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Digital inequalities across higher education in the global South and global North since the start of COVID-19

A review of the literature

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Introduction

Higher Education has been repeatedly thought of as critical for the development of the skills, knowledge and expertise considered fundamental for social and economic development (Schuller et al., 2004). More recently, it has been positioned as a crucial space for democratisation to flourish, with increasing pressures on elite social institutions to widen participation (Morley et al., 2009) and to "actively seek to address social inequality and promote equity and social justice" (Mbati, 2019, p. 254). Nonetheless, social inequalities hampering choice, representation and participation in higher education continue to exist based on class, race, gender, socioeconomic and geographical backgrounds (Devkota, 2021). In part, this can be attributed to the technocratic 'consciousness' (Fischer, 1990) of elite institutions, which among other conventions, standardise the use of digital systems and structures, which often are inaccessible or unfamiliar to students from socially disadvantaged backgrounds (Timmis & Muhuro, 2019).

Since the beginning of the Covid- 19 pandemic in 2020, a sharp transition to online platforms has been observed in the Higher Education sector. Such exponential reliance on digital means has not only exacerbated the pre-existing inequalities but forged new ones, particularly for those already marginalised (Atherton, 2020; Timmis & Muhuro, 2019). This situation demands universities' urgent attention to identifying the many forms in which the digital transformation of education has disrupted learners' engagement and the increasing inequalities emerging as a result of the transition to emergency online learning.

This report sets out the findings from an international literature review of empirical research exploring how the expansion of digitalisation in higher education has transformed and disrupted students' access and participation during the pandemic. In doing so, it draws attention to spatial, social, material, and educational inequalities for undergraduate and postgraduate students across a wide range of countries from all continents. In attempting to draw attention to pre-existing power imbalance dynamics, access, and resources across the breath of contexts reviewed, we adopt the macro categories '*Global South*' and '*Global North'*.

The use of South-North terminology has grown exponentially over the last 15 years, becoming a well-received way of framing research questions (Haug et al., 2021). It has marked a shift from the earlier attention to (under)development by placing the emphasising on more complex geopolitical relations (Waisbich et al., 2021). Despite this shift, making use of the 'Global South' and 'Global North' categorisation is far from ideal and continues to be a contested topic. One of the main criticisms relates to the reductionist nature of binary definitions that oversimplify the vast contextual differences across and within countries as if they were homogeneous (Skupien & Rüffin, 2020; Waisbich et al., 2021). Furthermore, such distinctions might reinforce the idea that countries in the "North" offer the key to enhancing educational and research

quality of the "South" whereas those in the "South" are either trying to catch up or are merely recipients of the wisdom and expertise of the "North" (Sabzalieva et al., 2020). Whilst acknowledging their imperfect and overly dualistic nature, these terms are far preferable in our view, to outmoded, derogatory, and deficit terminology such as 'developing' and 'third world' countries. We have therefore adopted the Global North/South categorisation cautiously to acknowledge spatial inequalities in relation to higher education and to reflect on the contrasting experiences of students across these broad 'global societies' (de Sousa Santos, 2016) whilst acknowledging the risk of oversimplifying the complexity of a global environment as well as inequalities at an intra-national level and within universities (Trahar et al., 2020).

Within each of these contexts, we place considerable attention on the experiences of students who have been exposed to the most exclusionary pressures and marginalisation. In doing so, we explore the ways in which inadequate processes to ensure *participation, presence,* and *achievement* (Ainscow et al., 2006) of vulnerable students can lead to exacerbated forms of marginalisation. Hence, this report, through an international review of recent literature, teases out the different forms of intersecting inequalities experienced by students while engaging in online emergency education.

This report adopts a sociological lens that allows us to explore the local, spatial and cultural divides that contribute to exacerbated digital inequalities. In doing so, we draw attention to the multiple ways in which online learning as a practice embedded in wider sociocultural contexts can be made inaccessible for students. Hence attention is not paid only to students' availability of digital devices or connectivity, as earlier discourses of the 'digital divide' (Lembani et al., 2020) have done. Beyond these more evident inequalities, we look into the social dynamics framing students learning practices.

Methodology

This report draws on an international literature review undertaken in 2022 to investigate and review empirical research exploring the learning experiences of higher education students in relation to digital exclusion and digital inequalities during the pandemic. The review was guided by the overarching research questions below:

- How has the expansion of digitalisation of higher education through the pandemic influenced access, participation and well-being in higher education in Global South and Global North universities?
- What are the key factors – spatial, social, material and educational – that are critical to such changes?

- In what ways are new inequalities introduced through learning and teaching online including digital skills and future labour-based inequalities and how do these differ across contexts intra and internationally?

The keywords used for our search were developed through an iterative exploratory process to probe the viability and potential breath of the study. After an initial search with a broad focus of keywords, a wide array of research across disciplines was identified. Among others, some of the observed research areas included learners' experiences, staff experiences, interventions, behavioural studies, technology-focused research, as well as a variety of studies across educational levels. Given our interest in inequalities in relation to students' learning, we developed a curated list of terms with a stricter focus on the learning experiences of higher education students during the pandemic. The list of keywords used for this study, hence, included a combination of synonyms for the following five terms: "higher education", "digital", "COVID-19", "student" and "inequalities". A list of excluded keywords was also developed to omit studies with no relevance to our research questions. These words were "adult education", "child", "training" and "staff". Peer-reviewed papers and grey literature were included in the criteria. However, publications classified as opinion reviews or commentaries were omitted due to our interest in empirical research.

The two main databases used to run the search were "ERIC" and "Web of Science". ERIC was selected as it is one of the leading databases in Education. Web of Science, although having a much broader scope across disciplines, was included due to its wider language and regional reach. This was a fundamental methodological component as the review aimed to be inclusive of papers written in English and Spanish languages.

A total of 1518 references were initially obtained across both databases; from which 78 were duplicates. Out of the 1440 remaining publications, 152 were selected for full-text screening following the standards recommended by the *Preferred Reporting Items for Systematic reviews and Meta-Analyses* (PRISMA). Finally, 53 references from ERIC and Web of Science were included in this review. Appendix B details this process including the criteria for excluding references from the full text review stage.

Furthermore, to make sure that no relevant references were neglected from key journals in Higher Education, we manually reviewed recent editions of six journals[1]. Five more papers were additionally included from this search. In addition, the University World News website was explored to identify the latest publications related to universities response to Covid

[1] The six journals included for manual search were '*Teaching in Higher Education'*, '*Studies in Higher Education', 'Learning, Media and Technology', 'Higher Education', 'Higher Education Research and Development',* and *'Compare'*

restrictions, from where two publications were selected. Hence a total of 60 references are included as part of the review.

As detailed in Appendix C, the studies in this report have coverage of empirical research carried out across all continents. Representation is included from the following countries: Australia, Austria, Bangladesh, Botswana, Canada, China, Ecuador, Eswatini, France, Germany, Ghana, India, Ireland, Kenya, Lesotho, Malaysia, Mexico, Morocco, Namibia, Nepal, Pakistan, Palestine, Philippines, Portugal, Saudi Arabia, Spain, South Africa, Sri Lanka, Switzerland, Turkey, Uganda, United Kingdom, the United States and Vietnam.

In order to explore similarities and differences across Global North and Global South contexts, we categorised our 60 reviewed literature using as a reference the United Nations' list of countries participating in the "South-South" cooperation (see FCSSC, 2015). Given that China is included in the groups of these countries, we have classified them as part of the Global South.

Key Areas (KA)

Our review unveiled a noticeable overlap over several forms of exclusion and marginalisation suffered by students as a result of the transition to emergency online learning globally. We explore these forms of exclusion through 7 key areas (henceforward referred to as KA) that unpack learners' lived experiences through their social context. The seven KA include: *home study conditions* (i.e., KA1), *digital literacies* (i.e., KA2), *institutional support* (i.e., KA3), *uneven conditions to undertake assessments* (i.e., KA4), *spatial and digital inequalities* (i.e., KA5), *disabilities* (i.e., KA6) and *other intersecting inequalities* (i.e., KA7). Whilst presenting each KA, we juxtapose the experiences of students across Global North and Global South universities, highlighting contrasts and commonalities reported across these broad regions.

By discussing issues of materiality and spatiality along with entrenched inequalities related to gender, disabilities, and race, we aim to draw attention to the several intersecting factors exacerbating digital inequalities. Our understanding of digital *divides*, hence, does not simply look at a binary division between information "haves" and "have-nots" as earlier discourses of digital inequality (Lembani et al., 2020) have done. Rather, it draws on a wider set of factors that intersect with exclusion and unequal access to material, spatial and cultural resources.

KA 1. Home study conditions

Among the reviewed papers, research exploring the conditions in which students engaged in education from home was by far the most prevalent concern. Out of 60 references included in this review, 47 of them included at least one research element exploring how uneven conditions for study enforced by being "stuck at home" exacerbated pre-existing inequalities and led to the emergence of new forms of learning constraints. Uneven conditions were

explored along the lines of *i) access to devices and the internet*, and *ii) the conduciveness of the home environment to study*. In the review we draw attention to the different layers and degrees of inequalities across Global North and South universities as well as different forms of exclusion for students from under-represented communities within these broad contexts.

i. Access to devices and the internet

Unsurprisingly, issues related to technological resources and connectivity were tackled by a substantial proportion of the reviewed references. When contrasting findings from academic publications across the Global North and South, an evident gap was observed both in terms of devices and the internet. The unequal technological infrastructure and internet connectivity across this context was also highlighted by the Association of Commonwealth Universities in a survey across 33 countries (ACU, 2020).

