandemic. To identify them, we drew on our institutional networks and created an intentional sample of universities that reflected a variety of institutional types—teaching, research, more recent, more established—in a variety of countries. Our aim was to reflect the wide diversity that characterizes higher education globally. We then invited colleagues in those institutions to write case studies, using a common protocol we developed based on a virtual meeting of all participants. The case study was not meant to address all forms of engagement of the university with K-12 education, but rather to examine in particular and in some depth collaborations that were responsive to the challenges created by the pandemic. The purpose of such a strategy was to help understand with some nuance how universities engaged with pre-collegiate education in response to a significant disruption to society, as was the case with the disruption caused by the pandemic, rather than ascertain the full extent of what they had done in response to the crisis.

We discussed drafts of those cases at a virtual conference attended by all authors of the case studies, and then revised them based on feedback obtained from peers at the conference.

The authors of the case studies were asked to write cases that answered the following questions:

Provide a brief profile of your university, including general information about its scale, type (public/private), focus, longevity, geographic location and scope, profile of students, paths followed by graduates, links with industry and other employers, etc. Please include a brief idea of the focus of the current strategic plan.

Describe briefly what the university is doing to support elementary and secondary schools in their efforts aimed at ensuring educational continuity during the Covid-19 pandemic. What is the scale of those efforts? How many elementary and secondary schools are involved? How many students are impacted? How long have these efforts been going on?

What units or departments in the university have been involved in this initiative? Who is funding these efforts? What is the total cost of those efforts?

What was the motivation for the university to undertake this initiative? Was this building on prior efforts engaging the university with K-12 schools, or was this a new initiative?

How are these efforts perceived to be aligned with the mission of the university? How are they aligned with the research and teaching efforts and approach of the university?

What kind of support do these efforts have from the governing boards of the university? From the President's office? From Deans?

What is the rationale of these efforts? What is the hypothesis on which these efforts are based? Its theory of action? Why were these particular efforts initiated and not others?

How did schools participate in designing these efforts described in this case study? How did education authorities participate? Was there any involvement of parents of students?

Is there a monitoring system of these efforts? What is being monitored? How is this information used?

What have these efforts achieved to date? What has been learned from these efforts? How have they been modified over time?

What are some unexpected results of these efforts, positive or negative?

What have been some failures or shortcomings of these efforts? What was more difficult to achieve than you had imagined?

What is the likely future of these efforts? Are there plans to make those efforts more permanent? Or to transition them into a new initiative? Or to close them under certain future circumstances?

The resulting case studies follow a common set of goals and analytic framework, although they differ in that some examine in greater depth a single collaboration with schools, whereas others provide a more comprehensive view of the variety of engagements the university had with schools. Accordingly, there are different emphases in the research questions each case study answers. Collectively, however, the case studies provide a broad overview of the variety and extent of the collaborations that these universities orchestrated with schools during the pandemic.

These in-depth case studies were then supplemented with a survey that we administered to a larger number of universities around the world. The survey was designed to cover a range of the same questions that guided the case studies. The survey was administered throughout our networks, to a larger list of senior administrators in universities. We received 101 responses to the survey (see Map 1.1).

These methods were not designed to answer the question of what proportion of universities had engaged in school collaborations (given the way in which respondents were selected), but rather, to describe and analyze what it was that universities, who had developed such collaborations, did. It should be clear that our evidence originates in a convenience sample, not on a probabilistic sample intended to represent a known population. Given the way in which we recruited the institutions for the case studies and administered the survey, relying on our own professional networks, there are at least two possible sources of bias in the study. The first is that our reach was limited by our respective professional contacts and networks. The second that the respondents are primarily those in our networks who had actually engaged in collaborations of some sort. In other words, if this study shows that universities engaged with schools during the pandemic, it is because those are the institutions we sought out and those that agreed to participate. Finally, this is a study of the immediate response of universities to the pandemic, in the months immediately following the suspension of face-to-face instruction in most countries. It is possible that these efforts will evolve, and change, over time, and that some of these efforts may stop or other forms of collaboration might develop as universities and schools continue to respond to the pandemic.

Map 1.1 Countries participating in the study with case studies and with responses to institutional survey

1.6 Summary of the Cases

1.6.1 *Brazil: Fundação Getulio Vargas*

In Brazil, the Getulio Vargas Foundation (FGV) has focused its support for the continuation of education by providing policymakers with access to reliable information to navigate the crisis, and by making high-quality, online educational resources available to secondary students and education professionals. A distinctive collaboration has been FVG's High School program, whose main objective is carrying out analysis that contributes to the improvement of the quality and provision of upper secondary. Established in 2003, this initiative has worked with state and local governments by providing technical assistance, and it has developed online resources to support teachers and students. Most notably, FVG created a web site that allows students to practice for the National High School Examination (ENEM), which is used by prestigious higher education institutions as an admission test for enrollment. The government decision to transition to an online version of ENEM due to the pandemic triggered a massive increase in the use of FGV's High School practice-test platform. In addition, it opened the door for the establishment of further partnerships with state education offices and schools, with the goal of establishing trustworthy online platforms that can assist teachers in the application of exams and mock tests remotely. FGV's online tool is suited to address capacity gaps at the local level to evaluate and assess students. Other initiatives conducted by FGV in support of school education include the offering of free online courses and a significant effort disseminating best practices and establishing policy dialogue with local governments. The pandemic has enabled an increased level of collaboration among different areas of FGV that focus on elementary and secondary education.

