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Veintie, Tuija

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The (im)possibilities of education in Amazonia: assessing the resilience of intercultural bilingual education in the midst of multiple crises

Tuija Veintie ^a, Johanna Hohenthal ^a, Katy Betancourt Machoa^b, and Anders Sirén ^c

^aGlobal Development Studies, Helsinki Institute of Sustainability Science, University of Helsinki, Helsinki, Finland;

^bIndependent Researcher, Puyo, Ecuador; ^cInti Anka Taripay, Puyo, Ecuador



ABSTRACT

Transition to distant education modality due to Covid-19 pandemic raised concerns about widening educational inequalities worldwide. This article examines Amazonian Indigenous youths' access to upper secondary schooling in Ecuador and the resilience of the Intercultural Bilingual Education system in the face of global health emergency with other concurrent crises. The majority of students and teachers in the studied schools lack access to online education opportunities, while self-study guides proved to be a feasible way to continue studying. This study demonstrates the weak response of the state, highlights Indigenous community resilience and concludes with Indigenous visions for future education.

Introduction

Since the outbreak of Covid-19, many countries interrupted face-to-face instruction in schools as part of the measures aimed at reducing the risk of contagion. With lockdowns peaking in April 2020, school closures affected as much as 91% of students throughout the world (UNESCO2020a). The emergency caused by the Covid-19 has exacerbated preexisting inequalities, and the negative short- and long-term consequences will likely affect marginalized students, girls and women most severely, as well as students who attend disadvantaged schools, live in remote areas, have low socio-economic status, learning difficulties, disabilities or other factors that create barriers to accessing schooling and achieving learning goals. The confinement measures adopted in Ecuador in March 2020 included the nationwide closure of all educational institutions. The Ministry of Education established a Covid-19 educational plan detailing national-level guidelines for all educational establishments and built an Internet portal for students and teachers to share digital materials (MinEduc, 2020b).

A survey of high-school students in Ecuador during the first months of confinement found that a considerable number of students participated in tele-education (Asanov et al., 2020). However, the response rates were low among students in the bottom wealth quartile, students whose mothers are less educated, Indigenous students and students living in remote areas, all of whom may have less access to technology. We find it fundamental to study more closely the impact of the pandemic on learning opportunities within the less privileged regions and among less privileged students. In Ecuador, due to structural inequalities, Indigenous peoples and nationalities are disadvantaged in terms of access to public services, including schooling (Harrison et al., 2017; Instituto nacional de estadísticas y censos [INEC], 2010). Moreover, in several Amazonian Indigenous communities, the Covid-19 outbreak concurred with extreme flooding (Cárdenas, 2020) in a time of national economic crises and financial cuts in the education sector (Aguirre Rea et al., 2020), which resulted in a situation

CONTACT Tuija Veintie  tuija.veintie@helsinki.fi  Global Development Studies Faculty of Social Sciences, University of Helsinki, Finland, 00014

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where multiple interconnected crises (Pescaroli & Alexander, 2018) are intersecting with the vulnerable position of Indigenous people with respect to having access to schooling and combatting the impacts of climate change.

Several studies have addressed the educational impacts of the pandemic, some also focusing on Indigenous peoples' education, but mainly based on the reviews of secondary data (e.g., Brant-Birioukov, 2021; Dietz & Mateos Cortés, 2021; Sánchez-Cruz et al., 2021). Moreover, the studies do not explicitly consider how the educational impacts of the pandemic entangle with the impacts of other concurrent social and environmental crises. Our study is based on qualitative inquiry and draws on interviews with directors from nine Intercultural Bilingual Education (IBE) upper secondary schools and a case study from the Kichwa community of Sarayaku (meaning "river of corn"), affected by extreme flooding. The article examines 1) how the pandemic affected Indigenous young people's access to upper secondary education in the Pastaza Province in Ecuadorian Amazonia, and 2) which factors fostered the resilience of the IBE schools and Indigenous communities to respond to the educational challenges in a multi-crisis situation.

We begin this article by reviewing literature concerning educational equity for the Amazonian Indigenous peoples and educational consequences of the digital divide, which has become a major factor contributing to inequality at the prolonged periods of confinement. Thereafter, we present the conceptual framework based on community resilience and describe the data and methods. The first section of findings provides an overview of the Indigenous youths' access to education during the initial phase of the pandemic, while the subsequent three sections focus on diverse dimensions of educational and community resilience. We conclude with final discussion and suggestions.

Educational equity in Ecuadorian Amazonia

Historically, Indigenous peoples in Latin America have been marginalized in the society and in the mainstream national education systems, which adhere to homogeneity instead of responding to the cultural and linguistic diversity of the multi-ethnic population (López, 2017). Mainstream schools have furthered Indigenous peoples' cultural assimilation and language loss by imposing the majority language as the only language of instruction and by assuming the superiority of Eurocentric knowledge over Indigenous knowledge (Cortina, 2014).