Research on Europe-wide universities (i.e., Doolan et al., 2021), and research on universities in the discrete contexts of Austria (i.e., Aschenberger et al., 2022), USA (i.e., Castelli & Sarvary, 2021; Errisuriz et al., 2022; Herold & Chen, 2021; Kiebler & Stewart, 2022), Germany (i.e., Eberle & Hobrecht, 2021) and Spain (i.e., Faura-Martinez et al., 2021; Rodicio-Garcia et al., 2020) consistently reports that the majority of students owned laptops and perceived their internet connectivity at home as adequate to continue their education through digital means during the pandemic.

Contrastingly, studies conducted in Global South universities laid bare the disproportionate deprivation for students. Network failures, insufficient bandwidth and reliance on smartphones as the main device for study were commonly reported across South Africa (Azionya & Nhedzi, 2021; Fouche & Andrews, 2022; Makgahlela et al., 2021; Maphalala et al., 2021; Pillay et al., 2021), Namibia (i.e., Kaisara & Bwalya, 2021), Uganda (i.e., Olum et al., 2020), Botswana, Eswatini and Lesotho (i.e., Ndzinisa & Dlamini, 2022)Saudi Arabia (Aljedaani et al., 2021; Bakhsh et al., 2021), Nepal (i.e., Devkota, 2021), Sri Lanka (i.e., Gamage & Perera, 2021), Bangladesh (i.e., Hamid et al., 2021), Pakistan (i.e., Iqbal et al., 2022; Nazir & Khan, 2021), India (i.e., Kapasia et al., 2020), Morocco (i.e., Iflahen & Benkhallouq, 2022), Malaysia (i.e., Harun et al., 2021a), Philippines (i.e., Asio et al., 2021; Dayagbil et al., 2021), Mexico (Andraca-Sanchez et al., 2022; i.e., Balderas-Solis et al., 2021; Zapata-Garibay et al., 2021) and Vietnam (i.e., Dinh & Nguyen, 2020).

Alongside this North-South divide, the reviewed studies also unveiled within-region inequalities between more affluent students and those more underprivileged. For example, a few studies conducted in the Global North explored differences in students' experiences according to their socioeconomic status (Garcia-Louis et al., 2022; Kiebler & Stewart, 2022; Kuhn et al., 2022; Malet Calvo et al., 2021), ethnicity (Means & Neisler, 2021) or spatial areas (Cullinan et al., 2021; Puente, 2022), suggest that lower-income, students from ethnic minority

backgrounds and students from rural areas were more severely affected by internet issues and device availability.

Comparably, research in the Global South found marked differences in access to resources through the pandemic. Differences were found, for example, among students attending public and private universities (i.e., Benalcazar et al., 2022; Zapata-Garibay et al., 2021), students facing financial hardship, and consequently, the kind of devices available and the quality of internet connection (i.e., Arik, 2021; Bakhsh et al., 2021; Iflahen & Benkhallouq, 2022; Maphalala et al., 2021), as well as the spatial differences (i.e., Devkota, 2021; Hamid et al., 2021; Kapasia et al., 2020; Makgahlela et al., 2021).

ii. Conduciveness of home environment for studying

Regarding how conducive students' home environment was for helping them engage in their learning activities, important overlaps were found across our reviewed literature for example in relation to students' availability of dedicated study space at home and issues of caring responsibilities. These are discussed below.

— *Dedicated study spaces*

Good working conditions were commonly found across Global North contexts. A Europe-wide survey launched by the European Students Union found that from 17116 students in 41 universities, most (66%) had a quiet space to study and, nearly 8 out of 10 had availability of a desk at home "always"(Doolan et al., 2021). Comparably, Aschenberger et al.'s study conducted in Austria (i.e., 2022) indicates that "students perceived their home learning environment as being mostly adequate" explaining that "nearly four in every five students (75%) had access to a home-based learning space at all times" (Aschenberger et al., 2022, Characteristics of home learning environments section, para. 1). Similar home study circumstances were found in a study in Spain (i.e., Balta-Salvador et al., 2021) and another study in the USA (i.e., Errisuriz et al., 2022) which reported that the majority of students had satisfactory learning environments at home.

Exceptions to adequate study spaces were also found across Global North contexts for students from marginalised backgrounds due to their geographical location, financial hardship experienced by their families and gender. Branchu and Flaureau's (2022) study exploring experiences of rural university students in France, for instance, explains that "participants often did not have a space of their own to study, or when they lived alone, a study space (desk, table)" (2022, p. 11). Kiebler & Stewart's (2022) research with University of Michigan students similarly found disproportionate difficulties in terms of access to quiet study spaces for work for students from lower-income families. In relation to gender, Aschenberger et al.'s (i.e., 2022) study in Austria identified that male students had significantly better-equipped environments and had better fulfilled their ergonomic needs compared to their female counterparts. Bordel

et al.,' s (2021) research in Spain similarly found gender disparities, in that the working environment for female students seemed to be less conducive in contrast to that of male students.

Contrary to findings from empirical research across Global North universities, where non-conducive home environments mainly affected students from marginalised backgrounds, in the Global South, this was a pervasive phenomenon affecting most students. Our reviewed literature consistently pointed out a prevalent inadequacy of study conditions at home (Azionya & Nhedzi, 2021; Balderas-Solis et al., 2021; Dayagbil et al., 2021; Fouche & Andrews, 2022; Kapasia et al., 2020; Maphalala et al., 2021). Among the main issues reported were constant distractions (i. e., Aljedaani et al., 2021; Harun et al., 2021), poor lighting environments (i.e., Bashitialshaaer et al., 2021), living in cramped spaces (i.e., Pillay et al., 2021), and working in shared spaces (i.e., Hamid et al., 2021; Iqbal et al., 2022; Ndzinisa & Dlamini, 2022). Given that none of these studies inquired into potentially different study conditions in relation to students' background, it can be argued that struggles for inadequate study spaces seem to have widely affected students across the Global South.

Such disproportionate differences in the availability of dedicated study spaces for students across Global North and Global South universities and for those from marginalised backgrounds in the North point to foreseeable negative repercussions and the exacerbation of pre-existing inequalities for them. Hence, dedicated efforts to offset the anticipated imbalances and to prevent their recurrence should be a central concern for higher education institutions across the globe.

— *Inference of caring responsibilities and domestic tasks with online learning*

Beyond the physical availability of dedicated study space at home, some of the academic publications in our review drew attention to how caring responsibilities or domestic tasks interfered with students' engagement in online learning. Five studies in our review explored these issues placing particular consideration to students' gender and ethnicity.

Two studies touching directly on gender comparisons were from Goldstone and Zhang's (2021) and Bordel et al.'s research (2021). Goldstone and Zhang's (2021) work in the UK, among other aspects, analysed whether there were significant differences among male and female students who reported having caring responsibilities in relation to several variables which included: the supervision support they received, access to research resources, their feelings of connectedness to their peers and the training they received during the pandemic. They found that "for most of the variables, there [was] no significant difference between male and female carers. The only exception being for male carers who reported reduced access to research resources" (p.12). This suggests that regardless of gender, student carers perceived similar study conditions during the pandemic. Bordel et al.'s (2021) research in Spain, on the other

hand, found contrasting results in relation to students' performance and gender. Their study compared male and female students' performance in relation to their need to reconcile their studies with other domestic tasks, finding that women's performance was significantly lower than that of men due to their inability to devote adequate educational time, because of their home duties and caring responsibilities.

Concerning students' ethnicity, the research literature in our review showed that family responsibilities more strongly affected students from ethnic minority backgrounds. Two of our reviewed studies explored these issues by contrasting experiences of white students in the USA in relation to their Hispanic and Latinx[2] peers. Means and Neisler's (2021) research, for example, found that Hispanic students were affected more than twice as much as their white peers when it came to caring responsibilities. As they describe:

> Hispanic students reported a greater number of challenges to their continued course participation after instruction went online. Fitting the course in with home/family responsibilities, for example, was a major problem for 27% of Hispanic students, compared to just 12% of non-Hispanic White students. (Means & Neisler, 2021, p. 17)

Puente's (2022) research on students from rural areas in the USA similarly offered some insights on how their living conditions were affected during the transition to online education showing an increase of responsibilities for some. The following quote from Xavier, a male participant whose family was facing financial hardship illustrates this:

> After my parents go to work, I'm left in charge, so I make sure everyone's on Zoom. Keep in mind, while I'm in class, I'm keeping watch of my little sister as well, the toddler. For eight hours, I keep her somewhere where I can see her. (Puente, 2022, p. 12)

Although such disparities in caring responsibilities affecting students' attention were explicitly explored in relation to ethnic differences in our reviewed research, they cannot and should not be disassociated from other financial pressures, cultural collision, and disturbed family arrangements simultaneously affecting students due to the pandemic. Most importantly, it should be highlighted that the intersecting inequalities suffered by these students, converted their homes into exclusionary spaces that clashed with their added caring responsibilities and home obligations.

[2] 'Latinx' is used in this report as an alternative to the genderised "Latino" demonym that alludes to male native people from Latin America.