1.6.2 *Chile: Pontifical Catholic University of Chile (PUC)*

In response to a request from the Chilean government to support efforts in coping with the pandemic, an advisory committee was established under the leadership of the Presidents of the Catholic University of Chile (PUC) and the University of Chile (UCh). One of the tasks of this ad hoc committee has been to work on proposals and specific guidelines to help the school system with the necessary measures to provide socioemotional and academic support to elementary and secondary students and their parents. Since PUC and UCh are the oldest, most prestigious, and most selective higher education institutions in Chile, collaboration among them, in general, is relatively limited. However, the pandemic provided a unique opportunity to establish a successful partnership with the hopes that future collaboration may emerge in the post-pandemic world. One of the results of the partnership is the development of specific and adaptive guidelines to implement a prioritized curriculum in schools that will be implemented for the 2020 and 2021 academic years. Also, in

conjunction with other universities, two documents with guidelines for adequate management of schools during the pandemic, and policies for curriculum adjustments, were drafted and disseminated. Finally, at PUC, the system of practical training for students at the Faculty of Education was rapidly adapted into a virtual education environment allowing the design of new materials, coaching of students in schools, etc.

1.6.3 Chile: University of Chile (UCh)

During the pandemic, the University of Chile (UCh) redesigned and maintained an ongoing public-private alliance between the Arauco Educational Foundation, the Center for Advanced Research in Education (CIAE-Universidad de Chile), and Andalien Sur Local Public Education Service (SLEP) with the goal of preventing school exclusion (repetition and dropout) in public schools. The program has been supporting education in a group of 12 schools through pilots, with the ultimate goal of further implementing successful practices in a larger number of public schools in the country. Although UCh has participated in several initiatives in support of continuation of education in elementary and secondary schools, the program “Desafío TEP” was of particular interest, considering the risk that the pandemic would increase drop-out rates in public schools. Within the first 2 weeks after schools were closed, the team organized online meetings, resulting in adapting the program, adjusting the work cycle, establishing more efficient communication mechanisms with school representatives, and further refining the gathering of information on school engagement. Key lessons learned by UCh from the adaptation of the program include the need for ensuring that students feel satisfied and motivated to keep learning, strengthening the communication with families, supporting teachers to make them feel competent and safe, using all technological resources available, and making visible the achievements of students and schools.

1.6.4 China: Tsinghua University (TU)

Tsinghua University is a public university in Beijing, China, with more than 50,000 students, a number of hosts within its main campus, and a network of schools, including Tsinghua University High School (TUHS), International School, Primary School, and Kindergarten, covering all pre-K to Grade 12 for both national curriculum and AP courses. The fact that TUHS implemented a blended learning approach in 2016 supported the transition to online learning due to the pandemic, and it helped to accelerate the restructuring of the curriculum. Another initiative, the Innovative Talent Cultivation Open Forum (ITCOF) hosted by K-16 Technology and Engineering Education Alliance (K-16 Alliance)—a collaborative partnership of TU and the Ministry of Education with the goal of building a stronger tie between K-12 and higher education—involved the participation of educators, researchers,

and practitioners from universities, schools, and governments to share insights into education for innovative talents. ITCOF hosted 18 online public talks in 6 weeks, with speakers from TU, Beijing Normal University, high schools, and ed-tech companies. The talks covered a variety of topics, including education research, policy review, education outlook, learning and teaching strategies, and best practice review. Also, the Student Development Center of TUHS hosted the Minds of Youth (MoY), a learning camp designed during the pandemic with the goal of creating online collaborative learning communities for students from different parts of China, from 6th graders up to undergraduate students. MoY is a 5-day online learning camp aimed at providing opportunities for participating students to learn how to stay positive while learning at home, away from friends and teachers. As indicated in preliminary responses, participants expressed having acquired new perspectives.

1.6.5 Colombia: EAFIT University

EAFIT, a private university based in Medellin, Colombia, illustrates how long-standing capacity-building support, provided by the institution to local governments and schools as part of an ongoing collaboration with the National Ministry of Education (MoE), and with the city government of the national capital, was quickly expanded and adapted in the Covid-19 pandemic. This collaborative work between a university and government is derived from the 2012 EAFIT's development of the UbiTAG model, a holistic approach to digital maturity and change management in schools that has been implemented through ongoing long-term projects in more than 400 schools. Based on this experience, right before the pandemic, EAFIT supported the MoE on the development of *Aprender Digital*, a strategy that became highly useful in response to the Covid-19 emergency. The collaboration of EAFIT with the government is focusing on collectively defining the actions needed for the successful continuation of academic activities in schools, which is in its early stages of implementation. The role of EAFIT has consisted of providing orientation in the creative adaptation of traditional learning methodologies, and transferring the lessons and strategies provided by the UbiTAG model, in order to enhance the continuity of the educational processes of students from their homes. The involvement of EAFIT in support of the government has fostered increased communication and collaboration among different units and schools at EAFIT, although still the connection of the project with the teaching-learning side of the university remains to be enhanced.

