

Creating a Digital Learning Community: Four Key Considerations for Remote Learning during a Pandemic

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Abstract— This paper proposes four key considerations that must be addressed in order to create a successful digital learning community. These considerations are described and detailed along with recommendations for approaching each of them. The global shift towards digital learning during the COVID-19 pandemic is widespread and unprecedented. This shift offers an opportunity to advance the state of remote learning technology and of human knowledge in remote learning strategies. However, blindly moving forward with remote learning strategies while not considering broader systemic effects and barriers is likely to produce slow and ineffective results. The considerations proposed in this paper serve as an initial guide to educators, policy makers, and digital learning community creators along the path to successful, sustainable remote learning.

Keywords—digital learning, digital community, digital education, distance learning, distance education, digital divide, sustainable learning, remote education, remote learning, online learning, online education, blended learning, media literacy, media and racism, media and values, digital divide, sustainable learning, sustainability in education.

I. INTRODUCTION

The world has been besieged by an unprecedented new threat in the form of the SARS-CoV-2 pandemic. Facilities across the globe have closed to prevent spread of the virus; among them are traditional schools and learning centers, posing a serious problem for educators and students worldwide. However, unlike pandemics of the past, human creativity and engineering has provided us with the internet: a wondrous solution to continuing education despite the closing of schools, and a way to keep students and staff safe. As a result of the pandemic, nations around the globe have pioneered a shift to remote learning as an alternative to traditional classroom learning.

Despite the many benefits of remote learning, the digital classroom and the traditional classroom are two different learning environments with their own sets of problems and considerations. We propose that one key to the successful implementation of remote learning is the creation of digital learning communities. These communities require careful consideration, new ideas, and new approaches. Several core considerations that may impose barriers to the creation of a digital learning community are access to technology, the role of the media in racism, the values established and perpetuated by the media, sustaining student learning in a digital environment and thinking about a digital learning community as a system. Although these considerations also apply to in-person learning communities, the implications and strategies are different. A school's approach to creating a digital learning community will necessarily differ from the approach to

creating a traditional physical learning community. Respectively, every district, town, city, state, and nation will create its own digital learning community based on its strengths and needs. Due to the recent onset of the pandemic, there has been limited time to develop literature addressing how to create a safe, digital learning community in the context of a world-wide pandemic. Based on first-hand experience and on a review of global responses to the pandemic [1], we propose the following four considerations which all communities should approach thoughtfully to be successful:

1. The Digital Divide

In a remote learning environment, access to technology is equivalent to access to education. Students' socioeconomic differences can have vast implications to the quality of their educations.

2. Media's Influence on Racism and Values

In a remote learning environment potentially racist content (deliberate or not), can be amplified by the online environment and are easily accessible to influence students. These influences can significantly shape student values and affect their worldviews in ways that should be recognized and appreciated by educators.

3. Sustaining Learning

It is important to consider how educators and the government can sustain learning in a digital learning environment over time by creating a sustainable system.

4. Digital Learning Community as a System

It is critical to consider the digital learning community as a system, such as by examining how different parts of the community work together and react to external influences. Taking a holistic approach, considering the boundaries of a digital learning community and what unintuitive factors might influence its success is a key part of this consideration.

II. THE DIGITAL LEARNING COMMUNITY

The digital community, also referred to as the "virtual community," was once defined as a space where people were still able to meet face to face under a different context of "face-to-face," presumably through technological means [2]. However, it seems that in the context of education in the 21st century, the "digital learning community" may need a refreshing new definition. For the sake of this paper, the digital learning community can be conceptualized as the following:

A digital learning community is a digitized safe space, established for education, within which students have a sense of belonging.

Education using internet technology is not a new mode of learning. Academics and researchers have been publishing research in virtual learning for decades. Prior to the pandemic, remote learning was mostly utilized in higher education. Meanwhile, in typical K-12 education, the use of technology in the classroom had become a way to improve teaching efficiency by engaging students with technology in the classroom. The pandemic response has shifted the use of internet technology from a supplementary to the primary teaching tool. Despite many differences, a digital learning community is not lacking the constraints of a physical learning community originally established by teachers, principals and other school staff. These constraints, however, need to be reconsidered and reimaged to fit into a digital space.

A. The Digital Divide

The term *digital divide* refers to the division between those who can afford technology and those who cannot. It is one of the many effects of socioeconomic class differences and has long been a problem throughout the world. Rheingold wrote about the digital divide in the United States twenty years ago addressing a concern “between poor and middle-class households, white and nonwhite households, in regard to ownership of personal computers and access to the Internet” [3]. Despite decades of existence, the divide is still relevant today. The COVID-19 pandemic exacerbated problems caused by this divide, especially in regards to education. Similar to Rheingold’s concerns from twenty years ago, intersecting oppressed groups of minorities and low socioeconomic groups are the ones most affected in the USA and likely elsewhere. The Native American communities in New Mexico, for example, who have been historically systemically oppressed, are significantly impacted during remote learning due to the lack of technological access even with school loaned Chromebooks and laptops [4]. In the United States 2016 Census, data was gathered on households with broadband internet service [5] (see Fig. 1) and of the race breakdown, over 30% of Black and Hispanic households do not have a computer or internet service.