One of the responses to decenter the colonial structures in the education system is the Intercultural Bilingual Education (IBE), which emerged in Latin America in the 1970s and forms an intrinsic part of Indigenous organizations' efforts at realizing self-determination (López, 2017). In Ecuador, since 1993, IBE functioned as an autonomous education system under Indigenous leadership, but was co-opted by the national education system at the time of the education reform and passing of the new organic law on intercultural education in 2011 (Hernández Loeza, 2016). The state's top-down policies, centralized governance and national curricula undermine the Indigenous demand for diversification and local community-level administration in terms of curricula and educational approaches and methods (López & Sichra, 2017). Illicachi Guzñay (2015) argues that IBE has been trying to change the national education system from the inside and strives for greater study and inclusion of Indigenous knowledge, but the Ecuadorian state subverts these endeavors by limiting Indigenous peoples' autonomy over IBE. Thus, Indigenous concepts and cosmovision have not materialized in the classrooms or curricular and pedagogical proposals. Some Indigenous organizations have also suggested to disengage from IBE and the state education system, and return to earlier model of locally administered communitarian education (Hernández Loeza, 2016).

Educational equity and the digital divide

Lack of access to and expertise in using information and communication technologies (ICTs) among the Indigenous people particularly in rural areas (Borrero, 2016; Resta, 2011), has deepened the existing educational and social inequities and challenged the resilience of the IBE schools during the

pandemic. The digital divide refers to unequal physical access to computers and the Internet as well as to the historically inequitable access to encouragement and support in pursuing technology-related careers in education and other professional fields, to learning experiences that incorporate the digital realm in progressive ways and to non-hostile and culturally relevant Internet content (Gorski, 2005, 2009). Access to such resources vary also based on gender, socio-economic status, ethnic group and disabilities. Despite increasing investments in and a search for cost-effective wireless solutions, typically Indigenous communities in rural and remote regions still have only limited physical access to ICTs and other necessary infrastructure, including electricity (Cherubini, 2020; Resta & Laferrière, 2015; Robinson et al., 2020). Moreover, digital learning materials are mostly available in non-Indigenous languages and represent Western epistemologies. Schools in remote regions often lack resources and qualified teachers to integrate ICT into teaching in pedagogically sound and culturally responsive ways (Resta & Laferrière, 2015).

The digital divides causing disparities in learning between Indigenous and non-indigenous students during the pandemic have been reported e.g., in Canada (Cherubini, 2020), Australia (Bennett et al., 2020), Americas and Caribbean (Robinson et al., 2020; Sánchez-Cruz et al., 2021). In Ecuador, a survey done between 2013 and 2020 shows that even though access to computers, smart phones and the Internet has increased nationally, the access to such technology is clearly lower in rural than in urban areas (INEC 2021). Access to distance-learning technologies is lower among Indigenous students, students from lower income groups and students who live in remote Amazonian regions (Asanov et al., 2020) where, the difficult topography and hot and humid climate pose particular challenges and increase the cost of building the infrastructure for fiber-optic networks and maintaining digital devices (Ministerio de Telecomunicaciones y de la Sociedad de la Información [MINTEL], 2020). In June 2021, in the Amazonian Pastaza Province, the coverages of fixed and mobile internet access were 47,6% and 52,4%, respectively, while on average in the Sierra region, the coverages were 78,9% and 85,9% (MINTEL, 2021, reported in Primicias, 2021). The telecommunication network and infocenters are concentrated in the western part of the Pastaza province that has urban centers and a road network (Figure 1), while many remote areas in the eastern part of the province do not have access to services.

Conceptual framework – community resilience and resistance

This paper focuses on the resilience of Indigenous communities and their acts of resistance in the face of the pandemic and state-imposed education policies. For Indigenous peoples, resilience is primarily collective and refers to the strengths of Indigenous communities and families to protect themselves from colonial structures and assimilation, and to overcome adversities that affect their health, wellbeing and environment (Fuente Carrasco, 2012; Stewart-Harawira, 2018). Resilience is to a certain extent about adapting to and navigating one's way through repressive structures, but it also lays the groundwork for resistance, a direct opposition to and rejection of those structures (Penehira et al., 2014).