Studies explored through KA1 unveiled how pre-existing inequalities within and across universities as well as across Global North and South were brought to the forefront through differentiated home study conditions during the pandemic. The uneven learning circumstances due to limited access to devices and connectivity, the lack of dedicated spaces for studying, and the inference of domestic and caring responsibilities with online learning represented intersecting forms of digital segregation for those who had been historically exposed to exclusionary pressures and marginalisation. The displacement of students from on-campus education, hence, has contributed to exacerbated and new forms of inequalities that need to be discussed and addressed by higher education stakeholders through creative mechanisms to prevent a foreseeable widened gap for those experiencing marginalisation.

KA 2. Digital literacies

Over the past decades, there have been growing concerns about the technocratic 'consciousness' (Fischer, 1990) of higher education, and the conventions they have established for the use of digital systems and structures by students to successfully navigate their learning (Timmis & Muhuro, 2019). Such conventions often imply certain tasks, performances and demonstrations of skills that are associated with the term 'digital literacies' (Lankshear & Knobel, 2014). Understanding 'digital literacies' as a synonym of technology-related skills, however, has been contested by literacy researchers who criticise the disarticulated understanding of skills from wider sociocultural contexts advocating for a comprehensive view that focuses on the enactment of textual and meaning making practices in and around the digital (Lea, 2013).

In our reviewed literature, research exploring how students' learning practices were shaped by their 'digital literacies' during the pandemic in Global South and Global North contexts, tended to adopt a skills-related approach. Hence, although we are aware of the debates around this contested term, and we ourselves do not see digital literacies as reduced to individual skills, we have employed it in the review as an umbrella term capable of integrating research drawing on a variety of perspectives.

Through our exploration of empirical research, we identified a noteworthy difference in the level of prior exposure to digital platforms for learning among students not only across Global South and Global North universities but within these contexts, primarily affecting students from non-selective and public universities. In the Global North, we identified two studies exploring whether students felt they had adequate technology-related skills to engage in emergency online learning that reported a relatively high proportion of students feeling confident. Eberle and Hobrecht's (2021) research, which interviewed Chemistry students across six German universities found that "Basic digital skills and skills to engage in productive passive, active, and constructive learning activities […] were not addressed as problematic among the cases in this study" (p.9). Similarly, Guppy et al.'s (2021) research across several

countries in the Global North[3] shows that nearly half of the students and faculty members reported having some experience with online learning prior to the onset of the pandemic. Additionally, nearly three out of five students in their study reported feeling at least "somewhat confident" in their abilities to learn well in a remote online course. Nonetheless, another piece of research conducted in France with students from non-selective universities in rural regions disclosed a more limited digital literacies among students. Branchu and Flaureau's (2022) study identified that a major struggle for students from rural areas in relation to their online classes "is not knowing how to select information" (p.12).

Experiences from our reviewed papers in the global South exhibited more limited prior experiences of students with digital platforms (according to university expectations) before the pandemic than those reported in the North. Studies carried out in South Africa, Nepal, Uganda and Mexico, for example, showed a pervasive disruption to online learning caused due to a striking lack of familiarity with digitally mediated education among students and lecturers. Fouche and Andrews' (2022) research in South Africa, for instance, notes the following:

> Students stated that they were "battling to adapt", having to study online "without having any prior experience", that they had a "lack of understanding how technology works" and having to "[read] on my own". One student indicated that they still needed to print out reading materials to annotate on hard copies, presumably because they struggled to annotate and interact with texts electronically. (Fouche & Andrews, 2022, pp. 147–148)

Drawing on such difficulties they critique university approaches where "already overburdened lecturers might assume that their (now largely faceless) students enter (or at least should enter) university studies with epistemological frameworks (cf. van Gelderen & Guthadjaka, 2017) that enable them to adapt to the required mode of teaching" (p.148).

Landa et al.'s (2021) study, also in South Africa, portrays a similar scenario where students were facing difficulties to participate in their online lectures. As one of the students in their research pointed out: "The lack of digital literacy or technical skills: as a result, we are not able to access uploaded course content and assessment tasks."(Landa et al., 2021, p. 174). Results from Devkota's (2021) research in Nepal likewise reveal poor participation and presence of

[3] Participants in this study included students from North America, Europe, Australia and Asia. The study was classified within the Global North context because most of participating countries can be classified as part of the Global North.

students due to insufficient 'skills'. He illustrates this with the following quote from a student in a focus group:

> I am not good at English, nor at technology either. I know I could participate well if I had good English communication skills and manageable knowledge in modern technologies. Very often I get lost in my class, I can just connect to Zoom now. (Online Focus Groups Discussions). (Devkota, 2021, p. 160)

Students, such as in this example, often tend to blame themselves for being in some way inadequate rather than seeing the lack of institutional support and assumptions made by academic staff (Timmis & Muhuro, 2019). Olum et al.'s (2020) study in Uganda portrays a slightly higher degree of expertise in managing technologies as expected by their higher education institutions. They report that the majority of students perceived having intermediate skills for browsing on the internet, using Zoom video calls, using computers, emailing, and using Word and PowerPoint software. Nonetheless, most students also reported having *no skills* for using Webex (81%), Google classroom (74%), Google Meet (59%) or the University e-learning (MUELE) platform (53%). This seems to suggest that the tools being used in the university for online learning were not commonly used before the pandemic.

As in the Global North, differentiated levels of digital literacies were also reported for students depending on their background. Zapata-Garibay et al.'s (2021) study carried out across 38 universities in Mexico, for example, exhibited that students from public universities felt considerably more overwhelmed by the technological skills required to engage in education compared to their peers from private universities. This suggests that within the country, students attending private higher education institutions might have had higher exposure to online learning platforms prior to the pandemic, thereby situating students from less affluent families in a disadvantageous position when engaging in education during the pandemic.

Evidence from KA2 points to a concerning imbalance in the way students accessed online educational resources and the extent to which they could meaningfully participate in their lectures. The marked differences in confidence and prior exposure to digital platforms across Global North and Global South universities and among private and non-selective or public higher education institutions laid bare the ways in which systemic differences were conveyed into new forms of digital inequalities during the pandemic. Our reviewed papers, hence, unveiled sizable proportions of students being excluded from meaningful learning experiences through online means, or those referred to as 'digital strangers' (Czerniewicz & Brown, 2013).

KA 3. Institutional support

The expeditious nature of the migration of higher education to digital platforms during the pandemic led to growing research inquiring into the universities' role in supporting the transition of students to these new systems of online learning. Nine out of our 60 reviewed

academic publications looked at issues relating to students' perceptions of different measures put in place by their institutions to facilitate their transition to online learning. These included pedagogical adaptations, communication channels and availability of training.

A study across 45 countries (i.e., Atherton, 2020), for example, indicated that the process of transitioning to online courses, although challenging for everyone, had a significantly more negative effect on learners from low-income and marginalised backgrounds. Context-specific papers corroborated this. Puente et al.'s study (2022) exploring rural Latinx students' experiences in the USA during Covid, reported reduced counselling support and complete absence of other college-related resources at the crucial stage of the college choice process. Similarly, Kiebler & Stewart's (2022) research on low-income first and second-generation university students at the University of Michigan indicates that first-generation students felt they had been provided with fewer resources for academic success. Doctoral students from minority ethnic backgrounds in the UK also reported not having sufficient access to research resources (Goldstone & Zhang, 2021).

Issues related to insufficient pedagogical support, inadequate communication with teachers, or insufficient consideration of emerging changes in students' availability due to relocation of their country of residence were reported as obstacles disrupting students' engagement when studying online. For instance, complaints from international students regarding increased homework were reported by Malet Calvo et al., (2021) across Portuguese universities. Furthermore, a study conducted by Katz et al. (2021) in the USA showed that informal communications with lecturers outside class, commonly seen pre-pandemic, were completely obstructed when transitioning to online platforms. According to their research, these changes significantly affected the level of proficiency felt by students during their remote learning experiences. Moreover, a study in the UK (i.e., Costa & Li, 2022) exhibited the struggles of students who were displaced to their home countries and the deficient consideration of their time differences when synchronous lectures were programmed. The following excerpts from their study illustrate this:

> Lectures… are often recorded and uploaded at the same time the lecture is supposed to be. I've often found myself having to start a lecture at about 11pm and go on until 1 or 2am. So your day is really stretched … your sleep cycle gets impacted because you're essentially running on the UK timeframe while sitting in India. (Vikram, India). (Costa & Li, 2022, p. 8)

> I had to study at home. …For a long time, my biological clock was in chaos. I always went to bed at 12 noon [and] I woke up at around 8pm. Start studying around 9pm to …12 noon the next day. The chaotic biological clock inspired me to overeat - I gained 9 pounds in a month. And I felt disconnected from the world; I feel like I'm outside of society. (Haohao, D1, China). (Costa & Li, 2022, p. 8)

Studies conducted in the Global South echoed the struggles reported in universities in the North. Nonetheless, an additional layer of dissatisfaction was identified in these papers explicitly related to non-existent training for digitally inexperienced students. Studies in Pakistani (i.e., Iqbal et al., 2022), Nepali (i.e., Devkota, 2021), and South African (i.e., Landa et al., 2021; Pillay et al., 2021) higher education institutions report similar struggles in relation to a lack of technical support for students. The following excerpt from Pillay's research illustrate this:

> The institution assumed that we are of the same background, or we are all privileged […] it's challenging because for some of us, this is new. We had to adapt, but we're not familiar with it. And we were not given any tutorials on it. (Student 6, an African male from a rural home). (Pillay et al., 2021, p. 40)

Differences were also observed in the Global South for students from more and less privileged backgrounds. Mutinda and Liu's (2021) study in Kenya, for example, portrays contrasting students' perceptions in relation to the institutional support received when transitioning to online platforms depending on the type of university they attended. The following excerpts from students in a private and a public university (respectively) illustrate this:

> *UG - Private university student:* It was like we never left. Learning continued on online platforms such as zoom, which was very useful for us to ensure continuity. (Mutinda & Liu, 2021, p. 6)

> *UG - Public university student*: Our university was not well prepared to move to virtual classes as we were left on our own. No proper orientation took place to guide us to take advantage of the online platforms, which has tremendously affected my academics as I feel I am not fully benefitting from these platforms. (Mutinda & Liu, 2021, p. 6)

Despite a consistent perception of abandonment reported by students in the Global South, there seemed to be some efforts and initiatives from higher education institutions to mitigate some of the struggles identified by universities, particularly in the African continent (i.e., Dell, 2020; Nakweya, 2021). In this regard, Nakweya (2021) indicates for example that half a million laptops were procured to Cameroon university students to mitigate the difficulties because of reduced access to digital resources in the country. Additionally, he indicates that efforts across open distance universities in Africa were made to develop a quality assurance tool guide for online teaching and learning. Dell (2020), comparably reported that in South Africa, universities were trying to establish digital platforms and negotiate the cost of the internet and IT materials to help reduce the burden of some families towards additional financial constraints that may hinder students' participation in higher education.

The literature reviewed through KA3 demonstrates the importance of the institutional support for students' smooth transition to online learning, not only prior to this COVID enforced

transition, but also once this had happened. The level of disruption perceived by students, seemed to be felt more by those already in a disadvantaged position such as students from rural areas or lower income backgrounds, as well as minority groups across Global North and South universities. Although some efforts were developed by Global South universities to mitigate the disruptions faced by students, discussions of how these supported students while engaging in online learning were mainly absent in our reviewed papers. This might be indicative of a gap in the literature that needs addressing or the scarcity in policy developments to support students from marginalised backgrounds during the pandemic.

KA 4. Uneven conditions to undertake assessments

Quality and reliability of assessment were areas explored through five papers in our review. In the Global North Woolf et al.'s (2021) study conducted among UK prospective university students reported concerns in relation to potential biases in assessments (2021) for students from ethnic minority backgrounds. The authors indicate that students were disappointed with the government's decision to standardise A-Levels examinations based on statistical data from prior cohorts of students as they thought this measure could put them at risk of obtaining lower grades based on their racial and socio-economic profiles. Gin et al.'s (2021) study in the USA, reported challenges faced by students with disabilities being examined from home, where the environment was not conducive for them to focus on their exams. This was a situation they considered had left them in a disadvantaged position in contrast to the support they received at campus prior to the pandemic.

Complaints about the quality and integrity of their online assessments were similarly found across literature from the Global South. For example, Maphalala et al.'s study (2021) found that amongst the central concerns expressed by student teachers in South Africa, were poor quality of the assessment instruments and teachers' negligent consideration of students' home study conditions (which they considered to be an unsuitable atmosphere to take part on an exam). Bashitialshaaer et al.'s research (2021) with Palestinian students and lectures showed related worries concerning the design of assessment instruments and the lack of reliable evaluations when undertaken in non-conducive home environments. Mutinda and Liu's (2021) study with university students in Kenya, reported similar concerns regarding the lack of accuracy of their online assessment. The following excerpt from their study illustrates this:

> We are even taking exams online; while the move is good, I am just unsure if being assessed online will fully reflect my abilities. The online exams we do are multiple choice questions that I feel limit my ability to fully express myself. On campus, exams are fully supervised to avoid any exam malpractice, but with the online platforms, I cannot trust that other students would maintain integrity of exams. (Mutinda & Liu, 2021, p. 8)

Other studies similarly reported concerns over lack of surveillance of the assessment process and lack of financial and technical capabilities of students being assessed. Azionya and Nhedzi's study (2021) exploring tweets from South African higher education students and academics showed that students were struggling with synchronous assessments as they faced limited technology resources and access to the internet. Issues included poor battery life of technological devices (e.g., laptops, mobile routers, etc.) as well as lack of alternate provision of internet. As a result, students facing these issues were keener to have the flexibility for asynchronous assessments. Harun et al.'s (2021a) study in Malaysia found a comparable detrimental scenario for students in remote areas in relation to assessment. On this regard they explained:

> Local folks will have to deal with no internet coverage. Weird as it sounds, students' requests to take some examinations, which require an online system on a certain date and time, are usually agreed upon by lecturers (e.g., Selvanathan et al., 2020). As a result, many students whose houses are in longhouses in rural Sarawak need to travel two hours to get to the nearest town where internet coverage is sufficient for an online system. Imagine if the examination finishes at 5 pm, there is simply no return boat trip in the late evening in many areas. (Harun et al., 2021, p. 2739)

The conditions for assessment during the pandemic, as exhibited through KA4, were seen as detrimental and largely problematised by students as being unable to accurately capture their progress. Perhaps more importantly to highlight are the similarities among Global North and South universities regarding who suffered the most due to uneven conditions to undertake assessment from home. In both cases, students from under-represented backgrounds (e.g., students from ethnic minority communities, with disabilities, or facing financial hardship) were those facing less satisfactory conditions for assessment during the pandemic, which raises concerns over the potential consequences for their educational and professional futures.

KA 5. Spatial and digital inequalities

Research exploring digital inequalities experienced by higher education students from rural communities primarily drew attention to the ways pre-existing uneven conditions affecting their engagement with education were aggravated by universities' decision to migrate online. Issues related not only to spatial inequalities but to the way in which these were dynamically entwined with other structures of inequality such as financial hardship, gender, dislocation, and identity, were addressed by our reviewed sources. Research carried in the Global North, seemed to focus more on issues of how universities' migration online permeated students' *choices*. On the other hand, studies in the Global South explored issues of several intersecting inequalities hampering their participation that touched on the various KA discussed above.

Global North studies included Puente's (2022) work, which focused on Latinx students' lack of guidance from university recruiters when selecting a college in the USA; and Cook et al.'s (2022) research focusing on students from "regional, rural and remote (RRR)" Australian communities. Both studies placed significant attention on the notion of choice and how the pandemic had tightened the already restricted boundaries shaping students' decision-making based on their socioeconomic status and background. On the one hand, Puente's (2022) research showed how Latinx students in the San Joaquin Valley were affected by the pandemic at the crucial stage of choosing their college. Her study unveiled that rationality over college selection was severely bounded by logistic, financial, and emotional circumstances linked to disproportionate disruptions brought about by the pandemic. The following fragment from the article, illustrates this:

> […] local higher education institutions such as the CCCs[4] and CSUs[5] do recruit rural Latinx students from the San Joaquin Valley. Yet, because of the pandemic, Finn, a first-generation Mexican Salvadorian American college student and daughter of a farm working father, described that visitation from these commonly available recruiters were nonexistent: "I remember last year during lunch, there would always be some type of advisor just walking around campus and walking up to kids and talking to them. Since everything is online now, we don't get to have that one-on-one, in- person talk with the advisors". (Puente, 2022, p. 11)

Although the quote above is not clear on whether recruiters simply ceased all available support to students or migrated their services online, the authors portray a discernible feeling of abandonment felt by students from rural areas at the important stage of choosing college which according to Puente (2022) represented a serious threat for students' prospects for the future.

Cook et al.'s (2022) study similarly addressed the widened restrictions over choice faced by students from RRR areas during the pandemic. Their focus, though, was on the "bounded rationality" of students from rural communities when faced with the dilemma of staying in the cities where they had relocated for study purposes or returning to their places of origin. The study discusses how the rural youth mobility to metropolitan higher education institutions is "enmeshed in sense of place, home and identity and at times experiences of dislocation, loneliness and isolation" (p.6). Their findings suggest that financial and emotional motivations were at the forefront of the choices of those returning. Financial burden, for example, had

[4] California Community Collegues

[5] California State University

forced “Steven, 22”, to live in a shared house to minimise the cost of rent. Nonetheless, when the restrictions to stay at home were enforced, this shared environment hampered his engagement with education. A quote selected by the authors illustrates this:

> I had a very small room. I didn’t have a desk. The lounge room was an absolute mess, and it was gross. The blokes are massive gamers and stoners, so I would have to sit out there and they’d have the X-Box going, or they’d be pulling cones or something, so it wasn’t super conducive to study. So I was like, “Well, at least if I go home, I have space, I can study tonight, I can go outside, I can literally go for a run or do weights or whatever and don’t have to worry about COVID or any of that sort of stuff. There’s plenty of food.” (Cook et al., 2022, p. 8)

According to the authors, changing their living environment, had serious emotional implications for some students, which in turn impacted their engagement with online learning. The following extract from their paper shows the difficulties faced when returning home by “Samuel, 25”, a student who had lived in the university campus since 2013 to originally study a Bachelor of Science, and later on withdrew to start a Bachelor of Arts in early 2016:

> Samuel found himself feeling lonely and isolated as a result of the decision to return to his local area – a regional part of NSW[6] 280 km from the university city […] Samuel left his local area in regional NSW in 2013 to pursue higher education, and had lived in his university city for the majority of each year since then. As a result, he no longer had strong social connections beyond his mother in his regional hometown, and his social life was located elsewhere. (Cook et al., 2022, p. 6)

The effects of crisis remote education on students’ choices, as demonstrated by Peter’s and Cook et al.’s papers, offers a unique understanding of the different layers of disruption encountered by students from rural areas and how this had an effect on widening the gaps in opportunities. Further, the scarcity of academic research across Global North universities in our review exploring issues of rurality in explicit and direct relationship to the role of the “digital” in students’ learning, suggests a gap in the literature that needs addressing.