1.6.6 India: Symbiosis International University

In the case of India, Symbiosis International University (SIU) illustrates the involvement of a higher education institution with elementary and secondary schools to ensure continuity of teaching and learning during the pandemic for which

experience using remote means to interact with teachers and parents became very useful. Symbiosis Society is a trust that encompasses Symbiosis Schools and Symbiosis International (Deemed University). Symbiosis Schools includes elementary and secondary schools with which SIU has worked during the pandemic. In addition, 23 public rural schools established in Lavale village, the neighborhood surrounding the main campus of SIU, have been “adopted” by SIU even before the pandemic. This occurred through offering training programs for schoolteachers, making technological platforms for the remote delivery of teaching available to schools, and installing solar panels to make possible the use of electronic equipment in cases where no regular electricity is available. During the pandemic, most efforts were devoted to training teachers on how to integrate the Collaborative Online International Learning (COIL) approach into their curriculum. Efforts have been easier to implement in urban schools, with serious difficulties remaining in rural schools. A key element of SIU’s related work is to systematically monitor these efforts through hosting regular meetings with the heads of the schools, attending online sessions to review the quality of implementation, receiving feedback from students and sharing it with teachers, and processing feedback from parents.

1.6.7 Japan: Keio University

Based on research and practice, Keio University developed expertise in implementing distance learning. This know-how was mobilized to support Japanese K-12 education’s efforts with distance learning for education continuity. In addition, a pre-existing partnership between the Ministry of Education and university had the power of changing old regulations and defining the technical specification to carry out a new ICT system to support distance learning. Building on a pre-existing partnership with the Ministry of Education, Keio University developed a model that enables K-12 schools to implement distance education in ways which are socially acceptable and economically feasible.

1.6.8 Mexico: Autonomous University of Puebla (BUAP)

The Autonomous University of Puebla (BUAP) is a comprehensive public university in Mexico at which almost 20% of the 96,409 students are enrolled in 24 high schools located in different cities in the state of Puebla. Prior to the pandemic, BUAP defined an academic model in which entrepreneurship is one of the skills to be prioritized among its students, resulting in the offering of “EmprendeBUAP,” a six-semester face-to-face program which, since its inception, has benefited 16,400 students. As the pandemic forced the closure of facilities, BUAP’s team rapidly transitioned the training program into an online format to guarantee educational continuity. In its new format, “EmprendeBUAP” has reached 18,000 beneficiaries

including not only students but also faculty members and parents, and it is planned to reach an additional 10,000 students by the end of the year. The redesigned online program was developed after extensive consultation with faculty members and school principals, and with participation of instructional design specialists and entrepreneurial consultants. In addition, in observing the challenges faced by students, parents, and faculty members, the team decided to develop another initiative named “Sal de la Curva” (Spanish for “Get out of the curve”). This initiative consists of a series of mentoring sessions with the goal of supporting students in the development of self-knowledge, resilience, and family well-being. To increase its impact, a partnership with universities in Central and South America was established, and it is offered to BUAP’s students as well as to a group of 120 elementary and middle schools in the state of Puebla.

1.6.9 Mexico: Tecnológico de Monterrey University

The case of the Tecnológico de Monterrey University in Mexico illustrates the advantages of having in place an academic model based on the concepts of flexibility and digital pedagogies, which allowed the multi-campus institution to quickly support academic continuity during the pandemic. Specifically, the case describes the experience of two Tecnológico de Monterrey middle schools as they implemented the Flexible-Digital Model (FDM). Since FDM was originally designed to support teaching-learning during the pandemic at the higher education level, some concerns about its applicability in lower secondary education were present among teachers and institutional administrators. Evaluations conducted during the implementation processes helped to identify challenges by teachers (need for training, access to platforms, security, modified assessment, etc.), students (Internet access failures, emotional attention, distraction at home, etc.), and parents (lack of experience with and training on the use of platforms, frustration and anxiety, flexibility, etc.) Preliminary evaluations indicate that a majority of students have been either satisfied or very satisfied with the modified learning experience.

1.6.10 Mexico: University of Guadalajara (UdeG)

The University of Guadalajara (UdeG) is the second largest public university in Mexico, which includes 71 upper-secondary schools, accounting for 50% of the total enrollment at this level in the state of Jalisco. Before the pandemic, academic collaboration between upper-secondary and higher education institutions within UdeG was not systematically monitored and supported, mostly due to the internal governance of the university. However, the pandemic opened opportunities to address the problem and led to a series of actions, including the massive training of around 6000 full-time faculty, 1400 of whom are upper-secondary teachers, on the

use of technology and active-learning approaches by faculty members from the higher education side of the university (professors). In addition, related teacher's training programs, aimed at discussing and rethinking the academic model of the university, were designed for the first time without separating the upper-secondary and higher education levels, engaging all in discussions and joint solutions by faculty members from both levels to address the challenges of the pandemic. This collaborative approach resulted in a series of recommendations for the university leadership, including the need to build common teaching capacities for the entire academic community (an approach defended mainly by the professors of upper-secondary schools but supported by the higher education faculty members) and the need to make the transition between upper-secondary and higher education levels more effective and easier for students.

1.6.11 Morocco: Al Akhawayn University

Al Akhawayn University in Ifrane (AUI), Morocco, located in a low-income, mountainous, and rural area, implemented several student and faculty-led projects aimed at alleviating poverty and exclusion, especially in K-12 education. Many of these projects have benefited primary schools in the area, and some have even had a national impact, some of which occurred in the context of the Covid-19 pandemic. For instance, the CITI (Center for Information Technology Innovation) project developed a platform that houses middle school science teaching materials, which is available nationwide to students and teachers and continues to update the materials with mediated contributions from teachers. This platform with the digital materials proved to be a strong resource for online education during the pandemic.