Values that support Indigenous peoples' survival and resilience in the time of the pandemic include "putting the community before the self" and "commitment to future generations" (Brant-Birioukov, 2021; Smith, 2020). Other central features of community resilience in times of crisis include social learning, socio-environmental transformation and the capacity to envision and take action to create alternative futures (Brown, 2014) aligned more with the Indigenous worldview. These in turn lead away from conditions dominated by unequal and marginalizing structures, which initially made the community and the education system vulnerable and which impede the recovery and transformation of established social processes (Weichselgartner & Kelman, 2014). In the Ecuadorian Amazonian Indigenous context, the resilience of the education sector is closely linked to dynamic forms of community resilience and resistance. Therefore, it cannot be evaluated merely as the capacity to maintain the provision of education in exceptional circumstances; it also entails the possibility to recognize structural inequities and transform the education system.

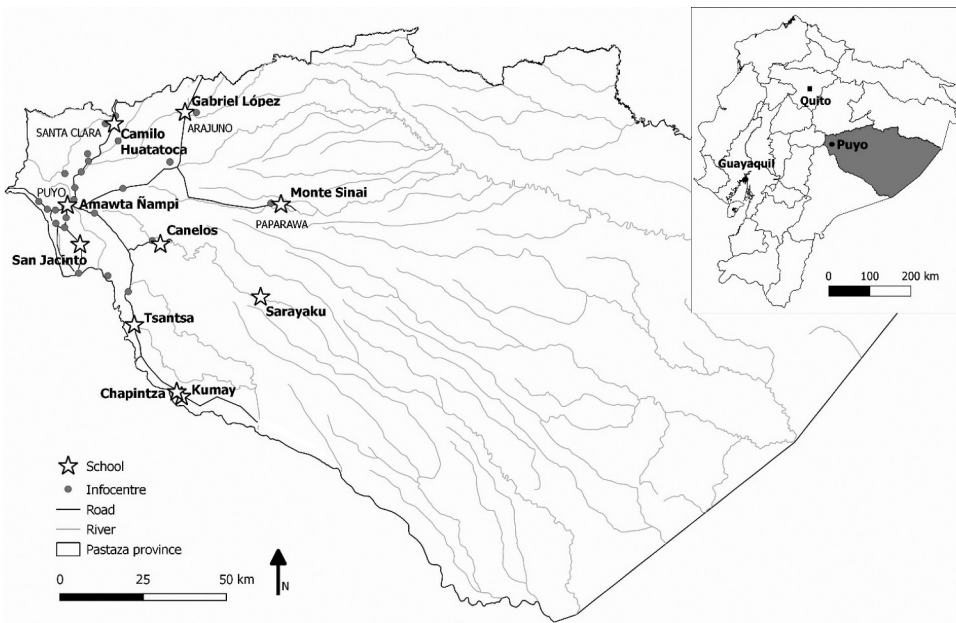


Figure 1. Locations of the IBE schools included in the study and infocenters in Pastaza Province (Source for infocenters MINTEL 2021).

Methodology

We visited IBE upper secondary schools in Ecuador's Pastaza Province in 2018 and 2019 as part of a multi-disciplinary research project focusing on the education of Amazonian Indigenous youth, with social and environmental justice perspective. At the time of the coronavirus outbreak, we considered crucial to observe the effects of the school closures and the rapid transition to distance education on students and teachers. To gain an overview of the situation we conducted qualitative semi-structured remote interviews in May-June, 2020, with the school directors and teachers (Table 1) from nine out of 14 IBE schools that our research group had visited previously (Figure 1). In case of five schools, interviewing was unfeasible due to scarce or non-existent telecommunication services in the school locations. Most of the interviewees represent Indigenous nationalities, and the interviews were conducted by the third author, who is Amazonian Kichwa. In the interpretive content analysis of the data, we focused on the challenges and strategies to provide instruction to the IBE upper secondary school students upon transitioning to distance education. These initial interviews gave an overview regarding the modality of teaching, students' and teachers' access to ICTs, the potential for virtual education, the availability and production of educational materials, students' advancement in their studies, and the support schools had received during the first three months of the pandemic.

We sent a report on initial findings to the interviewees and discussed with the interested participants in an online meeting, thus providing the findings first to the participants (Denzin & Lincoln, 2008) and verifying our interpretations. The findings of the initial study are partly reported elsewhere (Machoa, Veintie & Hohenthal, 2021). Based on the initial study, we identified a need to study further the educational resilience of the Indigenous communities during the pandemic and other concurrent crises.

In October and November, when spread of the coronavirus had diminished in the Indigenous communities of Pastaza, we conducted a qualitative case study including observations and face-to-face interviews in the Kichwa community of Sarayaku (Figure 1), which had been experiencing extreme

Table 1. Interview data.