In the Global South, studies focusing on rurality were more prevalent than those in the Global North. Nine papers were found to discuss urban-rural divides to varying degrees. As was foreseeable, inequalities were prominently overlapping with issues of poverty, deficient infrastructure, often required to engage in online learning and feelings of falling behind. Issues

[6] New South West, Australia.

already described in greater depth through KA1 above, such as insufficient connectivity or infrastructures (i.e., electricity, adequate devices and lighting conditions) were among the more salient elements researched (Azionya & Nhedzi, 2021; Bakhsh et al., 2021; Hamid et al., 2021; Kapasia et al., 2020; Maphalala et al., 2021; Nazir & Khan, 2021; 2020).

Other more distinct inequalities explored included unsafe home environments and financial insecurity (i.e., Pillay et al., 2021), insufficiently developed digital skills (i.e., Devkota, 2021) as well as negative emotional reactions such as feelings of being displaced, falling behind and disconnectedness (i.e., Devkota, 2021; Hamid et al., 2021).

Spatial inequalities presented through KA5 point out wide geospatial inequalities experienced across Global North and South contexts. Our reviewed studies showed that although Global North university students were faced with financial hardship and emotional issues that affected their possibilities of choice, students in the Global South experienced several more intertwined layers of exclusion through material, emotional, and cultural forms of disruption. An important piece of reflection from these findings is the need to acknowledge that spatial inequalities disrupting students' participation in online learning look different in different contexts and that these need to be understood and addressed attending to the local realities of students.

KA 6. Disabilities

Studies focusing on the lived experiences of students with disabilities during the pandemic were scarce across Global North and South universities. Only four studies from our reviewed literature dedicated exclusive attention to this area. Nonetheless, they shed light on the emerging forms of exclusion for higher education students with disabilities that need to be made visible. Most importantly, the studies presented below show that regardless of which university students were attending, their struggles were markedly similar.

A national survey inquiring into doctoral students' experiences in the UK, for example, found that for all aspects measured in relation to academic experience, students with disabilities were consistently reporting more negative accounts than their peers. Additionally, they were found to report marginally lower levels of supervision support, reduced access to research tools and lower levels of mental wellbeing (Goldstone & Zhang, 2021).

In the same line of deficient support perceived by students, Gin et al.'s (2021) study in the US, showed a detriment in the assistance received by students during the pandemic in contrast to their pre-pandemic experiences. Areas in which they were mostly affected included assessment and support when attending the lectures. In relation to assessment, for instance, reduced-distraction testing environments and insufficient or lack of extended test time were reported by students. In terms of lecturer's assistance, they reported the cessation of support

usually offered in campus such as having note-takers. Additionally, working at a physically distance from others meant for interviewed students that they had fewer ways to access course content. As Oscar (learning disability and a chronic health condition sufferer) expressed:

> Often times you would see a professor around and ask 'Hey, do you have a minute? Can I ask a question?' So, now when you're getting into more complex theories and understandings, it's really hard to do over email. (Gin et al., 2021, p. 8)

Lecturers' assumptions about students' circumstances to study from home were also reported as problematic. In this regard, Linda (learning disability and a chronic health condition sufferer) explained that one of her instructors was making assumptions of whether she needed "accommodations" (i.e., adjustments made) for her online instruction or not. On this regard she noted:

> First, before I talked to my [DRC[7]], I explained to the professor what my accommodations [for online instruction] were, why I felt I needed them, why it was harder for me to be at home because being at home was a very big distraction. He still felt that I didn't need the extra time [on my exam]. (Gin et al., 2021, p. 11)

Another study conducted by Aljedaani et al.'s (2021) in Saudi Arabia, reported a similar institutional neglect towards deaf students. Their results indicate that no explicit adaptations were made for these students when transitioning to online environments, which negatively affected participants' engagement in class. Among the students' concerns were the poor consideration to their needs when deciding which online platforms to use, poor design of learning materials and limited assistance at home. For example, the selection of a video-call platform that allowed a limited visualisation of participants, was perceived as inconsiderate of their need to visually engage with the session. In relation to learning materials for asynchronous lessons, students reported that not all recorded sessions included subtitles or captions for them to engage with the content. Finally, students reported a reduced assistance in relation to their pre-pandemic experiences. For instance, "student P4" expressed:

> We do not have an interpreter during COVID-19 as we used before the pandemic. The teacher should have a strong sign language for us to them. That is the most crucial thing the deaf needs in learning. The problem we encounter that some teachers sign language is weak. So as a deaf student, if

[7] 'DCR' stands for Disability Resource Centre. According to Gin et al.'s (2021) study, this "is a term that is often used by colleges and universities to describe offices that support students with disabilities." p. 2

> the sign languages were inadequate, there isn't any benefit because the information isn't received correctly and isn't fair. (Aljedaani et al., 2021, p. 17)

Visually impaired students in Ghana participating in Amponsah's (2021) research, likewise, reported insufficient attention from the university, making them feel to be a silent minority. According to his findings, majorities of students indicated having not received any form of support to prepare them for the switch to online learning. Such lack of guidance, was described as particularly worrying as "most of the SWVI[8] share[d] that they were not tech-savvy and had not used the university's Sakai LMS[9]" (Amponsah, 2021, p. 6625).

As studies through KA6 have demonstrated, irrespective of the context, the home study conditions during the pandemic exposed students with disabilities to increased forms of exclusion. It is apparent from our reviewed literature that the transition to emergency online education was made with little time to respond to the widely diverse needs of students with disabilities. Such prompt move left unshielded students at higher risk of exclusion, hence restraining their possibilities to optimally participate in online learning environments.

KA 7. Intersecting inequalities

Beyond the inequalities directly reported through the sections above (i.e., KA1 through KA6) a number of less commonly reported intersecting inequalities were also exposed by our reviewed papers. These touched on issues related to the marginalisation of students while being online due to the identities they performed, their race, dislocation from their residencies of study, and financial circumstances.

Out of the 60 studies explored in this review, one touched on issues of the identities performed by students when being online, and how these affected their overall participation. Despite being only one study, its relevance in exploring gender-related marginalisation faced by students while studying online, made it worth to be including it in this review. Mavhandu-Mudzusi et al.'s (2021) research exploring transgender woman's experiences in South Africa, analysed the abuses and disrupting psychological circumstances they suffered when engaging in online education from a hostile environment at home. They report, for example, the case of one student (i.e., Rudo) who had not disclosed her identity to their parents:

> At home, my parents used to know me as a straight boy. But, since I left home to go to the university, I have realised that I am a transwoman and

[8] 'SWVI' stands for Students With Visual Impairment"

[9] 'LMS' stands for Learning Management System

> have to live as such. However, at home, the moment they saw me putting on my makeup, my father mentioned that he has only one wife and a son, not a girl and request me to urgently wipe off the nonsense from my face. This makes me so uncomfortable and disturbed my concentration during online lessons. (Mavhandu-Mudzusi et al., 2021, p. 116)

Besides psychological distress, other disruptions caused by hostile conditions in their living areas were reported to negatively affect students' engagement in education. The following extract from the paper illustrates the frightening cultural conditions in which Belinda, a transgender student, lived which prevented her to quietly engage in her lessons from home:

> As most of the people are at home, my neighbours play loud music from morning up to sunset. This is so disturbing. I wish we could be allowed to go back to the university. We shall do the lockdown in the hostel, because online classes at home are not even feasible. Unfortunately, I cannot even tell anyone to keep quiet as a transgender person, we are voiceless in rural community. Any irritation to the community may be calling death to myself. (Mavhandu-Mudzusi et al., 2021, p. 17)

Feeling voiceless and vulnerable to abuse from community members in their new learning environments, seemed to have heightened the psychological burden and distress faced by this transgender woman in South Africa. Most importantly, this intensified state of distress placed them at higher risks of failing to successfully engage in online learning activities compared to their pre-pandemic learning conditions.

Other intersecting inequalities explored by a small selection of papers in our review, were related to the unequal learning conditions due to students' race, particularly in the Global North. Costa et al.'s (2021) study in the UK, for example, showed that international students perceived a noticeable disadvantage in their online participation relative to their domestic classmates' experiences. The following excerpt from their analysis illustrates this:

> Taro D5 – Japanese student: I was the only one who looked at the issue differently, and I felt a sense of being minoritised. I felt very uneasy and set my camera off all the time. … People [domestic students] who are comfortable talking keep verbalising their thoughts, people [international students] who are uncomfortable remain silent. Race, I recognise, is definitely one thing. (Costa & Li, 2022, p. 11)

The above quote points toward a potential cultural difference in terms of participation through digital means that, according to this Japanese student, played against their presence and participation in online sessions.