Furthermore, the Census reveals that 80% of households with an income of \$150,000 USD or more are connected to the internet while only 21% of households with an income of \$25,000 or under are connected [6]. Interestingly, the data break down does not include mixed races and Native American communities. Google further provides evidence of the digital divide in its capture of search data indicating online engagement in searching online resources in differing households. The data directly points to socioeconomic gaps indicating that high-income areas’ schools are using online platforms more, that those areas’ parents are more likely to engage with such platforms, or both [7]. A key consideration when creating equitable digital learning communities throughout the US is access to technology, and how the inequity of resources throughout different communities can be mediated to provide equal learning opportunities for students in all diverse communities [8]. This consideration can be further simplified by explicitly describing the relationship as:

Access to technology is equivalent to access to education in the context of remote learning during the shutdown of schools.

The greater the digital divide, the greater the learning gap. Therefore, for as long as we resolve to continue remote learning, increasing access to technology helps close the learning gap between different socioeconomic classes.

We recommend regarding the shift to remote learning as an opportunity for organizations to take steps to give back to their communities by helping to close the digital divide. Corporations like Comcast have taken steps to help at-risk communities by providing free internet and donating technology to their communities [9], [10]. Investing in technological and infrastructural upgrades can help reduce the impact of infrastructure issues on educational delivery while helping to create opportunities for students in remote-deprived communities [11]. This appears to be what Connecticut’s Governor Ned Lamont has included as part of his \$43.5 million initiative by partnering with Connecticut Education Network. He plans to boost network signals for the public at large to access for free [12]. His initiative, called *Everybody Learns*, will also purchase internet service and laptops to help provide access for students while taking into consideration equity across race and location [12]. Similarly, in New York City, the Department of Education has purchased and loaned out laptops and iPads to students immediately following the closure of schools. These steps help take into consideration how resources are distributed in an equitable way when setting up the digital learning community.

B. Media’s Influence on Racism and Values

In a digital learning community, media influences are merely “a click away.” That is, students can easily access, spread, and be referred to online media influences even during class time. Therefore, racism and the many ways in which it emerges through the media require deep consideration.

There have been many instances in which the COVID-19 pandemic has triggered racism, which has then spread through media throughout the world. The unsettling anger and violence many people experienced as a result of this racism was continuously fueled through media. It may be a human need to blame others for unprecedented threats to their normal ways of life [13]. The “scapegoat mentality” can be a typical reaction during crises because it serves to deflect pressures and create internal cohesion by blaming others [14]. However, this depth of understanding behind name-calling is not something students at the K-12th grades can easily grasp. Adults are also not immune to the effects of media spreading racism. Accounts of racially charged violence against the Chinese or those perceived to be Chinese have increased since the onset of the pandemic [15]. In America alone, Asian American advocates claim that political rhetoric against China has fueled 2,100 hate crimes against Asians since mid-March [16]. Labeling a race with the virus not just casts blame but also has dire consequences for a learning community. With media easily accessible throughout the world, phrases and rhetoric targeting China as the originator of COVID-19 became associated even with local Chinese communities, to the point where students in England were quoted as telling younger students to stay away from Chinese students because “they are the virus” [17]. As depicted in a video created by high school student Katherine Oung addressing racially charged confrontations in her school against Asians, such confrontations do not appear to be uncommon around the world [18].

As they are also among the adults influenced by the media, teachers are often asked to reflect on their own biases and actions as a result of those biases. They are asked to devise ways to overcome the biases in their teaching. Strategies such as the four-step process: Interrupt, Question, Educate, and Echo, devised by *Teaching Tolerance* to help teachers speak

up against bias and also to teach students how to do the same [19]. However, overcoming bias can be extraordinarily difficult and requires constant awareness; it is clear that unconscious bias often remains unconscious and negatively impacts minority students [20]. Such institutionalized, systemic racism negatively affects students and creates an inequitable learning environment. An article in *The Atlantic* describes a disturbing account of a African-American 15-year-old boy's daily walk to school, which is often interrupted by police officers who frisk the boy. He is only allowed to enter the school through a metal detector. In the boy's words, this kind of experience makes it "extremely hard to focus on the classwork... You're upset, or sad, or just emotional about what just happened. It takes a while to settle" [21].