No	Time	School	Majority Ind. nationality	Civil parish	Interviewee (code)
1.	11 May	Amawta Nampi	Kichwa	Puyo	Director (D1)
2.	12 May	Camilo Huatatoca	Kichwa	Santa Clara	Director (D2)
3.	15 May	Kumay	Shuar	Simón Bolívar	Director (D3)
4.	16 May	Canelos	Kichwa	Canelos	Director (D4)
5.	18 May	Gabriel López	Kichwa	Arajuno	Director (D5)
6.	19 May	Chapintza	Shuar	Simón Bolívar	Director (D6)
7.	20 May	San Jacinto	Kichwa	Madre Tierra	Director (D7), 2 School coordinators (C1, C2)*
8.	20 May	Monte Sinai	Kichwa	Curaray	Director (D8)
9.	3 Jun	Tsantsa	Shuar	Simón Bolívar	Teacher (T1)*
10.	5 Oct – 9 Nov	Sarayaku	Kichwa	Sarayaku	Deputy director (SD1) 4 Teachers (ST1, ST2, ST3, ST4) 17 Students (SS1, SS2, SSG1***, SSG2****) 3 Parents (SP1, SPSP3) 2 Community leaders (SL1, SL2)

*Group interview with three persons. **The director could not be reached, thus a teacher was interviewed instead.

Group interviews with nine 3rd year female students. *Group interview with six 3rd year male studentsx

flooding at the early period of the pandemic. The fourth author, a European researcher with many years of experience in living in Sarayaku, conducted Interviews with the deputy director of the Sarayaku IBE upper secondary school, teachers, students, parents and community leaders. The initial study guided us to refine interview questions for this case study. The interviews, accompanied by observations, provided multivocal data on Indigenous community experiences related to education during a period of multiple crises. In the analysis we alternated between inductive and theory-oriented readings (e.g., Jackson & Mazzei, 2018) by coding the data according to interview themes and topics deriving from data, triangulating the data with the initial study, then re-coding and analyzing both data sets using the analytic framework of resilience and resistance. In the analysis, the initial study explored the common educational challenges in IBE schools in the Pastaza province, while the case study addressed the complexity of the multiple dimensions of inequalities in multi-crisis situation in the context of a particular Indigenous community (cf. Harrison et al., 2017).

Transition into distance education in IBE upper secondary schools in Pastaza

The initial interview data from nine IBE schools indicated that teachers and directors started working from home at the onset of the lockdown, but particularly those living in remote rural areas lacked the necessary equipment or Internet connection for teleworking (Machoa, Veintie & Hohenthal, 2021). Even if the teachers had physical access to internet, they lacked prior experience or training in virtual education, meaning they had limited possibilities to plan and implement progressive learning experiences using digital technology (see Gorski, 2005). Moreover, most students had limited or no access to ICT, which also impeded the implementation of virtual education.

Initially, the Ministry of Education introduced a virtual education platform and later instructed the teachers to distribute assignments every week via other means to the students not having access to the Internet or educational radio or television broadcasts (MinEduc, 2020a). At the time of the interviews, only three of the nine schools had used the educational resources offered by the Ministry of Education. In addition to accessibility problems, a director claimed these materials were designed for “another reality” (D1) and should have been adapted to the realities of the Amazonian nationalities and modified according to the IBE model. The weekly format applied by the ministry differs from the

IBE format for self-study guides that include activities for a study unit lasting 4–6 weeks. The IBE secretary (SESEIB) had also started preparing educational materials for the IBE schools, but by the time of the interviews, none of the studied schools had received them.

Self-learning has appeared in the IBE model since its establishment by the Ministry of Education and Culture (1993) and proved an important option during the pandemic. In several IBE schools the teachers rapidly produced self-study guides, and this preparedness contributed to the resilience of the IBE education system by providing students with a means to continue their academic activities even without access to ICTs. However, economic factors produced inequality, as the state did not provide funding for all the schools to produce educational materials. Therefore, several of the schools lacked resources to print the materials to the students (Machoa, Veintie & Hohenthal, 2021). The key factor in receiving support was self-administration by the school directors and community organizations. The delivery of the materials was also an issue because some students, fearing contagion, retreated to their *purina*, the secondary home deeper in the rainforest where the family has crops and hunting areas. Usually, families go there when the children are on vacation. Historically, *purinas* have been used as refuges in times of epidemic (Siren, 2014).

Altogether, the majority of the directors were concerned that transition from the face-to-face teaching at school to self-studying at home, affects students' school performance. Most of the directors were also concerned about the stress and emotional burden experienced by students. At the same time, almost all of the directors affirmed that learning that takes place together with parents is important and the pandemic allowed the youth to spend more time with their parents. However, due to the lack of remote connections it had been impossible to track students' study progress and how they had engaged in informal learning within the family (D3). Therefore, informal learning was one of the topics we studied more in detail in the case study in Sarayaku.