1.6.12 New Zealand: Massey University

At Massey University in New Zealand, as part of a pre-existing research program on mathematics education, faculty members have been providing support during the pandemic to school leaders and teachers to engage them in a range of new and different ways to teach mathematics to traditionally underserved Māori and Pāšifika students in Aotearoa. The pandemic provided a unique opportunity to mitigate traditional inequity in education for indigenous and Pacific Islanders by involving not only students but also members of their families. While supporting teaching, Massey University researchers examined and explored opportunities to develop a richer understanding of students' funds of knowledge. While recognizing the clear digital divide in access to devices and connectivity, educators participating in the project ensured that families were provided with culturally sustaining mathematics activities at home. The teaching of mathematics using online modalities allowed researchers to observe how engaged family members were in the learning of students, and

how beneficial this involvement was for the improvement of the educational experience of the students. The whole process enabled teachers to gain a better appreciation of family members' involvement in the learning of students. As the lockdown has ended, and schools are in the process of reopening, educators are attempting to find ways to continue the positive relationships they had across their students' communities, which, ultimately, will result in a more equitable mathematics education for underserved populations.

1.6.13 Portugal: University of Lisbon

The Institute of Education of the University of Lisbon (IE-ULisbon) adapted its research and outreach efforts with schools during the pandemic. With a long history of participation in partnerships with elementary and secondary schools, IE-ULisbon continued working with schools during the pandemic with positive results, as indicated in interviews conducted with school principals, teachers, and partnership coordinators. IE-ULisbon implemented a pre-pandemic training on digital competencies provided to teachers from a school cluster in the Lisbon district, which resulted in a Digital Action Plan that was recently developed with teachers. Due to the lockdown, work on this topic transitioned from face-to-face to remote. Thanks to the continuous guidance and involvement of IE-ULisbon, the process was concluded successfully, resulting in an easy adaptation of the use of digital technologies by teachers, students, and parents. Another related experience at IE-ULisbon was the "Let's GoSTEM" project involving 60 teachers and 800 elementary and secondary students with the aim of assessing the impact of a STEM approach on learning, motivation, and interest in further STEM careers. The training phase of the project was scheduled to be held in a face-to-face format as well as the related interaction with students. Both activities were quickly adapted to a remote format. Preliminary findings signal a successful transition and implementation.

1.6.14 Qatar: Qatar Foundation (QF)

Due to its unique role as the primary driver for innovation and educational development at national level, the Qatar Foundation (QF) became involved in supporting education continuity in all levels of the educational system. Universities established at QF's Education City rapidly set up activities aimed at transitioning their existing outreach programs into a virtual delivery mode. At the same time, QF entities supporting the government on the professional development of schoolteachers, developed and conducted massive training programs on the use of technological platforms. The main support efforts from QF consisted of online delivery of teaching, development of online resources, professional development of teachers and principals, research efforts in connection with the continuation of education, and supporting

policy at the national level. In addition, a significant number of activities aimed at supporting delivery of education among the K-12 schools established at Qatar Foundation were made available to outside schools and the public writ large. The whole experience led QF to develop a framework for analysis of actions, which is being used to evaluate effectiveness of interventions, lessons learned, and ways to sustain efforts in the post-pandemic new “normal.”

1.6.15 Russia: HSE-National Research University Higher School of Economics

The case of the National Research University Higher School of Economics (HSE) in Russia underscores the importance that previously established relationships with secondary schools played in supporting the continuation of activities during the pandemic. The different units at HSE have in the past worked at promoting the development of the Russian education system, providing methodological support for education and working with high school students and schools across the country on the use of digital technologies, among other activities. The latest work involved conducting research and analysis and disseminating knowledge, promoting best practices, enabling discussions on experiences and training practices in the pandemic, training schoolteachers and principals, providing online instruction and assistance to students, and helping parents to support education at home. Such work was made possible by the ongoing cooperation of HSE with schools in Moscow and other Russian regions through initiatives, such as the “HSE School District” project, the HSE Distributed Lyceum School, a distance-teaching web site created *ex-professo* during the pandemic, YouTube, and other social media-based educational resources. Additionally, HSE conducted a variety of monitoring and research activities aimed at learning from teachers, students, and authorities on their perspectives about the transition to remote education. The leading role of HSE supporting pre-university education during the pandemic prompted the Russian Ministry of Education to request HSE to prepare a report on the status and context of the education system during the pandemic. Also, an interesting development described in the case is the involvement of HSE students who were recruited to support teaching and provide tutoring to secondary school students.

1.6.16 Spain: Universidad José Camilo Cela

The Camilo José Cela University (UCJC), a private university located in Madrid, is part of the larger organization, SEK Education Group, which administers elementary and secondary schools in several countries. While the collaborative involvement of UCJC with those schools has been in place for a while, due to the pandemic,

several related activities were either adapted or developed to guarantee the continuation of education. One of those activities was the involvement of a group of UCJC university education students as Teacher Assistants supporting the online teaching of primary and secondary teachers. This effort helped high school students directly, but also served as an opportunity for further training and awareness of participating university students. A related activity was the offering of personalized online teacher training programs for schoolteachers, with active involvement of the Teacher Assistants. Additionally, UCJC has been able to continue supporting vulnerable refugees residing in Spain during the pandemic through a network of volunteers, providing counseling, online tutoring, and online socioemotional or mental health support to students and teachers. UCJC has also partnered with local NGOs to support parents and students from vulnerable sectors, and it is remotely supporting the provision of education to refugees in Kenya, especially through female teachers. The whole experience of UCJC's involvement during the pandemic has helped foster innovation and entrepreneurship among students and faculty members, and it has also strengthened the social commitment of the academic community.