Goldstone and Zang's (2021) study also conducted in the UK found that "students from ethnic minority groups, in general, have reduced access to research resources" (p.18). By "research resources" they meant having a "computer or laptop, relevant software, internet, assistive technology, laboratory equipment, university library, archives/special collections, and access to research participants" (p.4). This meant that during lockdown students from ethnic minority communities were in a disadvantaged position in terms of available equipment relative to their white peers.

A study conducted in Canada by Ge (2021) looking at Chinese students' experiences reported other kinds of segregation of international students due to stigmatisation related to their racial background. As the following fragment suggests:

> Three of the female participants stated that when local people saw an Asian person wearing protective gear, they tended to retreat involuntarily. In the early stages of the outbreak, wearing masks for the students was causing enormous psychological pressure because the locals seemed to stare at them for a long period. (Ge, 2021, p. 597)

Issues of stigmatisation, although not directly preventing students to engage in online education, are important sociological dynamics framing the overall contextual and psychological environment in which students experience learning. Drawing attention to intersectional aspects through which disadvantage is sustained for students from ethnic minority communities is as important as exploring digital inequalities in relation to more evident aspects such as access or skills.

A third intersecting inequality explored through our literature review was related to students' mobility and the challenges associated to rearranging their spatial conditions to participate in education. As with racial inequalities, mobility issues were only discussed in Global North contexts, which suggests that insufficient or not research has been carried out in the Global South, thereby disclosing the need for further research attention towards mobility disturbances faced by students in these contexts.

Research carried out in Australia (Cook et al., 2022) and Spain (Rodicio-Garcia et al., 2020) discuss the struggles faced by higher education students when faced with the dilemma of relocating from their university campuses to less populated or rural areas. Cook et al.'s (2022) study, for example found that "relocating or remaining in their university city was rarely a straightforward matter of choice", offering accounts of the disturbances faced by some students when returning to rural areas and the added strain to their learning experiences brought about by changing their learning environments. Rodicio-Garcia et al.'s (2020) study in Spain, reported that 40% of students in their research were displaced from their study residencies in what they call "exodus triggered by the alarm state". Among other things, the authors indicate that students who were dislocated were less commonly reporting that they

had sufficient resources to continue with their education in a remote way, compared to those who remained at their pre-pandemic accommodations.

Guppy's (2021) study across different European, Asian, Australian, and North American universities explored the disturbances faced by the spatial rearrangements of students in their university areas. They evidence struggles related to the closure of campuses and other pre-pandemic public spaces commonly used by students such as libraries and cafes. Similarly, Eberle and Hobrecht's (2021) research in Germany, reported that the lack of variability in study spaces, particularly, libraries, were detrimental for the quality of their learning as they missed the regular catch-ups with peers when having short breaks for study as well as facing issues of concentration.

Studies exploring students' struggles trigged by the dislocation from university campuses and other spaces for studying through the Global North, shed light on a multi-layered detrimental learning conditions particularly affecting students from under-represented backgrounds.

The fourth and last intersecting inequality in our review relates to students' financial conditions, which seemed to have equally affected marginalised students across the Global North and South.

Several studies carried out in the Global North pointed to disturbances faced by students from low-income families, primarily affecting their capacity to afford living costs of fees, jeopardising their potential to engage in their studies. Cook et al.'s (2022) study, for example, reported that Australian students from rural areas, experienced negative impacts to their studies after being forced from their university accommodation due to financial pressures. Similarly, Kiebler's (2022) research in the USA, found that lower-income students were concerned about losing scholarship funding, their ability to pay for school, and the prospect of suspending their studies in order to support their families. Malet Calvo's (2021) research mirrored some of these financial difficulties across internationals students in a Portuguese university. His research shows that international students from economically disadvantaged backgrounds were negatively affected by the pandemic. He illustrates this with the following quote narrating the struggles of an Angolan student:

> Fernando, 21, from Angola, studying for a technical degree, living in Covilha since 2018: It has been difficult for me, because I never travelled back to Angola in three years because of my economic situation. I have to choose between paying 800 euros for a plane ticket or paying the university fees. My mother misses me and insists all the time that I travel back, but I need to work during the holidays [...]. I really thought about quitting the job and returning to Angola because I'm in a risk group, I have a medical history of respiratory problems, and my mother insists that I do so, but in Angola

> currently I have nothing to do. Here I have a job at least. (Malet Calvo et al., 2021, p. 10)

Students with disabilities were similarly facing marginalisation and hardship in the Global North context. Gin et al.'s (2021) research in the USA found that for some students with disabilities, transitioning online represented additional costs to their education, that not all were able to afford. The following extract from Ethan (a sufferer of mental health/psychological disability and physical disability), illustrates this:

> I have had some people suggest that there are things out there you can purchase that will do a speech-to-text type of thing. (…) But it costs money, and if I'm not working, I'm in a socio-demographic that doesn't have a lot of income. If you're disabled, you really need to have more money than a normal person to pay for all the extra things that you need to have because you can't function without them. (Malet Calvo et al., 2021, pp. 6–7)

Financial hardship in the Global South seemed to be more pervasively present across a wider range of students. Studies across South Africa (i.e., Azionya & Nhedzi, 2021; Landa, 2021), Bangladesh (i.e., Hamid et al., 2021), Mexico (i.e., Zapata-Garibay, 2021) and Uganda (i.e., Olum et al., 2020) reported that prohibitive costs to buy mobile data were negatively impacting students' participation in online learning. Landa's (2021) research offered clear examples of the ways an increase in expenditure was impacting students' engagement and preventing them from have equal opportunities to engage in education as those without financial hardship. For example, they explain that students had to make financially informed choices over which resources to access and which not, in order to save money. The fixed amount of data they got, for example, implied that they would not be able to download lectures in PowerPoint formats with embedded audio or video contents.

The several dimensions of inequality intersecting with the 'digital' discussed through KA7, clearly portray the complexities of exclusionary systems affecting students during the pandemic. The most apparent inequalities often linked to material deprivation, become as relevant to digital exclusion, as those caused by racial stigmatisation, dislocations and the performed identity of students when engaging in online education. This points to the need to understand digital inequalities as multifaceted and rooted in multidimensional ways of exclusion experienced by students beyond having or being deprived the basic technological and literacy means to engage in online learning.

Conclusions

The 60 studies explored through this report demonstrate the multi-layered fabric of exclusion that systemically operated against students from under-represented backgrounds, preventing

them from optimally engaging in higher education during the pandemic. The findings and excerpts presented across KA 1 through 7, substantiate ways in which the digital inequalities often portrayed as a single 'digital divide' are plural, unfolding from the other localised, spatialised and temporal divides *surrounding* experiences with the digital (Graham & Dittus, 2022).

In this regard, our review unveils a detrimental effect of such intersecting divides on students' engagement in online emergency education, disproportionately impacting students in Global South universities and students from marginalised communities. This is particularly concerning as entrenched pre-existing gaps may worsen as a result of the prolonged uneven home study conditions for university students during the pandemic.

Our review showed markedly different experiences across Global North and Global South university students mainly in relation to home study conditions (KA1) and their level of digital literacies (KA2). Disproportionate access to devices and internet as well as the absence of conducive study spaces at home were a salient aspect found to be directly impacting students in the Global South. Although in minor proportion, inequalities along these lines were observed across universities in the Global North primarily affecting students based on gender, ethnicity, economic class and geography. Such differentiated experiences reflect the entrenched technocratic 'consciousness' (Fischer, 1990) in which universities operate by standardising the "'way of being' required of students [to successfully] engage with higher education" (Boughey & McKenna, 2016, p. 1). By defining and adhering to a settled way to digitally engage in education that neglects the fluctuating levels of technology availability and the varying degrees of digital literacies of students, universities have been complicit in the exclusions faced by the ever-growing number of 'digital strangers' (Czerniewicz & Brown, 2013).

KA3 through KA7 in our review showed a less pronounced difference across Global North and South, primarily due to an accentuated research focus on students from marginalised and underrepresented backgrounds in these two contexts. In the Global North, for instance, uneven institutional support, inequitable conditions for assessment and participation in online learning were disproportionally affecting students based on their socio-economic class, geo-spatial conditions, ethnicity or disabilities. In the Global South, the extended proportions of people experiencing multiple forms of disadvantage, led to a more widespread phenomenon of exclusion for students, although also impacting more those with disabilities, living in rural areas and with limited access to technological resources. Questionable assessment procedures, inadequate or absent guidance or training to navigate online environments, disruptive learning environments at home, which in a few cases were even unsafe, were negatively impacting students online learning experiences.