Community of Sarayaku is located along the river Bobonaza, without road connection. Most students and teachers in Sarayaku do not have access to ICTs and the Sarayaku IBE upper secondary school lacks Internet connection, computers and radios. Some of the teachers have a computer or a mobile phone. The availability of electricity is quite limited, which restricts the use of electronic devices. There is no infocenter or cyber cafe in the community, but some students use the Internet and a computer through the local community organization, though this connection is slow and can only serve a few persons at the same time. According to the interviewees, some people in the community had recently installed satellite Internet connection at home, but none of the interviewed students and only one of the teachers reported to have access to internet from home. Seven of the 17 interviewed upper secondary students have a mobile phone, none has access to a computer at home, while almost all of them have access to a radio. Due to minimal access to ICTs, virtual education is not feasible in Sarayaku.

Education in time of multiple crisis

Only a few days after the government had announced the state of emergency as a result of the pandemic, major flooding occurred along the river Bobonaza and its tributaries, affecting Sarayaku along with other riverside communities. Heavy rains and floods are common in the Ecuadorian Amazonia, but land cover changes and global climate change are expected to increase the occurrence of extreme events (Marengo & Espinosa, 2016). According to the interviewees, the flood in March 2020 was the largest in Sarayaku's living memory and caused severe damage:

This flooding affected us greatly. It destroyed houses, crops, fish tanks, chickens, it washed away everything. And some schools. The classrooms fell and it [the school] was totally destroyed. For example, the library here was totally destroyed. [-] On top of that, the bridge washed away. The bridge that was the only way to cross from one side to the other. (ST2).

During the first two months after the flood and the school closure, the only academic activities at the upper secondary school were the tutoring meetings with the third-year students who were doing their graduation projects. The teacher (SD1) who was responsible for the third-year students claims that some of the students did not want to attend classes, and some had gone to the *purinas*, waiting for the pandemic to pass.

According to the interviewees, a considerable number of people in Sarayaku were infected with the coronavirus disease. In June 2020, when a health brigade entered the community, over 25% of the tests taken proved positive (Cárdenas, 2020). The interviewees estimated that “more than 50%” (ST4), “a majority” (SL2) or “almost 90%” (ST2) in the community were eventually infected. One of the interviewees (ST2) mentioned that contagion may have occurred because many people from Sarayaku traveled to Puyo and back after the floods to replenish their stocks of food and necessities that they had lost. The case exemplifies how disaster recovery operations may increase the risk of disease transmission and cascading crises (Quigley et al., 2020). Prior research has shown that extreme events caused by climate change threaten Indigenous food systems, which rely on Indigenous ecological knowledge and customs (Harper et al., 2019), and thus such events have had a negative impact on the resilience of Indigenous communities during the pandemic (Zavaleta-Cortijo et al., 2020). The community traditional way to share the same drinking vessel between people also probably spread the virus (Sirén et al., 2020). However, community tradition also provided the remedy, as most of the interviewees claimed that local natural medicine contributed to a quick recovery (SL1, SL2, ST2, ST4, SS1, SP1, SP2). A recent study conducted in 13 Amazonian Kichwa communities found a similar pattern of widespread contagion, low mortality rate and reliance on medicinal plants in majority of the studied communities, indicating their resilience against covid-19 (Sirén et al., 2020).

After three months of confinement, the Sarayaku upper secondary school adopted a semi-presential instruction modality, meaning that the teachers and students met at school 1–2 times a week. Teachers reported that they did not receive or produce study guides or other pedagogical materials for studying at home, thus text books were the only available material (ST1, SD1, ST3). However, as one student explains: “some [students] could not do their homework because their books had gone with the river. Those who had books did their homework and we borrowed the books between classmates so that we could do our schoolwork” (SS2). Based on the initial study in nine IBE schools as well as interviews with teachers and students in Sarayaku, textbooks had limited utility during distance schooling, when the teacher was not available to guide the students in reading, interpreting and reflecting upon the texts. The mainstream education textbooks provided in Spanish by the Ministry of Education have been utilized in IBE schools since the 2011 education reform, while before the IBE system had produced its own educational materials in Indigenous languages (Martínez Novo, 2016).

One of the teachers raised the issue of social inequality, noting that students in some other schools tend to receive help from parents when studying at home, while in Indigenous communities he argues the role of teacher is crucial: “the students learn through teachers, when we explain clearly, and they learn by practicing. Now we just gave the theory, a piece of paper for them to do. This lowered the level of education” (ST3). In rural Indigenous communities, many of the parents have not attended upper secondary school (cf. INEC, 2017), and may have limited possibilities to help their children with school assignments. Moreover, earlier studies indicate that instruction methods that involve direct observation and interaction between learners and facilitators, including listening to the advice of elders or teachers, are an integral part of meaningful learning experiences for Amazonian Indigenous students (Veintie, 2013). Thus, teachers have limited possibilities to facilitate meaningful learning experiences in a distance or semi-presential modality. In sum, the interviewees assessed that semi-presential vis-à-vis presential instruction negatively affected learning outcomes, leaving significant gaps in students’ learning.