1.6.17 Turkey: Bahçeşehir University (BAU)

Bahçeşehir University (BAU), a private higher education institution with six campuses in Istanbul, is part of BAU Global Education Network, which includes two chains of K-12 schools with 180,000 students and 21,000 teachers in about 280 campuses around Turkey. The Faculty of Education at BAU has worked with these schools before the pandemic, through the program "University within School." This earlier engagement made it easier to collaborate with schools during the lockdown providing training to mitigate the anxiety of parents, students, and teachers. Because of the magnitude of the task, the instructors teamed up with master's and PhD students and supervised the counselling of students voluntarily provided in individual and group sessions. Also, a massive dissemination effort was held using social media to share good practices and recommendations. In addition, as a result of a survey conducted in schools, BAU's Faculty of Education set up a wide array of virtual dissemination sessions for parents, teachers, and students focusing on psychological resilience and coping with anxiety. Other activities included leadership skills training for school principals, showcasing technological applications and methodologies to enrich online learning, and an online training on computer technologies for teaching, offered to teachers working in state schools with the collaboration of the Ministry of Education. The overall volunteer work of faculty members from BAU supporting elementary and secondary schools has helped to strengthen the collaboration between the university and schools, and also helped to refine collaboration between different departments of the university.

1.6.18 USA: Arizona State University

The case shared by Arizona State University (ASU) describes how different units at ASU mounted rapid responses to the pandemic that provided elementary- and secondary-level students resources and learning opportunities to which they would otherwise not have had access. Those units include ASU Preparatory Academy (a tuition-free school serving students in grades K-12 chartered by ASU), ASU Prep Digital (a flexible online school offering a path toward college admission), the Gary K. Herberger Young Scholars Academy (a learning environment for intellectually gifted students), and ASU's Mary Lou Fulton Teachers College. Actions focused on assuring a direct provision of education to K-12 learners; supporting schools with human and intellectual capital resources; and curating and making available free educational resources to learners, families, and schools. As ASU has a long-standing experience of partnerships with elementary and secondary schools, many of the existing long-term commitments helped the university develop capabilities that could be quickly applied to help elementary and secondary learners during the pandemic. A key enabler of collaboration with K-12 schools is that ASU has in place a formal institutional vision to universal learning that demands a university be ready and able to deliver instruction in many modalities to all learners.

1.6.19 USA: Massachusetts Institute of Technology

The case study of the Massachusetts Institute of Technology (MIT) describes the efforts and impact of an initiative aimed at supporting remote collaborative learning for K-12 students, parents, and educators. Known as Full STEAM Ahead (FSA), the program was implemented in response to the pandemic and included the offering of weekly themed packages with developmentally appropriate activities for students, and the development of a summer program for middle school students. Both initiatives were established targeting at-risk students with the assumption that MIT can contribute to improving K-12 remote collaborative learning experiences through developing and sharing meaningful curriculum, and by leveraging existing structures and projects within MIT in support of partnerships with the community. FSA's activities have demonstrated that such a collaborative approach has helped to fulfill existing goals and that interaction and community-building are fundamental. It is expected that the resources already developed and the expertise gained in implementing the project will support more effective future outreach efforts of MIT.

1.6.20 Vietnam: University of Education (UEd)

The Department of Educational Sciences at the University of Education (UEd) in Vietnam has a history of ongoing support to K-12 education with a variety of collaborative teaching and research activities; it also has the role of training teachers,

educational specialists, and managers of educational institutions. During the pandemic, due to such involvement with the sector, the UEd immediately started collaborating with the Ministry of Education and Training (MOET) and UNICEF to provide digitally based mental and socioemotional support for K-12 teachers and students, through webinars, social network channels, and TV shows, and by disseminating printed materials. Faculty members from UEd participated in this effort on a voluntary basis. The entire set of initiatives has been well-received by beneficiaries leading to the further development of other training and counseling materials aimed at supporting students through Covid-19. Further monitoring of the different interventions shows that demand for counseling among students during times of crisis is significant, that parents should be involved, and that teachers’ demand for psychological and mental health support is as high as the support requested from students. The success of the support in response to the emergency has reinforced the need to develop plans, drafted from experiences and lessons learned, for a sustained effort beyond the pandemic.

1.7 The Results from the Survey¹

Relying on our institutional networks, we administered a survey to university senior administrators (the survey is available in [Appendix A](#)). We received 101 responses to the survey, half of them from public and half from private institutions, from 21 different countries, as shown in Table 1.1. The survey was administered in June of 2020, just 3 months since the pandemic had been declared.

Table 1.1 Universities that answered the survey by type and country

¹This section draws on a previously published article by Reimers, [2021](#).

Given the way the survey was administered, to an intentional sample of colleagues, it cannot be considered representative of any known population of institutions. The respondents seem to represent primarily teaching institutions. Only a third of the universities which responded indicated that research is the highest institutional priority in the university, a key criterion to hire and tenure faculty. An additional third indicated that it is a priority to some extent. In contrast, 76% of the respondents indicated that teaching represents the highest institutional priority.

Most respondents see engagement with pre-collegiate education a part of their mission. When asked whether they agreed with this statement, “This university does not see engagement with elementary and secondary schools as part of its mission,” only 20% of the respondents expressed total or partial agreement, with 50% expressing total disagreement and 14% expressing some disagreement. Consistent with this, 69% of the respondents report that there is a tradition in the university of partnering with primary and secondary schools for research or extension. To be sure, that they tend to see such engagement as part of their mission does not mean that they see it as an easy endeavor. The respondents report a variety of experiences developing collaborations with pre-collegiate institutions. Two in five respondents indicated that elementary and secondary schools are not particularly receptive to collaborating with universities, while a third of the respondents disagreed with that idea.