The empirical research reviewed through this report has laid bare the disruptive effect of the cessation of on-campus teaching and learning for higher education students, particularly due

to the uneven home study conditions stemming from differences in students' gender, disabilities, race, socio-economic status, and geographical location. Drawing on these findings it is clear that the rapid transition to online platforms together with the emerging phenomenon of "faceless students" (Fouche & Andrews, 2022) has led to problem of divorcing learners from their social contexts, or what Boughey & McKenna (2016) have called 'decontextualised learners'. In this regard previous research has pointed to the urgent need to acknowledge the widely diverse contexts in which learners are situated and develop strategies to respond to their circumstances. As Czerniewicz et al. (2020) have noted:

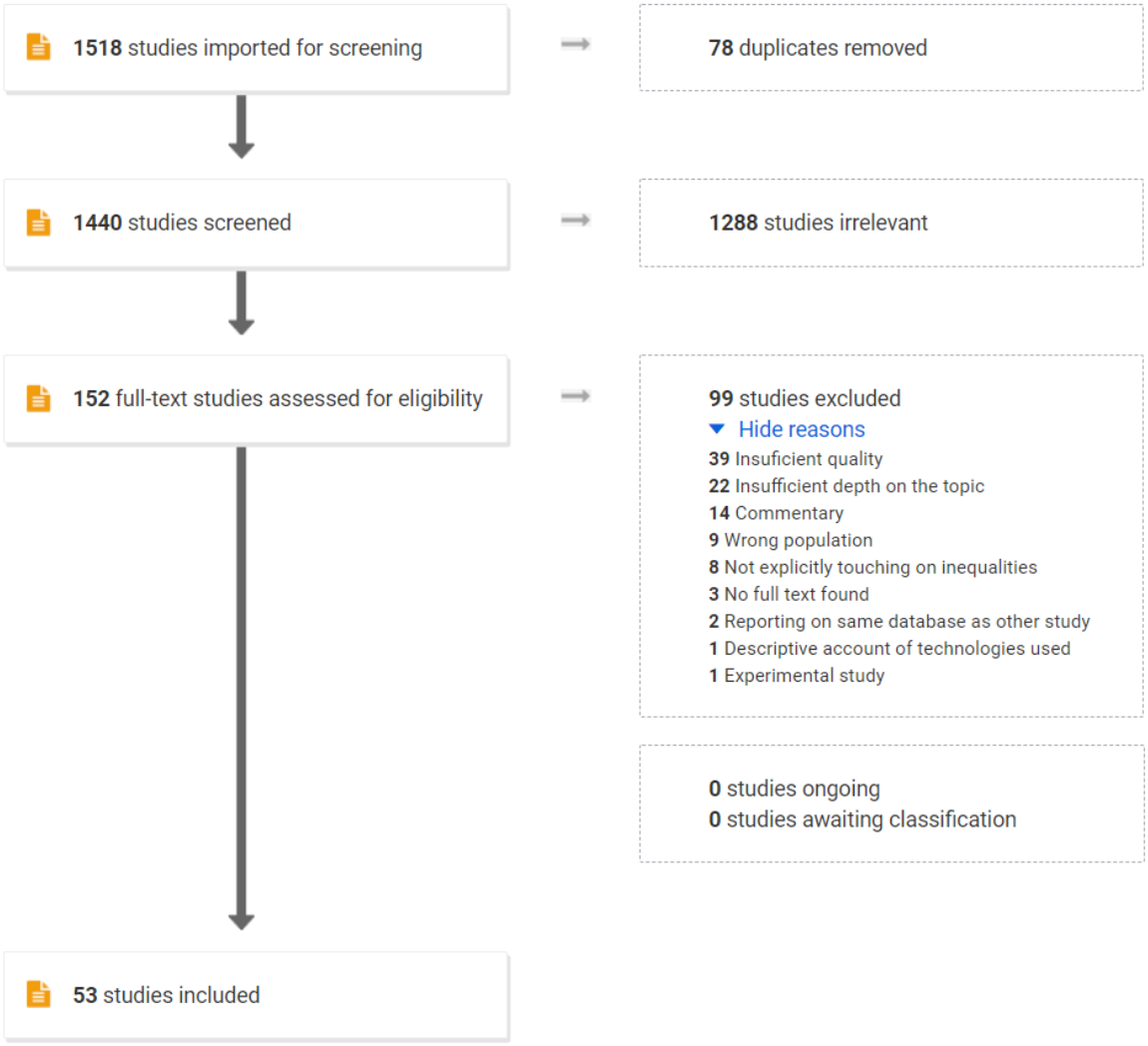
> The lockdown has forced us to look much closer to where our students are - where they are positioned - what resources they have - what opportunities to engage in teaching and learning. And we can't unsee these differences - whether on or off-campus (Czerniewicz et al., 2020, p. 950).

Hence, discussions are urgently needed in the higher education sector to problematise the pre-pandemic understanding of education and learning, so that they are able to respond to the emerging demand of ensuring that students from all contexts are able to successfully navigate learning in a post-pandemic era. This will require higher education stakeholders to grapple in a fair and compassionate way with questions of how to adjust online delivery methods that recognise the varying capitals with which students arrive and the realities of students living and studying in often challenging circumstances. Hence, universities should inquire into their students' home contexts, their study spaces and the multiple forms of constraints that may exclude them from successfully participating in higher education. Adapting higher education practices to meet academic imperatives while responding to the multiple realities of students, is perhaps a titanic task; nonetheless, such transformation is critical to avoid falling into the trap of the 'continue with a business-as-usual ethos, while hoping for success' (Pillay et al., 2021, p. 45).Our review offers some starting points for beginning this process that is so urgently needed.

Appendix A. Key words included in the search

Terms connected by **OR**	**AND**	Terms connected by **OR**	**AND**	Terms connected by **OR**	**AND**	Terms Connected by **OR**	**AND**	Terms connected by **OR**	**AND**	Languages connected by **OR**	**NOT**	KEYWORDS
"Higher Education"		COVID		"digital"		Student*		"digital divide"		English		"Child*"
"Universit*"		COVID-19		"technolog*"		Learn*		Inequ*		Spanish		"Leader*"
"college"		"coronavirus"		"distance education"		"undergarduate"		"lack of opportunit*"				"Teach* train*"
"HE"		pandemic		"e-learning"		"posgraduate"		"exclusion"				"staff"
				remote				"disadvantaged"				
				online				"spatial inequ*"				
				virtual				"Reinforc* Inequ*"				
				hybrid				"Inqu* Reinforc*"				
				blended				"mirror* inequ*"				
								"inequ* mirror*"				
								"rural*"				
								"pre?existing inequ*"				
								"access"				
								"connect*"				
								"under?represented"				
								"marginalise*"				

Appendix B. PRISMA diagram



Appendix C. Literature reviewed in this report

Authors	Country	Methodology	Methods	Population description	Participants
ACU (2020)	Association of Commonwealth Universities	Quantitative	Survey	Academics, professional services staff, students and senior leaders across 33 countries	258 participants
Aljedaani et al. (2021)	Saudi Arabia	Mixed methods	Online survey; Interview	Students from the Technical and Vocational Training Corporation (TVCV)	Interviews: 8 Survey: 65
Amponsah (2021)	Ghana	Qualitative	Phenomenographic interviews (by phone)	Students with visual impairment (described as persons with total sight loss)	13 students [9 male, 4 female]
Andraca-Sanchez et al. (2022)	Mexico	Quantitative	Online survey	Chemist-Biologist-Parasitologist Undergraduate Students from the Autonomous University of Guerrero	51 students [16 Male, 35 Female] [77% aged 18-19]
Arik (2021)	Turkey	Quantitative	Online survey	HE students	3,025 students [930 Male, 2095 Female]
Aschenberger et al. (2022)	Austria	Mixed methods	Online survey; Interview	Danube University Krems students	257 students [107 Male, 146 Female, 1 Diverse, 3 No indication made]
Asio et al. (2021)	Philippines	Quantitative	Online survey	Students from the College of Allied Health Studies who enrolled in the second semester of the academic year 2019-2020	2894 students
Atherton (2020)	45 countries	Quantitative	Online survey		

Authors	Country	Methodology	Methods	Population description	Participants
Azionya and Nhedzi (2021)	South Africa	Qualitative	Netnography	N/A	658 tweets
Bakhsh et al. (2021)	Saudi Arabia	Quantitative	Online survey	HE students from engineering institutions in the private and public sectors and living in the urban/rural areas of the country	623 students
Balderas-Solis et al. (2021)	Mexico	Quantitative	Online survey	Students enrolled in five undergraduate programmes at a public university in Mexico during the fall semester, 2020.	969 students
Balta-Salvador et al. (2021)	Spain	Quantitative	Online survey	Engineering Undergraduate students (2nd, 3rf and 4th year) at the Polytechnic University of Catalonia	245 students
Bashitialshaaer et al. (2021)	Palestine	Quantitative	Online survey	University teachers and students from four of the largest Palestinian universities in Gaza (Al-Azhar University, the Islamic University, Al-Aqsa University, and Al-Quds Open University).	152 university teachers 55 students
Benalcazar et al. (2022)	Ecuador	Quantitative	Online survey	Students from 11 universities in Ecuador [6 public, 5 private]	1841 students [67% public, 33% private universities]
Bordel et al. (2021)	Spain	Quantitative	Online survey	Madrid's Polytechnic University students in the Computer Science School	34 lecturers [66% male, 34% female] 108 students [73% male, 27% female] 5 coaches [20% male, 80% female]