Experiences like those stated above create stress in the learning environment. This stress can make it difficult for students to focus when they fear harassment and expression of biases from their peers and/or the adults in their schools. Student populations that are not racially profiled as per *The Atlantic's* article are not starting their day unsettled; from the very first moment of class in the morning, racial inequity already exists in the learning environment. It is imperative to be cognizant of media's role in influencing racial perspectives and to address unconscious bias, racism, cyberbullying and harassment in creating an equitable learning environment as these actions are directly connected to lower academic achievements [21]. Media literacy therefore needs to be an integral part of remote learning so that students can understand the control media has over our emotions. With the digital divide already widening the achievement gap, unaddressed discrimination in online school-related interactions exacerbates the issue. Integrating elements of literacy in the media [13], coupled with strategies to interrupt bias such as those devised by *Teaching Tolerance*, may help create a safer and more effective digital learning community.

In addition to racism concerns, the media can be a powerful force in shaping our values and beliefs in general while reinforcing our own worldviews. This feedback loop can result in justifications of our actions, even when those actions are harmful. While the media can be used to forge bad habits and influence poorly conceived actions, it can also inspire solidarity and activism. In this way, the media is directly connected to our values, our actions, and the results of our actions which in turn is reported in the media to influence others in a reinforcing feedback loop

The way that media shapes our values can be seen clearly in the evolution of mask-wearing in the U.S. For example, in February 2020, a woman was beaten and called "diseased" for wearing a mask in the NYC subways [22], [23]. Then, just two months later in April, a passenger in Philadelphia was dragged off a bus for *not* wearing a mask [22], [23]. Motivated by the information released by the constantly changing information and driven by media, the way in which the general public values mask-wearing in the U.S. has changed dramatically in a few months. At the start of the pandemic, health officials in the U.S. told the public that face masks weren't needed [24]. Asians, however, are more likely to wear masks for illnesses and sometimes for reasons other than illness [25], [26]. This misunderstanding initially fueled violence against Asians who wore masks to protect the people around them.

Despite the fact that masks appear to significantly reduce the spread of viruses in the community, the usage of masks

has now become a heated debate on human rights. This debate has even prompted protests in some countries [17], [27]. The mask debate poses a problem for blended learning, as students' values about mask-wearing are shaped by the various media sources to which they are exposed. The United States Center for Disease Control and Prevention (CDC) has published guidelines for opening schools, and many school districts in the U.S. have considered blended learning models in which students attend school part-time with the utilization of face masks [28]. There are likely to be students, especially in the 8-12 grade brackets, asserting that forced mask-wearing in school is a violation of their rights. Unfortunately, human nature can make it easy to allow emotions to guide our choices [29]. With these pitfalls in mind, the use of media in a digital learning community requires careful thought regarding how it could be used to shape values by igniting students' emotions, causing them to take actions that might be harmful to the community.

On the positive side, the media can inspire opportunities for useful dialogue and activism. For example, discrimination against Asians during the pandemic sparked a campaign to counter it with portraits of Asians as regular people [30]. Some even pose with a mask while holding a sign with a hashtag "I am not a virus." In Sweden, an artist illustrates the discrimination she experienced during the pandemic [31]. *Sinophobia*, or the fear of Chinese (and sometimes other Asian) people, has also spread in Italy. Massimiliano Jiang, an Italian-Chinese citizen of Italy, took action by creating a video with a powerful "I am not a virus" message while standing blindfolded on the street [32]; his message "went viral" and received widespread notice.

As educators identify culturally responsive curricula material, creating opportunities for intercultural communication amongst students can help foster an equitable learning environment because cultural understanding is placed at the forefront of these types of conversations. While it can be harmful to censor negative media coverage to emphasize only positive current events, it can be equally harmful to only present racially charged issues in the absence of a thoughtful process for how to share, dissect and understand the information in a useful way.

It cannot be denied that the media holds a type of power over people and their viewpoints. In our modern world, where news and vast amounts of information can easily be shared with the click of a button, the results can be detrimental and confusing for students. Yet, the power of the media can also be harnessed to help shape students' values more holistically.

When creating a digital learning community, educators should consider the values that are projected in the choice of media sources assigned to students. How can educators handpick media sources to foster students positive values such as tolerance, understanding, and nonviolence? Allowing for dialogue and debate is also a healthy learning process for students and helps create a safe learning environment.

C. Sustaining Learning

In the New York City school system, as with many school districts in the rest of the United States and around the world, the decision to close schools came abruptly [33]. Students did not have the chance to say goodbye to their friends; graduating seniors were not able to thank their teachers in person; and teachers said goodbye without knowing whether or not it might be the last time seeing their colleagues. School shifted

to a remote learning model, while educators wracked their brains to adapt their curriculums to this new mode of teaching. The United States' abrupt switch to remote learning resulted in many students falling behind, perhaps due to the digital divide and the education system's lack of preparedness for the shift. Contrast this approach to Sweden's, in which schools did not close [34]. Their approach to the pandemic, while controversial, was perhaps meant to be more sustainable, and certainly differed vastly from that of the U.S., especially regarding schools.