One of the ways in which universities engage with schools is through programs of teacher education and maintaining a department of education. Fifty-nine percent of the universities offer a program of pre-service education of teachers, and 74% of them have a department or school of education.

The pandemic did cause most university leaders to reach out to schools. Sixty-four percent of the respondents report that after the COVID-19 pandemic broke out, university leaders or faculty engaged in conversations with institutions involved in elementary and secondary education to explore whether they would welcome or require support from universities to continue to educate during the pandemic, and 61% indicate that the university is engaged with elementary and secondary schools during the Covid-19 pandemic to support those schools in continuing to teach during the pandemic.

The type of school with which universities have developed partnerships to support instruction during the pandemic are presented in Table 1.2. Most university school partnerships involve schools which are part of the same “system” as the university, or schools with which universities had partnerships predating the pandemic. Less frequent are partnerships with schools with which no prior relationships existed as well as supporting governments at the local, state, or national level.

The majority of these schools are located in the same State in which the university is located, with 18 cases where the schools are located in a different State in the same country and 4 located in another country.

Most of these collaborations were initiated by the university, or jointly by the university and the schools. Very few of them were initiated by the schools themselves or by governments.

The efforts during the pandemic were an opportunity to integrate pre-existing collaborations across units in the university and schools, according to 60% of the

Table 1.2 If the university has been engaged with elementary and secondary schools during the Covid-19 pandemic, which type of schools did this include? (more than one response is possible per university)

	Frequencies		
	Total dataset	Private universities	Public universities
A. Schools which are part of the university or of the same “system.” These schools and the university are under the same governance	36	19	17
B. Elementary and/or secondary schools with which it had robust prior partnerships but that are not part of the same “system”	47	26	21
C. Elementary and/or secondary schools with which it had no significant prior relationships	21	13	8
D. Local governments to support them in the development and implementation of strategies for elementary and secondary schools during the pandemic	24	15	9
E. State governments to support them in the development and implementation of strategies for elementary and secondary schools during the pandemic	22	13	9
F. National governments to support them in the development and implementation of strategies for elementary and secondary schools during the pandemic	16	13	3
G. Other intermediary organizations—Networks of schools, organizations that provide support to schools, and foundations—To support them in the development and implementation of strategies to educate during the pandemic	26	16	10
No answer	20	7	13

respondents. Half of the respondents see the collaborations between schools and the university as opportunities to help students in the university gain valuable skills. More than half of the respondents see the collaborations with schools as opportunities to foster connections across various departments in the university.

The collaborations, focused primarily on designing products or making available resources and training teachers or staff to support educational continuity during the pandemic, are shown in Table 1.3.

Over half of the respondents report that there were many challenges in establishing these collaborations with schools. While the decision to initiate the collaborations involved principally senior university leadership (presidents and deans) and faculty, the implementation of the collaboration involves a broader range of constituents, including faculty, staff, and students. The initiative involves, to a similar extent, the office of the president and provost, the office of outreach and extension, the school of education, and other departments or faculties. In most cases, these efforts are funded by the university. The primary motivation to undertake the collaboration was to be of service to society (66% of the cases). In a great majority of cases, this collaboration is aligned with the university’s strategic plan.

Table 1.3 What was the focus of the collaborations of the university with primary and secondary schools included (more than one responsible is possible per university)?

	Frequencies		
	Total dataset	Private universities	Public universities
a. Designing solutions and products that would support learning and teaching during the pandemic	49	27	22
b. Translating research so that it could be used by schools, or others in support of schools so they could continue to teach during the pandemic	21	8	13
c. Conducting research directly relevant to those schools as they continued to teach during the pandemic	13	6	7
d. Transferring practices to schools that allowed them to continue teaching during the pandemic —For instance, sharing lessons learned in teaching online	47	30	17
e. Making available educational, technological, and logistical resources that would support the teaching efforts of schools	37	21	16
f. Training elementary and secondary schools, teachers, staff, and/or principals	48	29	19
g. Other, specify	15	6	9
No answer	20	6	14

Table 1.4 Is there a strategy, or a “theory of action,” or “logical framework” guiding these collaborations of the university with elementary and secondary schools?

	Frequencies		
	Total dataset	Private universities	Public universities
These are efforts without an integrated university wide “theory of action” or “logical framework”	30	15	15
There is an emerging “theory of action,” evolving as we embark on these efforts	25	15	10
There is a clear “theory of action” or strategy guiding these efforts	30	15	15
No answer	16	5	11
Total	101	50	51

When asked if there is a clear strategy or theory of action guiding these collaborations, the responses are equally divided between those where there is a clear strategy (about a third of the cases), those where there is an emerging strategy, and those where there is not a strategy as shown in Table 1.4.

In most cases (60%) the collaborations were designed as rapid prototypes that are being improved on the basis of experience. In a similar proportion of cases, there is a monitoring system that allows continuous improvement. While there are monitoring and formative evaluations in three quarters of the cases, impact evaluations or

Table 1.5 Have these efforts been evaluated in any way? (more than one responsible per university is possible)

	Frequencies		
	Total dataset	Private universities	Public universities
a. We have collected evidence that has been used to manage and improve those collaborations	56	30	26
b. We have conducted formative evaluations of those collaborations	22	13	9
c. We have evaluated the impact of those collaborations	15	10	5
d. These collaborations are the basis of applied or academic research carried out by academics at the university	20	9	11
	21	8	13

academic research based on those collaborations are less frequent, as seen in Table 1.5.

