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# A new educational normal an intersectionality-led exploration of education, learning technologies, and diversity during COVID-19

Enrico Gandolfi<sup>\*</sup>, Richard E. Ferdig, Annette Kratcoski

Kent State University, 800 Hilltop Dr, Kent, OH, 44242, USA

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## ABSTRACT

The COVID-19 pandemic exacerbated the learning technologies disparity in the U.S. K-12 education system, thus broadening an already existing and troublesome digital divide. Low-income and minority students and families were particularly disadvantaged in accessing hardware and software technologies to support teaching and learning. Moreover, the homicide of George Floyd fostered a new wave of inquiry about racism and inequality, questioning often enabled with and through technology and social media. To address these issues, this article explores how parents and teachers experienced the pandemic through intersectional and digital divide-driven lenses. Data were collected from eight parents of underserved children and nine U.S. K-12 teachers to better understand challenges and best practices related to learning technologies during the pandemic. Data collection also focused on conversations about social justice, exploring specific needs and strategies for addressing technology inclusion and diversity in educational environments. Results from the study suggest that COVID-19 was a source of increased digital divide in terms of community and social support rather than economic means. At the same time, staying at home facilitated family discussions about racism and intersectionality-related themes. Implications are suggested for improving school communities and contexts in dealing with pandemic and emergency learning.

## 1. Introduction

The COVID-19 pandemic exacerbated the learning technologies disparity in the U.S. K-12 education system, thus broadening an already existing and troublesome digital divide [12,17]. Low-income and minority students and families were particularly disadvantaged in accessing hardware and software technologies to support teaching and learning. The disparity was not just financial; for instance, many low-income parents served as essential workers during the pandemic. They returned to work, unable to supervise and assist their children who were at home and attempting to learn remotely. Finally, recent protests about diversity, inequity, and inequality put a spotlight on racism and access to equal rights and opportunities. This unusual and yet pivotal combination of events has led to a critical and urgent need for the exploration of the intersectionality of education, learning technologies, diversity, and equality.

Updated approaches are needed to address these issues, which can have long term consequences for underserved populations, their access to education, and broader conversations about diversity and inclusion.

To address this challenge, this study explored how parents and teachers experienced the pandemic through digital divide-driven, intersectional, and community lenses. More specifically, we drew on structural intersectionality to understand how different social systems are intertwined in influencing individual experiences [1,6] and the digital divide [22]. Such an agenda provides an opportunity to reflect on how communities of practice [48] may influence inclusion and support before, during, and after a time of crisis (e.g., a pandemic).

This article reports on a study structured in two parts and informed by a multi-method research approach that is well aligned with intersectionality theory [18]. The first part of the methodology included eight interviews that were conducted with parents of underserved students (e.g., varying in income, gender, race, and ethnicity). The interviews acted as a needs assessment to develop a deeper understanding of access to and perceptions of learning technologies, teachers' practice, online classroom environments, and related policies. The second part of the research study included three mixed group interviews of nine total teachers. It served as an opportunity to debrief and summarize opportunities to expand and consolidate what had been learned from parents.

<sup>\*</sup> Corresponding author.

E-mail addresses: [egandol1@kent.edu](mailto:egandol1@kent.edu) (E. Gandolfi), [rferdig@kent.edu](mailto:rferdig@kent.edu) (R.E. Ferdig), [akratcos@kent.edu](mailto:akratcos@kent.edu) (A. Kratcoski).

The combined processes utilized three intersectionality strategies: *anti-categorical*, *intercategorical*, and *inracategorical* [25]. The investigation built upon a growing and evolving literature base using intersectionality for making education more inclusive and accessible [23,24].

The outcomes of the study were twofold. First, we were able to frame and highlight the increased need of equality due to technology dependency in education, which is now more relevant than ever given the rise of remote instruction. Second, we provided insights and implications for better interaction between teachers and parents. Both results can serve as examples of best practices informing new policies and approaches across different educational systems and contexts.

## 2. Literature review

### 2.1. The digital divide and inclusion

The term *digital divide* implies an inequality due to and/or worsened by the presence or absence of technology. We depend on technology for a variety of daily tasks, from personal communication to content access. Therefore, technology disparities can have severe implications for underserved populations when it comes to topics like teaching and learning. Indeed, education is strongly influenced by social media and instructional tools ranging from *Google Classroom* to *Kahn Academy*. As such, the educational landscape hosts inequalities and disparities due to the accessibility of its innovative facets, reiterating the impact of social determinants of health on equality and power hierarchy [35]. For instance, Livingstone and Helsper [22] directed 1511 interviews with 9 to 19-year-old children and 906 parents; they found that the digital divide is associated with gender, race, and income. Stornaiuolo and LeBlanc [38] also highlighted how the myths of digital citizenship and global connectedness should be overturned by comprehending the disparities in terms of time, space, materials, race, genre, and language.

Despite the importance of accessibility, increasing attention has been given to knowledge rather than mere access [15]. Indeed, digital tools are starting to show a high level of penetration across the population; therefore, the main challenge is deploying them in the most productive way (e.g., reducing screen time, finding proper resources, etc.). As such, the digital divide is increasingly seen as a multi-faceted phenomenon. As argued by van Dijk [46], the digital divide has been analyzed according to multiple theories, from social construction of technology [28] to the Bourdieu's concepts of habitus and capital [5]. According to van Dijk [46], the digital divide has different moving targets, and the focus is gradually moving toward predispositions to technology and the social factors involved [44,45]. More recently, attention has been focused on community and social contexts as an answer rather than a barrier, looking at ways to make digital literacy a community front. For instance, Ellison and Solomon [11] explored how African American parents developed counterstrategies for overturning common representations about digital literacy.

Following this broader lens, Nielson [26] described three main impact areas of the gap: *economic* (absence of technology), *usability* (difficulty in using the technology), and *empowerment* (not being able to realize the technology potential in terms of identity and self-empowerment). Looking at the educational system, Warschauer [50] expanded Nielson's list to include school access, home access, school use, gender gap, and generation gap. He claimed that sociocultural learning theories should be deployed for bridging the multiple actors involved.