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Branchu, C., & Flaureau, E. (2022)	France	Qualitative	Semi-structured interviews	University students from France	19 students from a non-selective university (in a rural region).
Castelli & Sarvary (2021)	USA	Quantitative	Online survey	Undergraduate students from the Cornell University	276 students
Cook et al. (2022)	Australia	Qualitative	Other: Online interviews (via Zoom)	Undergraduate students who had relocated from regional, rural and remote areas of Australia to a metropolitan university in the state of New South Wales (NSW)	27 students [11 men, 16 women]
Costa, C., and Li, H. (2022)	UK	Qualitative narrative inquiry	Solicited diary entries and In-depth narrative interviews	International students in UK universities	28 international students in UK universities
Cullinan et al. (2021)	Ireland	Quantitative	Other: Meta-analysis	Irish HE students	Data on higher education student enrolments for 2017/18 from the Higher Education Authority (HEA). Digital data on high-speed broadband coverage based on a mapping exercise undertaken by the Department of Communications, Climate Action and Environment (DCCAE) Total students in the data: 167,576
Dayagbil et al. (2021)	Philippines	Mixed methods	Other: Online structured survey	Cebu Normal University students, and teaching personnel.	4072 respondents [3646 students, 252 teaching personnel]
Dell (2020)	South Africa	N/A	N/A	N/A	N/A

Authors	Country	Methodology	Methods	Population description	Participants
Devkota (2021)	Nepal	Qualitative	Netnography	Higher Education stakeholders in Nepal	98 participants [37 female, 61 male]: Online interviews a. 5 officials b. 5 university educators b. 14 campus chiefs Online focus groups - 20 teachers (five groups were formed) - 23 students (six groups were formed) Telephone interviews a. 24 students b. 7 teachers
Dinh, L. P., & Nguyen, T. T. (2020)	Vietnam	Quantitative	Online survey	Vietnamese social work students enrolled in an online course during the COVID-19 pandemic	186 social work students
Doolan et al. (2021)	Europe-wide	Quantitative	Online survey	Undergraduate and Master's, full-time and part-time students studying at European higher education institutions in April 2020	17116 students [66.4% female, 21.1% male, 0.4% non-binary]
Ebelre and Hobrecht (2021)	Germany	Qualitative	Interview	Second-semester students in bachelor chemistry programs at German universities. Chemistry programs were chosen as they are already associated with high drop-out rates under normal conditions	15 students from six different German universities.

Authors	Country	Methodology	Methods	Population description	Participants
				(45% in the 2018 cohort of graduates).	
Errisuriz et al. (2022)	USA	Quantitative	Online survey	Latinx students in HE	231 Latinx students [77% female, 23% male]
Faura-Martinez et al. (2021)	Spain	Quantitative	Online survey	Students enrolled in the 2020-21 academic year in the different Spanish public universities.	3,080 students from 17 universities
Fouche et al. (2022)	South Africa	Mixed methods	Online survey	Authors' students from the second term courses for English I (Media Stories) and English II (Grammar) in a South African university.	197 students
Gamage et al. (2021)	Sri Lanka	Quantitative	Online survey	Sri Lanka Technological Campus' undergraduate students	555 undergraduate students [30% female, 70% male]
Ge (2021)	Canada	Other: Hermeneutic phenomenological inquiry	Interview	Chinese international students at a medium-sized university located in a Canadian prairie province. In this university, more than 50% of the graduate student population comprises international students and about 14% of the undergraduate student body is made up of international students.	10 students [5 female, 5 male]
Gin et al., (2021)	USA	Qualitative	Interview	STEM students with disabilities	66 students from 7 HE institutions

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Goldstone and Zhang (2021)	UK	Mixed methods	Online survey; Other: Secondary data	- Doctoral researchers who participated in the "Impact of COVID-19 Doctoral and Early Career Researchers" national survey - Primary data on a qualitative online survey	Secondary data: 3,763 Doctoral researchers Online survey: 882 Doctoral researchers
Guppy et al. (2021)	Europe, Asia, Australia, and North America	Quantitative	Online survey	Faculty members and students from Higher Education in Canada	3806 students 283 faculty members
Hamid et al. (2021)	Bangladesh	Mixed methods	Online survey; Interview	Online survey: HE students from public and private universities in Bangladesh Interviews: students who were participating in online classes from rural areas in Bangladesh	Online questionnaire: 184 students [23% female, 77% male] Interviews: 8 students [3 female, 5 male]
Harun et al. (2021)	Malaysia	Quantitative	Online survey	Undergraduate students	1410 students from more than 12 universities.
Herold and Chen (2021)	USA	Quantitative	Online survey	Students at Indiana University Purdue University Indianapolis, a large Midwestern urban public university, enrolled in a 100-level introductory psychology course	168 students [78.6% female, 19.6% male, 1.2% nonbinary]
Iflahen and Benkhallouq (2022)	Morocco	Mixed methods	Online survey; Interview	Members of six affiliated institutions: the Faculty of Law and Economics (FSEJS), the Faculty of	Online survey: 1760 students, 193 professors, 53 administrative officials

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				Arabic Language (FLAM), the Faculty of Letters and Human Sciences (FLSH), the Faculty of Sciences Semlalia (FSSM), the University Center of Kelaa Sraghna (CUKS) and the Polydisciplinary Faculty of Safi (FPS)	Semi-structured interviews: semi-structured interviews on the phone
Iqbal et al. (2022)	Pakistan	Quantitative	Online survey	HE students from Pakistani universities	707 students [62% female, 38% male] [83% attending public universities, 17% attending private universities]
Kaisara and Bwalya (2021)	Namibia	Mixed methods	Online survey	Students enrolled for the Business and Information Administration (BIA) programme at the Namibia University of Science and Technology (NUST)	137 undergraduate students [79% female, 21% male]
Kapasia et al. (2020)	India	Quantitative	Online survey	Undergraduate and postgraduate students studying in various colleges and universities of West Bengal	232 undergraduate and postgraduate students [50% female, 50% male]
Katz et al. (2021)	USA	Quantitative	Online survey	Undergraduate college students from 30 USA universities completing their spring term remotely.	2,913 students [65% female, 35% male]
Kiebler and Stewart (2022)	USA	Qualitative	Online survey; Other: Photo uploads	University of Michigan students (from first- generation/low-income and more educated, affluent families)	12 students from first- generation/low-income families 16 students from more educated, affluent families

Authors	Country	Methodology	Methods	Population description	Participants
Kuhn et al. (2022)	European universities (Germany, Austria, Switzerland)	Quantitative	Online survey	92 universities from Germany, Austria and Switzerland	3560 students [72% female, 27% male, 1% non-binary]
Landa et al. (2021)	South Africa	Qualitative	Case study; Other: Qualitative online questionnaire	Educators (lecturers) and students from two universities located in remote parts of Eastern Cape Province	30 students [17 female, 13 male] 15 lecturers [6 female, 9 male]
Makgahlela et al. (2021)	South Africa	Qualitative	Online survey	Academic staff, support staff and registered students from a rural university in South Africa	312 students [55% female, 45% male]
Malet Calvo et al. (2021)	Portugal	Qualitative	Interview	International students (non-Portuguese nationals studying at universities in Portugal).	27 students from Brazil and Portuguese-speaking African countries all of whom were aged between 20 and 40 years old and had remained in Portugal during the lockdown of spring 2020
Maphalala et al. (2021)	South Africa	Qualitative	Focus groups	Full time students who had access to the University Learning Management System Moodle.	10 student teachers
Mavhandu-Mudzusi (2021)	South Africa	Qualitative	Other: Telephonic interviews	HE Transgender students in Buffalo City Metro Municipality, South Africa	8 participants [Disclosude on identity at home: 2 No, 6 Yes]

Authors	Country	Methodology	Methods	Population description	Participants
Means and Neisler (2021)	USA	Quantitative	Online survey	U.S. undergraduate population, including students in two-year as well as four-year postsecondary programs (both part- time and full-time)	1,014 undergraduates taking for-credit college courses that started with in-person classes and later went fully online in spring 2020
Mutinda, G., and Liu, Z. (2021)	Kenya	Qualitative	Semi structured interviews	UG and PG students	20 students from two universities
Nazir and Khan (2021)	Pakistan	Qualitative	Other: In-depth interviews	HE students who had studied an entire semester through an online mode due to the pandemic.	12 students from 6 universities [3 private, 3 public]
Ndzinisa, N., and Dlamini, R. (2022)	Sub-Saharan Africa countries	Qualitative	Discourse analysis to 28 newspapers in Sub-Saharan Africa (Botswana, Eswatini Lesotho, Namibia and South Africa)	N/A	N/A
Olum et al. (2020)	Uganda			Undergraduate students pursuing MBChB (a 5-year program) and B.NUR (a 4-year program) at Makerere University for the Academic Year 2019/2020.	214 students [42% female, 58% male]
Pillay et al., (2021)	South Africa	Qualitative	Case study	Students at a class of exit level HE (the author's students).	70 students

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Puente (2022)	USA	Mixed methods	Chicana/Latina feminist platicas	Rural Latinx students from Californiaâ€™s San Joaquin Valley pursuing Higher Education	16 rural Latinx high school seniors from seven different rural communities in Tulare County, California.
Garcia-Louis et al. (2022)	USA	Qualitative	Focus groups	Latinx students	19 students
Rodicio-García (2020)	Spain	Quantitative	Online survey	80% HE students 16% A -- levels students 5% Secondary Education	593 students [76% female, 24% male]
Woolf et al. (2021)	UK	Quantitative	Online survey	Prospective students registered to take the University Clinical Admissions Test in 2019 that had been seriously considering applying to medicine in the UK for entry in 2020, and were UK residents.	2877 [70% male, 27% female, <1% other, 3% Missing]
Zapata-Garibay et al. (2021)	Mexico	Quantitative	Online survey	HE students from public and private institutions in Mexico	660 students from 38 universities and 22 states across the country [64% female, 36% male]

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