In about half of the cases, the collaboration is visible or highly visible within the university and outside the university.

1.8 Conclusion

The Covid-19 pandemic upended life as we knew it, causing disruptions in many areas of life. Facing those disruptions, universities sought not just to make adjustments so they could continue to carry out their teaching mission, while attending to the restrictions caused by the pandemic and measures to mitigate it, including the restrictions to in-person instruction; instead, universities reached out to schools to support teaching and learning. They did so in a variety of ways, in most cases building on pre-existing relationships with schools, school networks, and school systems. They did this in the spirit of rapid prototyping, prioritizing timeliness in the response, and gradually refining and improving their engagement.

While universities engaged with schools because they saw service to society as part of their mission, such engagement also served to advance knowledge, outreach, and the education of university students, in effect promoting greater integration among these three goals. It also served to connect various efforts across the university. While it is too early to determine the effectiveness of those efforts, or whether they will be sustained in the long term, they illustrate the university’s capacity to respond quickly to changes in the external environment and to not only adjust to the global crisis caused by Covid-19 but to participate in creating a better future. The following chapters present in detail how 20 universities engaged in these efforts and what those efforts mean about the evolving role of the university’s purpose in a world made more challenging and uncertain by the pandemic.

Appendix A: Survey Administered to an Intentional Sample of Universities in June 2020

GEII_HigherEducation_K12

Q1 This is an invitation to participate in a study on the role of higher education institutions supporting educational continuity at the elementary and secondary school levels during the Covid-19 pandemic. The purpose of this survey is to examine whether, to what extent, and in what ways, universities have supported elementary and secondary schools [1] in the delivery of education during the Covid-19 pandemic. Please complete the survey before August 7, 2020. This study is conducted by the Global Education Innovation Initiative at the Harvard Graduate School of Education with participation from colleagues in the Qatar Foundation for Education, Science and Community Development, and 25 universities around the world. **The survey should be filled out by a person who has information on the overall engagements of the university with elementary and secondary schools. This could be a senior administrator with a broad overview of university engagements, or a faculty member involved in such efforts.** If you do not have information about those broad efforts, please do not fill out the survey, and forward it to the person in the institution that has such knowledge. The results of this survey will be presented in an academic book that examines whether the Covid-19 pandemic created and/or strengthened collaborations among schools and universities around the world. The results will be reported in aggregate form, with categories that group universities by type (public-private, research-teaching), size, and geography. No individual level results for any participating university will be reported. Names of universities participating in the survey may be identified in the description of the methodology, only if they so authorize this in this survey. Participation in this survey is voluntary. The survey includes 50 multiple option questions and should take about 30 min to complete. Your results will only be transmitted once you press submit at the end of the survey; you can suspend participation at any time.

[1] Our definition of “elementary and secondary schools” includes all formal levels of education before the ones offered at the undergraduate level in colleges and universities. ISCED Levels 0, 1, 2, and 3.

Q2 Your name:

Q3 Email address where we may contact you?

Q5 Name of the university

Q6 May we contact you with follow-up questions, if we have them?

☐ Yes (1)

☐ No (2)

Q7 Would you be interested in receiving a copy of the report based on this survey?

- ☐ Yes (1)
- ☐ No (2)

Q8 This university is ...

- ☐ It is a Public university, a State institution (1)
- ☐ It is a Private university (2)

Q9 Country

Q10 In what year was the university established?

Q11 Total undergraduate enrollment (these are students in degree granting programs at the bachelors or equivalent level ISCED level 6)

Q12 Total graduate enrollment (these are students enrolled in masters or doctoral programs ISCED level 7)

Q13 Total enrollment in community, junior college, or associate degree (ISCED level 5)

Q14 Total enrollment in secondary, primary, or preprimary school (ISCED levels 4 and below)

Q15 Approximately what percentage of the university budget comes from tuition revenues?

Q16 Approximately what percentage of the university budget comes from research?

Q17 Approximately what percentage of the university budget comes from donations or returns on investments of donations?

Q18 Approximately what percentage of the university budget is a public subsidy or appropriations?

Q19 Focus on research. To what extent is this university one in which carrying out research is the highest institutional priority, a key criterion to hire and tenure faculty members, and a significant part of the university budget?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q20 Focus on teaching. To what extent is this university one in which teaching is the highest institutional priority and a key criterion to hire and tenure faculty members?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q21 To what extent do you agree with this statement: “In this country or region, elementary and secondary schools are not particularly receptive to collaborations with universities”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q22 To what extent do you agree with this statement: “This university does not see engagement with elementary and secondary schools as part of its mission”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q23 To what extent do you agree with this statement: “In this university we have a tradition of partnering with primary and secondary schools for research or extension”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q24 Does the university have a program that offers pre-service education of teachers?

- ☐ Yes (1)
- ☐ No (2)

Q25 Does the university have a department or school of education?