This expanded definition has been related to digital or academic literacy in accessing electronic content, and how the role of social context and community is important for addressing digital divide challenges [23,37]. Schools and educators have been accused by several authors of providing inadequate support for staging proper inclusive interventions. For instance, Tang and Bao [40] found that educators often lack usability expertise; they are, therefore, not able to maximize the impact of the technologies for staging proactive and inclusive

changes. Reinhart, Thomas and Toriskie [31] came to similar conclusions, pointing to a diffused usability gap among the teacher workforce. Finally, Souto-Manning and Rabadi-Raol [37] accused the U.S. educational system of imposing underserved students constructed notions of inferiority, deficit, and cultural difference. This entire body of literature points to a low level of teacher training for addressing these issues and, at the same, to an increasing need of community support for dealing with them.

This cause has been embraced by the *community informatics* (CI) field, which focuses on how technology can become a bearer of action and change among underserved populations [16]. To achieve this goal, digital tools need to foster networking and mutual exchange between individuals, being able to address urgent needs but also long-term objectives through peer-support, attention to health, and knowledge sharing [33,34].

This increasingly attention to the social component of the digital divide has also fostered attention toward how communities can address its worsening due to COVID-19. Indeed, Azevedo and colleagues [2] directed several simulations regarding the future consequences of school closing and remote learning during the pandemic, pointing at a loss of 0.3–0.9 years of schooling across the world—particularly impacting minorities and underserved populations. Moreover, Iivari, Sharma and Ventä-Olkkonen [20] claimed that the pandemic presented several risks for young learners and their families, which have been overlooked by institutions and stakeholders. Looking at potential solutions, Van de Werfhorst and colleagues [43] found that in this situation the students' technology skills are the reference variable to consider, which is related to parents' and educators' support and expertise. Czerniewicz and colleagues [7] summarized the thoughts of a group of higher education scholars from several South African public universities, highlighting how COVID-19 is affecting vital, resource and existential inequalities among young adults. The authors also claimed that networking is an effective solution for promoting digital tools as instruments of boding and empowerment. Drouin et al. [8] analyzed how social media are becoming important tools for gathering information and dealing with anxiety during the current pandemic for both children and parents. They analyzed parents' (n = 260) attitudes toward digital media, finding an increasing use due to COVID-19 and potential benefits in terms of knowledge acquisition and social support. Beaunover and colleagues [4] observed that COVID-19 has weakened minorities' digital literacy and their ability to re-connect to their community; these authors suggest that social and peer support are a key strategy to overturn this trend, addressing the lack of assistance and isolation that are damaging underserved populations the most.

### 2.2. Intersectionality and education

There is a direct and important connection between the digital divide and intersectionality. The intersectionality framework focuses on how multiple social categories and affiliations (e.g., race, gender, sexual orientation, disability, etc.) are intertwined within the individual (micro level), repeating and enforcing interlocked systems of power and oppression in society (macro level). Examples include racism, misogyny, and homophobia [6]. As such, intersectional approaches rely on analyzing how multiple identities co-exist and then exploring the outcome of this interconnection, with specific attention on marginalized and underserved minorities and groups. It has also been associated with supporting theories like ableism [51]. The COVID-19 pandemic, its related economic challenges, and protests about race and equality have all made this topic even more timely and important; at the same time, technology represents an important channel for understanding these complex events from an instructional perspective.

Since its establishment as an academic perspective in the 1990s, intersectionality has been used in a variety of fields and disciplines ranging from gender studies to public health. Intersectionality has increasingly been used for understanding how underserved learners and

their families experience the educational system and suffer, absorb, and negotiate the structure of power within it. Tefera, Powers, and Fischman [41] edited a multifaceted overview of intersectionality within education, pointing at the benefits of deploying this theory while exploring educational processes. They also highlighted the need to adopt a flexible lens while using intersectional guidelines, adding references and constructs able to expand the cornerstones of this theory. This has been done by addressing an increasing number of social groups but also by looking beyond the students themselves; indeed, parents have been studied due to their role as gatekeepers between students and schools.

For instance, Vincent, Rollock, Ball and Gillborn [47] analyzed how black, Caribbean-heritage middle-class parents raced and classed their own interactions with teachers and school administrators—a process that had glaring implications for the positioning of their children. Sime, Fassetta and McClung [36] interviewed Roma parents about their experience with the educational school system, finding a combination of empowerment and yet marginalization due to gender, economic status, and public stereotypes. Durand [9] uncovered how Latino parents evaluate and perceive education and school policies according to their own formative background and immigration history; solidarity between families but also teachers' ability to address multiculturalism were found to be key factors in supporting a more inclusive learning. Goldberg, Black, Manley and Frost [14] focused on how adaptive parents (homosexual and heterosexual) are involved with their children's school community, discovering that attending school events and committees prevents marginalization despite possible frictions with other parents due to gender and sexual orientation.

This overview is aligned with the emergence of three main intersectional strategies for addressing inequalities [25] that both parents and teachers may use:

- **Anticategorical:** the focus is on deconstructing social categories by themselves due to the complexity of social reality.
- **Intercategorical:** the focus is on accepting existent categories for evaluating their relationships and conflicts, therefore embracing a strategic rationale.
- **Intracategorical:** the focus is on just partially accepting social groups and affiliations, looking at ways to undermine them in the long term.

Even with this early work and with theoretical and empirical explorations of intersectionality, little attention has been paid to understanding how parents and schools deal with technology, the digital divide, and intersectionality in the context of the current pandemic. Indeed, technology—and specifically the digital divide—works as an additional layer of complexity and as a potential barrier for equality and identity; at the same time, digital tools can provide opportunities for empowerment and connection. Following the previous references to the digital divide and socio-economic contexts in education, a community lens could be productive for framing this process.

### 2.3. The potential role of community

Structural intersectionality relies on the idea that multiple systems of oppression and disadvantage operate in our society, disempowering some social groups and empowering others instead. Technology can be seen as another factor that highlights such a disequilibrium; at the same time, digital tools can support and endorse instances that go against the status quo, especially when referring to online communities. Scholars have indeed started to pay attention to how digital outlets may work as aggregative spaces for minorities and proactive environments for discussion. This is aligned with the previously mentioned focus on community and networking as solutions to the digital divide.