At the time of the interviews, more than seven months after the floods, the community leaders (SL1, SL2), teachers (ST2, ST4) and parents (SP1, SP2) claimed that the responsible authorities had not supported the community nor answered to their requests. In words of a teacher: “The Sarayaku organization tries to support the school, but we have no support from the state.” One community leader claimed that the imposition of virtual education nationwide demonstrated government incapacity to acknowledge the regional differences, and the particular conditions in Amazonia:

The state knows that indigenous communities don't have infocenters where students can attend virtual education, yet still they issue a national-level provision that education should be done in a virtual space. That will never work for indigenous peoples because the state has somewhat abandoned educational decisions here. Not all educational institutions have an infocenter with Internet, let alone families, students. That never worked. We had to look for our own methodologies so that students would have some sequence of classes (SL2).

Community and educational resilience

The lack of state support forced the Sarayaku community to find its own ways to deal with adversity. The interviewees' accounts portray that the community is gradually recovering through the efforts of the community members, and self-management by local leaders and the local Tayja-Saruta organization. One of the fathers explains that the community did not receive support from the state for a school that flood washed away, but the community was having a *minga* (communal work party) to build a provisional classroom: “Through the self-management by Tayja-Saruta [the community] is going to build a *choza* [traditional house] . . . Tayja-Saruta helps with buying nails and other materials” (SP2). One of the students related how Tayja-Saruta organized transportation by canoe to cross the river to go to school because the flood had washed away the main bridge (SS1). Such community organization and division of communal work forms intrinsic part of the community ethos that fosters Indigenous community resilience (Fuente Carrasco, 2012).

Community resilience in Amazonia has a solid foundation in Indigenous cosmovision. One way to conceptualize the cosmovision is the Kichwa concept of *sumak kawsay*, which can be translated as beautiful life or a life in plenitude, meaning that people should live their life in harmony, aiming for the mutual wellbeing of the person, family, community and nature (Morocho, 2012). According to Indigenous leader Luis Macas (2010), *sumak kawsay* is based on principles of reciprocity, redistribution, collective ownership and working together for the good of the community. The community resilience through living in reciprocity was further described by a community leader who explained how people in the community shared their food with their extended families in response to the food security crisis caused by the flood, and concluded claiming: “We are from the rainforest, we have adapted, we have the expertise, we were able to respond” (SL2). The rainforest expertise includes knowledge on natural medicine, and as one of the teachers affirmed “Sarayaku arranged a group of people to go and find medicinal plants other than what the families were already using. This group went deeper into the rainforest to find plants that cannot be found near here. The [natural] medicine was prepared and it was given to families.” (ST2) One of the fathers stressed the importance of such expeditions to gather medicinal plants to find the most useful drugs to combat the effects of covid-19 as a necessary local resolution to the health crises claiming “They [western scientists] are working on medicine against covid, but when will it arrive here? Now that the economy of the country is ruined. It's best that we do research on ancestral medicine here, for self-defense” (SP2). This quote exemplifies the distrust of public health services, particularly in time of national economic crises. At the same time, the respondent accounts show confidence in community organization and Indigenous knowledge. Here, Indigenous knowledge is portrayed as resilient, responsive to crises and prone to innovation (Brant-Birioukov, 2021).

When the youth did not go to school due to confinement, they instead participated in the communal work, helped their families in the household chores and learned new skills. One teacher explained: “My children learned to make a canoe. They had not made one before, but now they

learned. The youth learned many things” (ST2). In another teachers’ words: “when they [youth] are with their family, they also learn. We always say that children and youth, they learn with the family as they go hunting, making reed baskets and bags. In general, they have practiced the *sacha runa yachay* (knowledge of the people of the rainforest)” (ST4). Thus, young people were learning practical skills needed in life in the local environment. The respondents also refer to learning values, such as responsibility and respect toward ancestral knowledge, as described by one of the Indigenous leaders:

Now there is a co-responsibility between parents and young people and now [they are] taking up classes again with great seriousness and enthusiasm. Young people have put the covid aside, have begun to respond positively: get up early, drink guayusa [traditional herbal drink made of *ilex guayusa* leaves], be with parents . . . The young people were the ones who also cooperated a lot in the debate on how to recover natural medicine. Today, I think that these young people are highly prepared and alert; we are alert (SL1).