- ☐ Yes (1)
- ☐ No (2)

Q26 After the Covid-19 pandemic broke out, did university leaders or faculty engage in conversations with institutions involved in elementary and secondary education to explore whether they would welcome or require support from universities to continue to educate during the pandemic?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Don't know (3)

Q27 To what extent did this university engage with elementary and secondary schools during the Covid-19 pandemic to support those schools in continuing to teach during the pandemic?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q28 If the university has been engaged with elementary and secondary schools during the Covid-19 pandemic, which type of schools did this include? (select all that apply)

- a. Schools which are part of the university or of the same “system.” These schools and the university are under the same governance. (1)
- b. Elementary and/or secondary schools with which it had robust prior partnerships but that are not part of the same “system.” (2)
- c. Elementary and/or secondary schools with which it had no significant prior relationships. (3)
- d. Local governments to support them in the development and implementation of strategies for elementary and secondary schools during the pandemic. (4)
- e. State governments to support them in the development and implementation of strategies for elementary and secondary schools during the pandemic. (5)
- f. National governments to support them in the development and implementation of strategies for elementary and secondary schools during the pandemic. (6)
- g. Other intermediary organizations—networks of schools, organizations that provide support to schools, and foundations—to support them in the development and implementation of strategies to educate during the pandemic. (7)

Q29 If the university engaged in collaboration with primary and secondary schools, where were those schools located? (select all that apply)

- a. Within 10 kilometers of the university (1)
- b. In the same State where the university is located (2)
- c. In other States in the same country where the university is located (3)
- d. In other countries (4)

Q30 What was the focus of the collaborations of the university with primary and secondary schools included? (select all that apply)

- a. Designing solutions and products that would support learning and teaching during the pandemic. (1)
- b. Translating research so that it could be used by schools, or others in support of schools so they could continue to teach during the pandemic. (2)

- c. Conducting research directly relevant to those schools as they continued to teach during the pandemic. (3)
- d. Transferring practices to schools that allowed them to continue teaching during the pandemic—for instance, sharing lessons learned in teaching online. (4)
- e. Making available educational, technological, and logistical resources that would support the teaching efforts of schools. (5)
- f. Training elementary and secondary schools, teachers, staff and/or principals. (6)
- g. Other, specify (7) _____

Q31 How many elementary schools were reached by these efforts?

Q32 How many secondary schools were reached by these efforts?

Q33 How were those collaborations initiated? (select all that apply)

- a. They were initiated by the government (1)
- b. They were initiated by schools (2)
- c. They were initiated by the university (3)
- d. They were initiated jointly by schools and the university (4)
- e. Other, specify (5) _____

Q34 To what extent do you agree with this statement: “the engagement of the University with elementary and secondary schools during the pandemic created an opportunity to integrate a number of collaborations with elementary and secondary schools taking place in various units across the university into a more coherent effort”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q35 To what extent do you agree with this statement: “the collaborations with elementary and secondary schools provided new opportunities to help students in the university gain valuable skills”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q36 To what extent do you agree with this statement: “the collaborations with elementary and secondary schools created opportunities for collaboration across departments in the University”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q37 To what extent do you agree with this statement: “there were many challenges in establishing and implementing collaborations between elementary and secondary schools and the university”?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q38 Who was involved in the institutional decision to collaborate with schools? (select all that apply)

- a. Senior university leadership (President and Deans level) (1)
- b. Faculty members (2)
- c. University trustees (3)
- d. Heads of non-academic departments (4)
- e. Students (5)

Q39 Who is involved in the implementation of the collaboration? (select all that apply)

- a. Administrators of the university (1)
- b. Professors (2)
- c. Institutional support staff (3)
- d. Students (4)

Q40 What units or departments in the university have been involved in this initiative? (select all that apply)

- a. Office of the President or the Provost (1)
- b. Office of Outreach or Extension (2)
- c. School or Department of Education (3)
- d. Other Schools or Departments (specify) (4)

Q41 Who is funding these efforts? (select all that apply)

- a. Funded by the University (1)
- b. Funded by the beneficiary Schools (2)
- c. Funded by the Government (3)
- d. Funded by Foundations or Donors (4)
- e. Other, specify (5) _____

Q42 What was the primary motivation for the university to undertake this initiative?

- ☐ a. It was an opportunity to be of service to society (1)
- ☐ b. It represented a research opportunity (2)
- ☐ c. It was an opportunity to enhance the education of students in the university (3)

Q43 To what extent is this collaboration with schools aligned with the University strategic plan?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q44 Is there a strategy, or a “theory of action,” or “logical framework” guiding these collaborations of the University with elementary and secondary schools?

- ☐ a. These are efforts without an integrated university wide “theory of action” or “logical framework.” (1)
- ☐ b. There is an emerging “theory of action,” evolving as we embark on these efforts. (2)
- ☐ c. There is a clear “theory of action” or strategy guiding these efforts. (3)

Q45 To what extent do you agree with this statement: These collaborations were designed as rapid prototypes which are being improved as the result of what is being learned during implementation?

- ☐ To a great extent (1)
- ☐ To some extent (2)
- ☐ Neutral (3)
- ☐ Not much (4)
- ☐ Not at all (5)

Q46 Is there a monitoring system of these efforts that is used for improvement of those efforts?

- ☐ Yes (1)
- ☐ No (2)

Q47 Have these efforts been evaluated in any way? (select all that apply)

- a. We have collected evidence that has been used to manage and improve those collaborations. (1)
- b. We have conducted formative evaluations of those collaborations. (2)
- c. We have evaluated the impact of those collaborations. (3)
- d. These collaborations are the basis of applied or academic research carried out by academics at the university. (4)

Q48 How visible is this collaboration within the university?

- ☐ Highly visible (1)
- ☐ Visible (2)
- ☐ Not very visible (3)
- ☐ Largely unknown (4)

Q49 How visible is this collaboration outside the university?

- ☐ Highly visible (1)
- ☐ Visible (2)
- ☐ Not very visible (3)
- ☐ Largely unknown (4)

Q50 By what name is the initiative recognized among those who are involved?

Q51 Can we include the name of the university in the list of institutions acknowledged in the methodology section of the report?

- ☐ Yes (1)
- ☐ No (2)

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