Zimmerman [52] investigated how Twitter became crucial in supporting new feminist movements under the hashtag *#intersectionality*. Sariola [33] noted how community engagement in an inter-connected world and through an intersectional awareness can improve global

health research and awareness. Schmitz and colleagues [34] directed a content analysis of 10 LGBTQ + Latinx activist websites, discovering that these online spaces work as bearers of activism and social equity.

The importance of communities has been widely explored and this article does not aim to cover such a rich corpus of evidence; suffice it to say, the community aspect has been proven to be a key factor in improving inclusion and acceptance in schools [42]. Nevertheless, few studies have contextualized this construct within the current U.S. system and especially with an emphasis on emergency remote learning.

We suggest a lens to better understand how teachers' and parents' perspectives on the digital divide are aligned, looking at intersections between different identities and the potential role of online communities as a support. We refer to the concept of *community of practice* [48], which is based on three main cornerstones that a community should have for staging meaningful learning experiences.

- The **domain:** community members should share a common interest that brings them together, although it may be reformulated and changed.
- The **community:** the members start to learn together as a heterogeneous group that bond over time.
- The **practice:** the members interact with each other periodically, and this exchange influences their own practices.

This model has been widely used in a variety of studies, among which several in the field of education [21,30]. The advent of COVID-19 might have sabotaged different communities, but it also could have helped the creation of virtual ones as a potential solution to the digital divide. As such, the challenge due to COVID-19 may have worked as a barrier but also as a stimulus for both parents and teachers. In such a fracture, we also intend to shed light on the potential role of communities and the presence of the three intersectionality strategies (anticategorical, inter-categorical, and intracategorical) that teachers and parent may encounter and use for supporting inclusion.

### 3. Research design

This study relies on three guiding research questions about the COVID-19 quarantine:

- 1) How did parents and teachers of minority children deal with the three types of digital divide (economic, usability, empowerment)?
- 2) How did parents and teachers of minority children deal with inequality and disparities from an intersectional perspective?
- 3) How did the school/parent communities impact the digital divide, inequalities, and disparities?

For answering these questions, we embraced a constructionist approach [29] that focused on how subjects (in our case, parents and teachers) navigate through the challenges of inequalities and the digital divide as active and militant actors [25]. Single and group interviews [1] were chosen as a method for unveiling the subjects' personal stories and self-positioning, using accessible terms and avoiding academic jargon [49] while inquiring about daily experiences and feelings as a starting point for developing a bigger picture of intersectional processes [3]. The beginning of the interviews focused on the first days during the pandemic; the focus then shifted to personal perspectives on wider topics and challenges related to the quarantine and the major events that happened during Spring 2020.

A total of eight parents and nine teachers were recruited through a snowball technique [27] directed by the authors' institution (see Table 1 for an overview of the identification terms used by the subjects themselves). An invitation to participate to the study was sent through the authors' research center and their teacher/parent list server and social media accounts. The parents (age mean = 45, SD = 3.1) had children who were from different combinations of minorities (low-income,

**Table 1**  
Overview of the participants recruited.

Parents	
Name	Child
Genny	15-year-old girl; visually impaired
James	two adopted girls, 9 and 16-year-old, black, gifted and with special needs (anxiety and ADHD respectively)
Jenny	9-year-old boy; ADHD
Julie (single mother)	12-year-old trans boy; ADHD
Leanna (single mother)	12-year-old boy; African American
Larry	10-year-old girl; black
Maria	10-year-old girl; immigrant
Rachel	16-year-old boy; black; has autism
Teachers	
Name	Grade
Alba	5th grade
Alexa	high school
Catie	high school
Debora (black)	high school
Hanna	2nd grade
Jasmine (black)	kindergarten
Mildred	4th grade
Linda	4th grade
Natalie	2nd grade

special needs, sexual orientation, immigration history, race), while the teachers (age mean = 39, SD = 8.3) were all women, two of whom were African-Americans. All the parents and seven of the teachers were from Ohio, while two teachers were from California. The parents were interviewed singularly online, while the teachers participated in three online group interviews. The interviews were recorded during August and September 2020 and analyzed with *Nvivo* n12 by using a discourse analysis [13]. Following this approach, the focus was led by three 'building tasks': (1) *significance* (what and who is relevant); (2) *practice* (what activities are under the spotlight); and (3) *connection* (which relations between elements (e.g., practices, community involvement) are significant). Interview and focus group questions are reported in Table 2. The process was supervised by the authors' University IRB committee, and participants were compensated with \$50 (parents) and \$25 (teachers) Amazon gift cards. All names used in the study are pseudonyms to protect identity.

## 4. Results

### 4.1. Parents and the digital divide

#### 4.1.1. Economic digital divide

For all the parents involved, the economic digital divide was not a significant factor due to equipment access provided by the schools (e.g., iPads and Google Chromebooks). Maria suggested: "we were lucky, the school gave all the technology we needed." If anything, the challenge

**Table 2**  
Interview and focus group probes.

Interview probes
1) Can you describe your experience as a parent during the last pandemic?
2) Can you tell me more about the educational experience that your son/daughter had?
3) Did you encounter any problem or issue in accessing learning materials and following your son/daughter during the remote instruction?
4) What are your exceptions and concerns for the forthcoming academic year?
Focus group probes
1) Can you share with me your experiences as educators and school administrators during COVID-19?
2) What were the main challenges and issues to address?
3) How did you deal with digital inclusion and access?
4) What are your expectations and plans for the forthcoming academic year?

related to having a reliable internet connection. Many parents, like Leanna had to redesign the home environment. She noted: "I just moved the router and the modem and set up his class space." Only one parent reported an initial feeling of stress and anxiety. Jenny shared: "I felt guilty because I was well aware that I was not giving my son my undivided attention while he was learning remotely. I could not be in front of him through out the day as his teacher would be."

#### 4.1.2. Usability digital divide

Nevertheless, almost all parents (seven out of eight) expressed concern about a usability digital divide among teachers. Leanna, for instance, shared:

We had a Chromebook issued by the school. But having said that, teachers themselves were a little bit challenged in supporting high standards for the curriculum. There were days when there was nothing happening ... (my son's) schedule was just clear.