Thus, while confinement interrupted the typical school routines, it provided young people with opportunities to strengthen family bonds and engage in learning with the family. Intergenerational learning plays a central role in the Indigenous thinking of *sumak kawsay*, harmonious and reciprocal life where community fosters Indigenous knowledge and wisdom as a collective, transmitting it from generation to generation (Macas, 2010). The tradition of having guayusa, for instance, contributes to such intergenerational learning, as the early morning moments for having the herbal infusion with the family may involve storytelling, discussing local history and events, and elders giving advice to the younger generation (Dueñas et al., 2016).

Resilience, resistance and visions of the future education

A group of students expressed critical views toward the nationwide quarantine claiming “we should have normal classes. People got scared for nothing. Covid did not kill anyone” (SSG2), as well as a teacher who argued “Better if we would have continued teaching until [Covid-19] arrives here, suspend classes only in the moment that it arrives here, so as not to lose so much” (SD1). Thus, at the beginning of the new semester in September 2020, when the Ministry of Education announced that instruction would continue in the virtual modality, the community leaders, parents and teachers in Sarayaku decided to adopt face-to-face schooling. A community leader explains this decision: “We have asked for this period to have presential classes so that this gap that has occurred can be recovered. In this year, it will be necessary to make an effort at levelling, which will serve the high school graduates so that they can take the exams to enter higher education” (SL2).

In this particular moment, the community assessed that virtual education is not feasible, and the semi-presential modality does not guarantee a good level of learning, and therefore resisted state-imposed virtual modality, defending their equal right to education. Moreover, both interviewed community leaders noted the existing educational inequalities that the pandemic had exacerbated and suggested making profound changes in national education policies, stressing that the national education system should recognize and be inclusive of diverse forms of Indigenous education among the Indigenous peoples throughout the country (SL1, SL2). The community resistance to unsuitable and inequitable nationwide resolutions intertwines with Indigenous peoples struggle for self-determination regarding their education (see Penehira et al., 2014).

Usually, the right to self-determination can be implemented through self-government with “localized, culturally specific and territorialized application and practices” (Kuokkanen, 2019, p.). In Ecuador, the Confederation of Indigenous Nationalities of Ecuador (CONAIE) has demanded such territorial self-government (Ospina Peralta, 2010), but the Ecuadorian state and national education policy limits the Indigenous autonomy regarding their education (Illicachi Guzñay, 2015; Martínez Novo, 2016). According to an Indigenous leader: “Already ten years ago Sarayaku presented our own education proposal. For a long time, schooling of Indigenous peoples has limited and disrupted our own education. Our aim is that our own education would be included into the state schooling system. Now we will reopen this initiative” (SL2). One father spoke about

the two-fold role of education in preparing young people for higher education and to live in and with the rainforest: “Physics and Chemistry is important so that [the youth] will get along in the University. Then knowledge that we need to survive in Sarayaku is to fortify *sumak kawsay*, improve food security, how to live together with the rainforest, manage the natural resources. If we do not learn it, our resources will not sustain. We need to know about hunting and fishing. For example, we cannot hunt too much, we need to leave animals so that they reproduce, we should eat only so much that our children also have animals to eat.” (SP2). The quote epitomizes the commitment to future generations (cf. Smith, 2020) and describes Indigenous education in the “tone of Sarayaku” (SP2), as education based on *sumak kawsay*, living sustainably, conserving and protecting nature and the local food system, thus contributing to the community resilience. Moreover, the vision of Indigenous education based on *sumak kawsay* entails resistance to the homogenizing national education policies, commodification of nature and conception of development as economic growth (Chuji, 2014). The interview data also represents Indigenous community resilience in the form of envisioning alternative futures and fostering Indigenous approaches that have potential to transform education systems in and beyond Indigenous communities. An Indigenous leader described his vision for an educational transformation in schools and universities alike:

It is important that universities also make an educational reform, a pedagogy for life. We call it the pedagogy of mother earth, linked to conservation. It has three important poles: the knowledge of the people of the rainforest, pedagogy and the earth. We have to speak in a critical way to all universities so that they would evaluate the content. What does an Indigenous student have to study? Not to confront, not to go against the people, but that students in the university would study based on the concept of sustainability, with a philosophical context of preserving mother earth, nature and conservation. In that sense, I think that a transformation must be made in the curriculum, in the contents. (SL1).

Discussion and conclusions

In this study, we have focused on the experiences of indigenous communities within the first half-year from the onset of the pandemic. Despite the limited temporal and spatial focus of the study, it adds to the thus far meager body of research on the impacts of the pandemic on Indigenous people’s education particularly in remote areas. It also contributes to the research of Indigenous resilience in multi-crisis situation.