James agreed that "it was too quick. Teachers did not articulate well ... we needed to explain (to) them how to use Google Classroom". Larry added that "they did their best, but there was a lot of confusion ... it was a jungle".

Another expertise-related problem that emerged from three parents was the use of a variety of educational applications that overwhelmed the students. "It is confusing" shared Leanna. "It does not help (as) some are the same" Maria added. These deficiencies were explained by four parents as being due to the short time educators had to prepare; five parents also noted the lack of proper training for teachers. In addition, COVID-19 implied other problems not directly related to technology. For instance, the free breakfast program hours were not flexible, preventing students in need to consume breakfast before school started (Leanna).

#### Empowerment digital divide.

A total of four out of eight parents saw their domestic space and routines as an initial barrier for their children learning potential. Julie observed that the requirement of the camera was intrusive:

My kid would like to have his camera off. To move around while keeping paying attention ... is a problem of privacy and personal preferences." This implied the redefinition of their space. In addition, she had to deal with "tempering his personal stress for higher expectations ... I feel the same. This was the key parenting theme of the spring ... the real important stuff is to learn the basic math, reading some books.

Parents of students with special needs had to work hard to mitigate the academic pressure given by the absence of order and the number of assignments given. James specifically highlighted this struggle. One of his daughters has ADHD. She was overwhelmed by the number of inputs given in the online experience; the other has general anxiety and, as such, was always worried that there was something due. He admitted that "it was hard to handle and assure them." He and his wife were able to re-create a routine for preventing sources of anxiety and facilitating tasks management, but this process was difficult to initially embrace.

Another issue perceived by almost all parents (seven out of eight) was the lack of social interaction. Genny observed "the inequities (her) eldest's friends (were) experiencing ... they are autistic, and they are not supported, and they need to have contact." Her daughter was already used to seeking help and interacting with teachers, making her more comfortable in comparison with other students in online interactions. Rachel also noticed that her "son's depression spiked a bit. He also withdrew from the family a bit. He began finding online friends to cope with not being at school."

#### 4.2. Parents and intersectionality

All the parents were particularly receptive about intersectional topics, and especially in association with the pandemic and the homicide of George Floyd. They all highlighted the need to discuss race and diversity during the quarantine and the protests, even when the majority (six out of nine) was expecting to have those conversations when their children were older. For instance, Genny said:

We are having these conversations about the protests. Because we needed to have them. I think the Covid brought to the forefront very horrible things and trying to talk to your kids what this is and how everyone is equal ... I had conversations I never thought we might have. Our country has lost his way, and there is a trickle down into our children with tension.

Online communication was making everything accessible, and, therefore, this required counterstrategies. In addition, she observed that an anticategorical approach may not be sufficient:

My kids do not see color, we grew out looking at the person. Even I struggle with it ... it is not just Black Live Matters ... and it is becoming color issue. The more you explain, it takes some fear away and replace with knowledge.

Two parents highlighted the long-term impact of COVID-19 on intersectional-led conversations. For instance, Leanna shared:

There will be long term effects ... affecting people on so many ways ... I think that the effect is different from every single household. I come to work and I present one way at work – I present well ... people may have an opinion a sort of book cover – I am a sole parent ... I live in a neighborhood that has safety issue ... my son is black is and aware of the multiple issues and all it is amplified right now ... you cannot not see it.

Julie felt that her son's school was already equipped for what happened. She shared that "there were conversations they were having with the students. They asked some families to participate to the protests. Even before COVID-19 they were having conversation about Charlottesville events." Regarding inclusion, she noticed that "they were accepting and welcoming ... in the previous school, my son had social anxiety and panic attack." Perhaps more importantly for her:

They are aware of their own limitations too. One teacher that is very Christian struggled because my son transitioned. Another teacher ... talked about it with him. She actually thinks that Covid represent an opportunity for creating that time and space for those conversations to happen. And current events have hit those nerves. I know, as an adult is hard to have those conversations online. But I think a lot of these kids can have a fully committed conversation all around the world.

For James, COVID-19 was actually an opportunity to re-think his role as a white father of two black girls, reiterating the fact that an anticategorical approach risks to be unrealistic. He observed that:

My girls are growing up in a white community ... When Covid hit we decided we have to talk about this. How does make you feel? They were never felt discriminated because they were with us. But with the current political arena, they are getting a very good looking at what people think. They find that people have a very strong opinion ... your beautiful brown color is important to love and be happy with. I have family who they do not understand the protests and riots because slavery ended decades ago ... but you do not what it is means not to have a mortgage because of the color of your skin.

James's daughters went to a Christian school, which he believed is an inclusive environment.

They know we will fight for them, but we want them to know that people do not understand ... their current school is more diverse than what I was thinking. I think what all schools need is a diversity understanding. We are to be very careful at judging. Not everybody has the same opportunities.

#### 4.3. Parents and community

The experiences in terms of community were mainly negative for parents (seven out of eight). Leanna felt isolated, which she found a relevant issue for those who do not have a good home environment.

Our school is set up for ... those are challenged academically ... that need extra help. Students that do not have academic challenges ... may still need in other areas. As a parent of a student, no one has checked on me on that side, but also as a student ... in terms of making sure everything he needs ... I am not say he needs something ... they just do not ask the questions.

Maria noticed that her son's school community was greatly weakened by COVID-19, stopping all the activities, and mainly focusing on content:

So basically ... due to the fact learning was online & not in person at school, so many of the social issues currently regarding Covid, Black Lives Matter, fake news, etc., which have created so much controversy & division ... my son did not have the important discussions addressing these matters in the school environment while practicing the IB model & having the benefit of hearing others point of view-specifically racial inequality.

The other parents experienced a situation similar to Leanna's and Maria's with little interaction and a long summer gap without proper support. Genny shared: "I need somebody smarter than me for addressing these issues [racism and lives black matter]." By contrast, Julie was supported by periodic "virtual school meetings with parents, and sometimes families decided to make protests." She noted that it was a "good environment and [the school] uses it as an opportunity to push on their own biases and stereotypes." She observed that communication was key, and their virtual community was as effective as the face-to-face one.

Focusing on students' communities, parents highlighted a change of technology habits. Seven of them admitted having given their kids more access to smartphones and social media for addressing their need of socialization. Leanna shared that "socialization was one of the most difficult aspects. (Her son) really counts on his school day ... for interaction with other students. You cannot fulfill interactions need with Zoom or Google Meet."

Genny also mentioned the role of social media, observing that her daughter "had phones or iPad and the abilities to have contact with other students." She shared that "technology was a savior ... not having that would have been way more worse." However, it was not easy; she added that: "this attitude was developed through challenges. My daughter has been a victim, a target [of cyberbullying]. She has a thick skin and she has learned to deal with this very well. But students do not understand." Maria added that "using these tools is the only way to feed a community of friends right now". There was, therefore, parents' acceptance of social media for supporting the socioemotional needs of their children (and related community outcomes) despite possible issues in terms of disruptive behaviors and lack of control about content.

#### 4.4. Teachers and the digital divide

##### 4.4.1. Economic digital divide

Teachers did not mention an economic digital divide in their experience. Although Wi-Fi connectivity was considered an important issue that some of them (seven out of nine) encountered, all their school

districts took care of it by assisting students in need and hosting hotspots in several areas.

#### 4.4.2. Usability digital divide

All teachers admitted to having struggled while transitioning to online learning. Like with the parents, the main problem was the usability digital divide and the need to develop materials in a completely different way.

Alba: "I was barely sleeping to provide something of the same experience. Having all these small groups, creating videos. I think the hardest part was the communication."

Hanna: "A lot of teachers were not ready. I still do not feel ready."

Jasmine: "My first reaction was just about safety ... I was actually relieved when the school closed. But then ... we are not going back, that is when I ... started crying. I had a break down. I started to make videos; I just wanted to make that connection."

Teachers were all aware of their own limitations and expressed concerns about the digital divide among their students and its related impact on presence and commitment. For instance, Catie noticed that many of her "students had to take care of their young siblings (had to watch their content at night). They just could not help it. We (were in class) talking about babies, infants, toddlers." This forced her to develop asynchronous content after just a few weeks. Alba added that "the distractions at home (e.g., young siblings) and just not having that connection (was) the main worry for students."

#### 4.4.3. Empowerment digital divide

All teachers also confessed they were not always able to provide an ideal learning experience. Six teachers explained that students' home environment was a serious issue. For instance, Alexa encountered several problems with her low-income and immigrant students, some of which would have had to have been held back in countries with technology bans. She also had students that were ashamed of their homes in comparisons with their wealthier peers. She shared that "sometimes, they do not want to have cameras turned on. We have a lot of inequity".

Four teachers highlighted parents' responsibility as well. For example, Susan was more critical of parents and their ability to maximize the learning experiences of their children: "I know you have to work, but your kid needs to be online." Therefore, she was flexible in terms of lesson hours and content available. Five teachers found ways to engage with struggling students, empathizing presence over assignments, and allowed the presence of a friend for making the learning experience more sustainable. The main expectation for learners, according to Hanna, was "just be there, this is what is important."

Seven of the nine teachers admitted that students who needed personalized learning were often left behind when there was no strong connection with their family. Jessica reported the case of a student with severe AHAD who struggled with independent work, and of a mother who had to take her son from the class because of the lack of socio-emotional experiences. All the teachers pointed to poor socialization due to Covid and the negative outcomes for the students. Conversely, only Alba described a positive experience just because her students organized themselves and then involved her in weekly meetings. Catie noted that these connections were particularly critical during the pandemic because "students of today have more social emotional problems and anxiety."

Two teachers related this situation to online learning and its impact on their students. Linda admitted: "I teach in a vacuum ... we were telling the parents to limit screen time, and now we have a double standard." Part of the problem was for them to be able to control their students and yet also empower them as active learners and satisfy their personal needs and requests. Linda commented that "we do not who is doing the homework. It is really hard to make sure they are not playing

Nintendo." Debora added "I needed to be the controlling police ... and it was a little of a struggle." Linda concluded that this poor social interaction meant that "there was no personal connection, they do not talk ... older kids just do not talk like they should." Therefore, the intermediation of technology was for some teachers a barrier for assisting their students and promoting them as active learners.

#### 4.5. Teachers and intersectionality

Intersectional topics were embraced by all the teachers, highlighting the need of a change and an increasing attention to diversity from their schools.

Alexa: "My school is tremendously diverse (black and low income) and, yet we were slow to react. All our faculty are white, our staff and janitors are not. We exhibit what you think we exhibit. But we are reacting. We had 10 hours of diversity training. We are all white, this is problem, but we are acknowledging the problem."

Catie: "We are less than one percent diverse. We are 80% white and Catholic. A few years ago, we had an incident and our school system recruited one person trained in social justice. I think we made an effort, but it is a little different, we have 30–40 percent that are on free or reduced lunch programs. This is where we are looking at. We are very unprepared".

Alba: "It is time to address the inequalities in this country, and Covid is an opportunity."

Three teachers described some strategies that were already in place, mainly with an intercategorical focus. For instance, Hanna observed that they were already planning to not limit themselves to the Black History Month activities, empowering their curricula with references to black scientists. Alba also noticed that in her school there was already a strong interplay with the black community for addressing racism and collecting insights from minorities. All the teachers reported that a diversity driver was already occurring before Covid, relying on hiring an expert or a team for promoting diversity and inclusion. Nevertheless, the homicide of George Floyd was described as a pivotal moment by eight of them. Natalie highlighted that her Catholic school was already influenced by these values, suggesting a more anticategorical vision. She noted that "it is already in our values; we are all the same."

For Jasmine and Debora, the only black teachers in the sample, the transformative potential of Covid was particularly felt.

Jasmine: "We need to reimagine education. I am ok with the core standards, but we need to go beyond. What the students need? What they want? How do we want to engage them with? Covid is presenting an opportunity to take a shot to public education. The divide is there, what Covid is doing is basically ... open a door and let roaches flying out. Can you close the door? I do not think so, the roaches will still be there ... I think there is a silver lining. You cannot go back".