The initial study portrays multiple dimensions of inequality during the pandemic related to the digital divide and Indigenous young peoples’ unequal access to ICT and culturally relevant learning content (see Gorski, 2009). Similar result has been observed, for example, in Mexico, where a national distance learning programme developed as an emergency action has been a backlash for intercultural and bilingual education and their linkages with local communities (Dietz & Mateos Cortés, 2021). To further educational equity it would be important both to provide more equitable access to the Internet and digital technologies and to improve the accessibility of virtual education resources in terms of their cultural and linguistic relevance to Indigenous students (Sánchez-Cruz et al., 2021). However, the national economic crisis (Aguirre Rea et al., 2020) may slow down the desired improvements in the telecommunication network in Ecuador (MINTEL, 2020). Currently, as shown in the findings of this study, Amazonian students are more likely to have access to radios and smartphones than to television or computers and sound Internet connections. Therefore, research and innovation on culturally relevant ways of using radio and mobile phones to support learning in the Amazonian context and to foster communication between students and teachers would be beneficial.

The unequitable access to distance learning opportunities is likely to widen the learning gaps between students, and to widen the digital gap as well. While the rapid transition to virtual studying due to the pandemic may eventually contribute to a digital leap and building the digital literacy skills of those teachers and students who have sound access to ICTs, it may also cause those without such access to fall even further behind. As youth need to be increasingly prepared to navigate their way through a techno-centric society and digitized global world (Resta, 2011), this together with the

learning gap may lead to further social inequities. Schools and teachers should prepare to address the post-pandemic disparities between students who have had unequal possibilities to continue their studies during the school closures, and to design “culturally appropriate and informed courses of action” (Cherubini, 2020, p. 4). The unequal opportunities also concern school directors and teachers, as many of them, particularly in the rural areas, have not had the possibilities to continue their work and professional development due to limited ICT access.

The Sarayaku case study portrays an Indigenous community coping with a multi-crisis situation that threatened the health, well-being and access to education, concurrently. The Sarayaku people encountered indifference from the state and needed to tackle the situation without public aid. The community experiences in the multi-crisis situation seemingly reinforced people’s trust in ancestral knowledge, community resilience and self-management with regard to health care, food security, reconstruction efforts and education. Moreover, many research participants found that the halt in schooling provided a welcome opportunity to intensify family bonds and intergenerational learning. When young people were not at school, they had more chances to engage in learning within the family and practicing the *sacha runa yachay*, thus fostering Indigenous knowledge and wisdom. The opportunities to benefit from intergenerational learning as well as to reconnect “with place and land” during the school closures have been highlighted also for example, among the Indigenous communities in Canada (Brant-Birioukov, 2021) and Mexico (Dietz & Mateos Cortés, 2021). However, more research is needed particularly under the prolonged period of confinement and in the context of concurrent crises.

The Sarayaku case study exemplifies how Indigenous community members recognized structural inequities and through community organization and collective decision-making opposed the national level order to continue in distance education modality. The community leaders also envisioned wider self-determination in terms of an IBE system that would adequately adapt to and support Indigenous education and cosmovision in each Indigenous community, acknowledging the diversity among Indigenous peoples. In their vision, formal education would no longer alienate Indigenous young people from the *sumak kawsay* but help them maintain their cultural integrity, practice the *sacha runa yachay*, and protect mother earth at the same time as they pursue upper secondary and higher education. Halting and reversing environmental degradation (Chuji, 2014; Macas, 2010) and reinforcing and protecting Indigenous food systems in line with Indigenous cosmovision and using Indigenous knowledge have the potential to contribute to post-pandemic recovery and Indigenous community resilience to pandemics and climate change effects (Zavaleta-Cortijo et al., 2020). Thus, Indigenous self-determination and local and Indigenous environmental knowledge should be high priorities in the post-pandemic recovery plans.

The Covid-19 pandemic has put the education systems’ resilience to the test globally and highlighted its vulnerabilities and disparities. UNESCO (2020b) emphasizes the central role of education in the post-pandemic recovery, and calls for action to ensure the recuperation of marginalized students’ learning losses, and to transform education systems as a means of furthering the goals of equity and sustainability. More research is needed in minoritized communities to re-think the current educational practices and to envision equitable and “culturally thriving” (Bang, 2020, pp. 434–435) post-pandemic futures from the minoritized perspectives. It would be important to elaborate on what the Indigenous knowledge, resilience, adaptation and innovation (Brant-Birioukov, 2021) could offer for the potential reevaluation and readjustment of, not only the IBE, but the national education system of Ecuador and beyond. We hope that this pandemic functions as an educational turning point toward more inclusive and equitable quality education, as defined in Sustainable Development Goal 4 (UN General Assembly, 2015), helping to increase educational resilience in the face of multiple crises.

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ORCID

Tuija Veintie  <http://orcid.org/0000-0001-6048-2097>

Johanna Hohenthal  <http://orcid.org/0000-0002-5191-6399>

Anders Sirén  <http://orcid.org/0000-0003-4159-4506>

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