Debora: "Covid 19 is exposing what education really is. And it is ugly. Now all the people are aware of the disparities. Now you hear the people who are asking who cannot access a PC."

#### 4.6. Teachers and community

For all the teachers, work communities were a main reference point. Natalie, for instance, admitted that being technology savvy was important for helping her teaching community online. She noted that "letting them understand the technology was not easy (...) [but] getting people to exit their comfort zone was important."

All the teachers agreed that they were missing their colleagues and that, at the same time, they were using online tools for sharing thoughts,

feelings, and resources for being ready for the future. Therefore, the online community of practice mirrored the physical one before the pandemic. This was particularly important for Linda because the school district “was not helping us and changed ideas constantly.” Hanna added that “our professional development was so intensive ... we did not retain anything!”

Looking at the family communities, four teachers described that keeping the communication alive was also a key for developing a positive atmosphere for four teachers. Natalie indicated that “we check with the families every single day. This has been very helpful.” In addition, five teachers described different ways to engage with their students and make them feel connected, from events (online bedtime stories, dance parties) to video game sessions (Minecraft and Roblox) for maintaining socialization (Hanna, Alba, Alexa). However, all the teachers were pessimistic about online communities involving adults. For instance, Hanna shared that “people feel they can say whatever they want.” This can be related to a sort of skepticism about online communities with the involvement of parents and young adults. It is referred to as the online disinhibition effect, which implies that the anonymity characterizing virtual environments make people more inclined to embrace disruptive attitudes [30].

## 5. Discussion: The new normal

The personal stories from parents and teachers point to three main highlights related to our research questions. First, the economic digital divide was surprisingly limited for this group during the COVID-19 pandemic. This was due, in part, to the equipment provided by the schools; such a finding is well aligned with the increasing focus on digital literacy and use rather than access [15,50]. However, both parents and teachers recognized the insufficient support for students with special needs, who seemed to have suffered the most from the pandemic. Moreover, both teachers and parents also agreed about the importance of the home environment as a factor of stress (e.g., whether students would have cameras on or off). It also highlighted elements of inequity and tension (being afraid to show your home) and echoed the complexity of the digital divide in terms of variables and multiple factors to consider [45,46].

There was a perceived gap in usability. Some parents did acknowledge the difficulties encountered by teachers, and vice versa. There was evidence, though, of a sort of reciprocal accusation between the groups about not being able to handle the challenges of the remote learning experience. The teachers were particularly critical against families, which were often accused of not being able to support their children during remote instruction. Parents highlighted a lack of expertise among educators, which was either excused due to the unexpected pandemic or slated as unjustified because of the already available tools being used. This highlight can be seen as a damaging process in light of challenging the digital divide and the related need of cohesion and social support across the community [4,16,34].

Addressing the second research question, COVID-19 was seen as an opportunity to discuss intersectionality topics for some parents and teachers, especially black parents and teachers. Indeed, the pandemic and events related to racial protests were able to work as a pivotal event for addressing related topics like racism and privilege with children. It helped them push conversations towards diversity and inclusion related objectives. It can be argued that according to teachers the focus was on intercategorical drivers, framing different social groups and working on weakening related disparities. Such an approach can also be defined as an institutional one, also because it depends on policies still aimed at solving equality issues. Parents seemed to embrace a more anti-categorical attitude, focusing on how categories needed to disappear, and the complexity of human beings must be valorized. However, there were two exceptions. Natalie (a teacher) stated that the Catholic focus of her school was already covering an anticategorical approach. And James (a parent) was aligned with this perspective considering that his

daughters were going to a school with a similar approach. However, he noticed that it was important to start with current disparities for being able to reach that awareness and dealing with still shared stereotypes, suggesting an intracategorical scope. This perspective has actually been suggested by Eick and Ryan [10], who saw an alliance between intersectionality and Catholic teaching values. This finding reiterates how education and teachers do not seem to provide adequate support in terms of inclusion, especially during a time where this focus was most needed and requested.

Finally, the community aspect seemed to be interpreted differently by teachers and parents. The former group was particularly interested in helping the social skills of their students, promoting group experiences in any way possible. The latter group was asking for a wider engagement including families and guardians, also considering the events relate to the homicide of George Floyd and the need of more support for addressing them. This difference can be explained with divergent ideas regarding the role of the teacher. Rather than being static, the teacher should be seen as a dynamic participant who does not have all the answers and needs to be supported by parents and children themselves for improving his/her instructional activity [43,50].

It can be argued that communities of practice (about inclusion but also support in terms of learning) were practically absent due to a lack of communication between parents and teachers in these regards. Teachers seemed skeptical about wider communities with parents' involvement. Conversely, the parents noticed a need for an ongoing conversation with all the parties involved; they recognized the need for a community with shared goals and an ongoing practice (like what experienced by Julie). However, they noted that even if periodic controls were well accepted, there would be a need for more structured activities. This was particularly true in addressing important topics like racism and social justice. Finally, parents saw social media and online interaction as a partial and necessary alternative for keeping their children connected and promoting their social skills and digital literacy, showing more acceptance of technology than in the past (echoing what observed by Ref. [8]).

## 6. Conclusion

The implications of this study are noteworthy for both practitioners and scholars. Practitioners should be prompted to develop more proactive activities for supporting families and students on a daily basis. This should include, but not be limited to, addressing sensible topics that parents may struggle to deal with. Scholars can easily build upon using evidence from this study to stage additional research. These findings contextualize the current literature within the pandemic and the related political climate, reiterating previous evidence (e.g., the importance of the usability digital divide) but also highlighting new needs and priorities (e.g., the need of discussing macro topics like racism ahead of time due to the information overflow provided by social media).

It is worth noting four limitations of the study. First, it did not focus on one specific set of disparities but, rather, tried to cover a broad range of cases for providing a wide and yet fragmented overview of the impact of COVID-19 on education. As such, more focused inquiries need to be directed for better understanding how specific communities were impacted by the pandemic. The same issue can be related to the teachers recruited, who were from different backgrounds. Second, it was exploratory at its core given the small sample size; alternative methodologies could be embraced that include questionnaires and longitudinal ethnographies. Third, it was limited to the US and particularly Ohio with consequences in terms of social groups engaged (e.g., Latinx and Native Americans were absent). Additional research could target other countries, populations, and contexts. Fourth, it focused on the digital divide and intersectionality as a topic of discussion, but additional topics might have been addressed, from mental health to cyberbullying (here just briefly mentioned).

Despite these limitations, this study served as an important exploration of how COVID-19 worked as a factor of change and influence with



the digital and intersectional divide characterizing the US educational system. Our hope is that its results will work as a further step toward the establishment of a more inclusive and accessible learning for students, their families, and their teachers.

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## References

- [1] L.R. Agustín, E. Lombardo E, Intersectionality, in: L. Shepherd (Ed.), *Handbook on Gender & Violence*, Edward Elgar Publishing, Cheltenham, 2019, pp. 43–60.
- [2] J.P. Azevedo, A. Hasan, D. Goldemberg, S.A. Iqbal, K. Geven, *Simulating the Potential Impacts of COVID-19 School Closures on Schooling and Learning Outcomes: A Set of Global Estimates (Policy Research Working Papers)*, The World Bank, Washington, 2020.
- [3] A.D. Christensen, S.Q. Jensen, Doing intersectional analysis: methodological implications for qualitative research, *NORA-Nordic Journal of Feminist and Gender Research* 20 (2012) 109–125.
- [4] E. Beauoyer, S. Dupéré, M.J. Guitton, COVID-19 and digital inequalities: reciprocal impacts and mitigation strategies, *Comput. Hum. Behav.* 111 (2020), <https://doi.org/10.1016/j.chb.2020.106424>.
- [5] W. Cockerham, *Social Causes of Health and Disease*, Polity Press, Malden, 2013.
- [6] K. Crenshaw, Mapping the margins: intersectionality, identity politics, and violence against women of color, *Stanford Law Rev.* 43 (6) (1991) 1241–1299.
- [7] L. Czerniewicz, et al., A wake-up call: equity, inequality and covid-19 emergency remote teaching and learning, *Postdigital Science and Education* 2 (3) (2020) 946–967.
- [8] M. Drouin, B.T. McDaniel, J. Pater, T. Toscos, How parents and their children used social media and technology at the beginning of the COVID-19 pandemic and associations with anxiety, *Cyberpsychol., Behav. Soc. Netw.* 23 (11) (2020) 727–736.
- [9] T.M. Durand, Intersectionality as a framework for understanding school involvement and advocacy beliefs of Latina/o families of young children, in: S. Sonnenschein, B.E. Sawyer (Eds.), *Academic Socialization of Young Black and Latino Children*, Springer, Cham, 2018, pp. 141–164.
- [10] C.M. Eick, P.A. Ryan, Principles of catholic social teaching, critical pedagogy, and the theory of intersectionality: an integrated framework to examine the roles of social status in the formation of Catholic teachers, *Journal of Catholic Education* 18 (1) (2014) 1–16.
- [11] T.L. Ellison, M. Solomon, Counter-storytelling vs. deficit thinking around African American children and families, digital literacies, race, and the digital divide, *Res. Teach. Engl.* 53 (3) (2019) 223–244.
- [12] M. Enriquez, *The Digital Divide: the Impact Education and in Students Color/low Income in Urban Communities*, 2019. [https://digitalwindow.vassar.edu/senior\\_capstone/918/](https://digitalwindow.vassar.edu/senior_capstone/918/). (Accessed 14 January 2021).
- [13] J.P. Gee, *How to Do Discourse Analysis: A Toolkit*, Routledge, New York, 2014.
- [14] A.E. Goldberg, K.A. Black, M.H. Manley, R. Frost, 'We told them that we are both really involved parents': sexual minority and heterosexual adoptive parents' engagement in school communities, *Gen. Educ.* 29 (5) (2017) 614–631.
- [15] M. Graham, Time machines and virtual portals: the spatialities of the digital divide, *Prog. Dev. Stud.* 11 (3) (2011) 211–227.
- [16] M. Gurstein, *Community Informatics: Enabling Communities with Information and Communications Technologies*, Idea Group Pub, Hershey, 2000.
- [17] I. Hamburg, G. Lütgen, Digital divide, digital inclusion and inclusive education, *Advances in Social Sciences Research Journal* 6 (4) (2019) 193–206.
- [18] A.M. Hancock, When multiplication doesn't equal quick addition: examining intersectionality as a research paradigm, *Perspect. Polit.* 5 (2007) 63–79.
- [19] N. Iivari, S. Sharma, L. Ventä-Olkkonen, Digital transformation of everyday life—How COVID-19 pandemic transformed the basic education of the young generation and why information management research should care? *Int. J. Inf. Manag.* 55 (2020) 102183, <https://doi.org/10.1016/j.ijinfomgt.2020.102183>.
- [20] L.C. Li, J.M. Grimshaw, C. Nielsen, M. Judd, P.C. Coyte, I.D. Graha, Evolution of Wenger's concept of community of practice, *Implement. Sci.* 4 (1) (2009) 1–11.
- [21] S. Livingstone, E.J. Helsper, Gradations in digital inclusion: children, young people and the digital divide, *New Media Soc.* 9 (2007) 671–696.
- [22] A. Macias, S. Stephens, Intersectionality in the field of education: a critical look at race, gender, treatment, pay, and leadership, *J. Latinos Educ.* 18 (2) (2019) 164–170.
- [23] S.N. Martin, B. Wassell, K. Scantlebury, Frameworks for examining the intersections of race, ethnicity, class, and gender on English language learners in K-12 science education in the USA, in: J.A. Bianchini, V.L. Akerson, A. Calabrese, B. O. Lee, A.J. Rodriguez (Eds.), *Moving the Equity Agenda Forward*, Springer, Dordrecht, 2013, pp. 81–98.
- [24] L. McCall, The complexity of intersectionality. *Signs, Journal of Women in Culture and Society* 30 (2005) 1771–1800.
- [25] J. Nielson, Digital Divide: the Three Stages, 2006. <https://www.nngroup.com/articles/digital-divide-the-three-stages/>. (Accessed 14 January 2021).
- [26] C. Noy, Sampling knowledge: the hermeneutics of snowball sampling in qualitative research, *Int. J. Soc. Res. Methodol.* 11 (4) (2008) 327–344.
- [27] T. Pinch, N. Oudshoorn, *How Users Matter: the Co-construction of Technology and Technology*, MIT Press, Boston, 2003.
- [28] B. Prins, Narrative accounts of origins: a blind spot in the intersectional approach? *Eur. J. Wom. Stud.* 13 (3) (2006) 277–290.
- [29] S.M. Printy, Leadership for teacher learning: a community of practice perspective, *Educ. Adm. Q.* 44 (2) (2008) 187–226.
- [30] J.M. Reinhart, E. Thomas, J.M. Toriskie, K-12 teachers: technology use and the second level digital divide, *J. Instr. Psychol.* 38 (3/4) (2011) 1–18.
- [31] S. Sariola, Intersectionality and community engagement: can solidarity alone solve power differences in global health research? *Am. J. Bioeth.* 20 (5) (2020) 57–59.
- [32] R.M. Schmitz, J.S. Coley, C. Thomas, A. Ramirez, The Cyber Power of Marginalized Identities: Intersectional Strategies of Online LGBTQ+ Latinx Activism, *Feminist Media Studies*, 2020, <https://doi.org/10.1080/14680777.2020.1786430>.
- [33] C.J. Sieck, A. Sheon, J.S. Ancker, J. Castek, B. Callahan, A. Siefer, Digital inclusion as a social determinant of health, *NPJ Digital Medicine* 4 (1) (2021) 1–3.
- [34] D. Sime, G. Fassetta, M. McClung, 'It's good enough that children are accepted': Roma migrant mothers' views of their children's education post-migration, *Br. J. Sociol. Educ.* 39 (3) (2018) 316–332.
- [35] M. Souto-Manning, A. Rabadi-Raol, (Re)Centering quality in early childhood education: toward intersectional justice for minoritized children, *Rev. Res. Educ.* 42 (1) (2018) 203–225.
- [36] A. Stornaiuolo, R.J. LeBlanc, Scaling as a literacy activity: mobility and educational inequality in an age of global connectivity, *Res. Teach. Engl.* 5 (3) (2016) 263–287.
- [37] H. Tang, Y. Bao, Social justice and K-12 teachers' effective use of OER: a cross-cultural comparison by nations, *J. Interact. Media Educ.* 1 (9) (2020) 1–13.
- [38] A.A. Tefera, J.M. Powers, G.E. Fischman, Intersectionality in education: a conceptual aspiration and research imperative, *Rev. Res. Educ.* 42 (1) (2018) 7–17.
- [39] G. Thomas, N. Macnab, Intersectionality, Diversity, Community and Inclusion: Untangling the Knots, *International Journal of Inclusive Education*, 2019, <https://doi.org/10.1080/13603116.2019.1645892>.
- [40] H. van de Werfhorst, E. Kessenich, S. Geven, The Digital Divide in Online Education. Inequality in Digital Preparedness of Students and Schools before the Start of the COVID-19 Pandemic, 2020. <https://osf.io/preprints/socarxiv/58d6p/>. (Accessed 14 January 2021).
- [41] A.J. Van Deursen, J.A. Van Dijk, The first-level digital divide shifts from inequalities in physical access to inequalities in material access, *New Media Soc.* 21 (2) (2019) 354–375.
- [42] A.J. van Deursen, A. van der Zeeuw, P. de Boer, G. Jansen, T. van Rompay, Digital inequalities in the Internet of Things: differences in attitudes, material access, skills, and usage, *Inf. Commun. Soc.* 24 (2) (2021) 258–276.
- [43] J. van Dijk, Afterword: the state of digital divide theory, in: M. Ragnedda, G. Muschert (Eds.), *Theorizing Digital Divides* Routledge, New York, 2018, pp. 199–206.
- [44] C. Vincent, N. Rollock, S. Ball, D. Gillborn, Intersectional work and precarious positionings: black middle-class parents and their encounters with schools in England, *Int. Stud. Sociol. Educ.* 22 (3) (2012) 259–276.
- [45] E. Wenger, *Communities of Practice: A Brief Introduction*, 2011. <https://scholars.anku.oregon.edu/xmlui/handle/1794/11736>. (Accessed 14 January 2021).
- [46] E.A. Windson, Incorporating intersectionality into research design: an example using qualitative interviews, *Int. J. Soc. Res. Methodol.* 21 (2) (2018) 135–147.
- [47] M. Warschauer, The paradoxical future of digital learning, *Learning Inquiry* 1 (1) (2007) 41–49.
- [48] G. Wolbring, The politics of ableism, *Development* 51 (2) (2008) 252–258.
- [49] T. Zimmerman, # intersectionality: the fourth wave feminist twitter community. *Atlantis: critical studies in gender, Cult. Soc. Justice* 38 (1) (2017) 54–70.

**Enrico Gandolfi.** Dr. Gandolfi is an assistant professor in Educational Technology at Kent State University with the Research Center for Educational Technology. His research interests span games and simulations for learning, augmented and virtual reality, accessibility and critical design in education, digital interfaces for special populations, and learning technologies for inclusion. He was co-PI and key personnel for several recent grants awarded by NSF, the GAR Foundation, and the National Endowment for Humanities.

**Richard E. Ferdig.** Dr. Ferdig is the Summit Professor of Learning Technologies and Professor of Educational Technology at Kent State University. His research interests include mobile applications for informal learning, online education, and educational games and simulations. Rick is the current Editor-in-Chief of the *Journal of Technology and Teacher Education*. Ferdig brings experience in connecting interdisciplinary faculty in the pursuit of science learning in informal environments.

**Annette Kratcoski.** Dr. Kratcoski, Kent State University, is the Director of the Research Center for Educational Technology (RCET) at Kent State University. Dr. Kratcoski has an extensive background in curriculum development and technology integration in both formal and informal settings. As a member of the project team for *Thinking With Data (TWD)*, (NSF Award No. 0628122), she contributed to the development of a cross-curricular set of STEM KSAs (knowledge, skills, and attitudes) based on national standards for social studies, mathematics, science and English language arts.