In the wake of the COVID-19 pandemic, it is important to consider how educators and governments around the world can create more sustainable approaches to situations that require a shift to remote learning. During a New York University presentation, Professor Mostafa from Egypt expressed the need for *sustainability in method* [35] and similarly, Principal Helene Wahleman from Sweden echoed the consideration of *sustainability in response* [36]. The question of sustainability requires a holistic and systemic approach [37], [38] to the problem at hand. The decisions that the government makes need to be realistic in predicting how the general public will be able to be consistent in their behaviors and sustain them over time [39].

When creating a digital learning community, decisions made on every level from legislation to investment to administration to teaching need to be considered for sustainability. Leaders creating a school's digital learning community should also be aware that the structures and routines created need to be enforceable to be sustainable. Jesse Stommel proposes six theses to building an online learning community [40]. Of these theses, we briefly discuss three:

1. On-ground and online learning models are different and should not be conflated
2. Online learning communities should be hybrid communities
3. We will need to acknowledge trauma of community members in order to develop the community

Emphasizing the first thesis, modeling the online learning models after in-person learning models is unrealistic and unsustainable. Without the constraints of a traditional in-person school such as class schedules, bells, classroom routines, and movement in space, it is impossible to create a remote learning environment with a similar structure. Some schools have tried creating the same school schedule for remote learning as were used for traditional classroom learning, but the results were quickly discovered to be unsustainable [41].

The second thesis refers back to the awareness of the digital divide, recommending not to assume equal technology access from all students when creating an online learning community and to devise ways to reach students on the other side of the digital divide [40].

To be a culturally responsive educator and create a learning community where students feel a sense of safety and belonging, it is important to address the experiences of the community as indicated in the third thesis [40]. In remote learning during the pandemic, creating a digital learning community, in essence, is for the same community of students that were in school before school shutdowns. Despite the inability to see their faces daily, creating a learning

environment specific to students' personal experiences can help build relationships and a sense of community through the online learning experience. This concept is not so different than creating a positive learning environment in a traditional classroom; however, creating it digitally likely requires more thought, intention, and explicitness to make up for the lack of physical contact.

With these theses in mind, it is interesting to examine how the Swedish government modified their school structures to adhere to safety protocols with sustainability as a goal. Rather than abruptly closing schools, Sweden's holistic approach considered the ramifications of a shutdown, such as concerns that a shutdown could exacerbate other illnesses [36]. Johan Carlson, Sweden's Director of Public Health, articulates that he would like to avoid over-responding and making the situation worse when it comes to other health threats [42]. In the strategies that Carlson presented, one focus is on flexibility which allows for the ability to change strategies when necessary. Possessing the ability to identify and affect change using specific leverage points within a complex system affected by the pandemic can yield sustainable results [38].

According to Carlson, over-responding is not a sustainable approach. But what is over-responding when it comes to the education system? Does it differ by districts, cities, states, countries? Would the shutting down of all schools in the U.S. be considered as over-responding? The Swedish suggest that their strategies are grounded in science [42]. Therefore, only students at or above high school age shifted to remote learning, since age appears to be a factor in contracting the virus. Although schools for younger grades were not closed, they were still affected as social distancing and hygienic protocols were implemented [34]. Classes in schools that stayed open were split into smaller groups to maintain social distancing protocols. As a result, students participated in both in-person lessons and remote learning. This blended way of learning seems similar to the models that the New York City Department of Education is exploring for the start of school in the fall of 2020 [43]. However, it seems that many teachers are now resistant to returning to any form of physical learning environment, even a blended one. United States teachers view the city's blended model to be unsustainable. Whether their strategies are effective or not, the Swedish appear to be approaching the pandemic with a goal of sustainability [42]. Perhaps their approach to education can be seen as less disruptive to the children's lives as compared to the pendulum swing of closing and opening school that United States children experience.

It is important to consider that sustainability in a system exists on different levels and that there is no "one-size-fits-all" solution in this case. It is just as crucial for individual school systems to produce sustainability in their decisions as it is for local governments and the government at large. Each of these layers of systems affect each other, but also have localized effects that help or hinder sustainability based on the choices each system's policymakers make to accommodate its own community's needs. There is no one answer that will work the same for one town or city to be able to work in another town or city, especially one half a world away.

D. Digital Learning Community As a System

The key to successfully creating a safe and sustainable remote learning environment is to deliberate on how the different parts of this learning environment relate to each other and how they interact to form a *digital learning community*

Digital Learning Community Systemigram

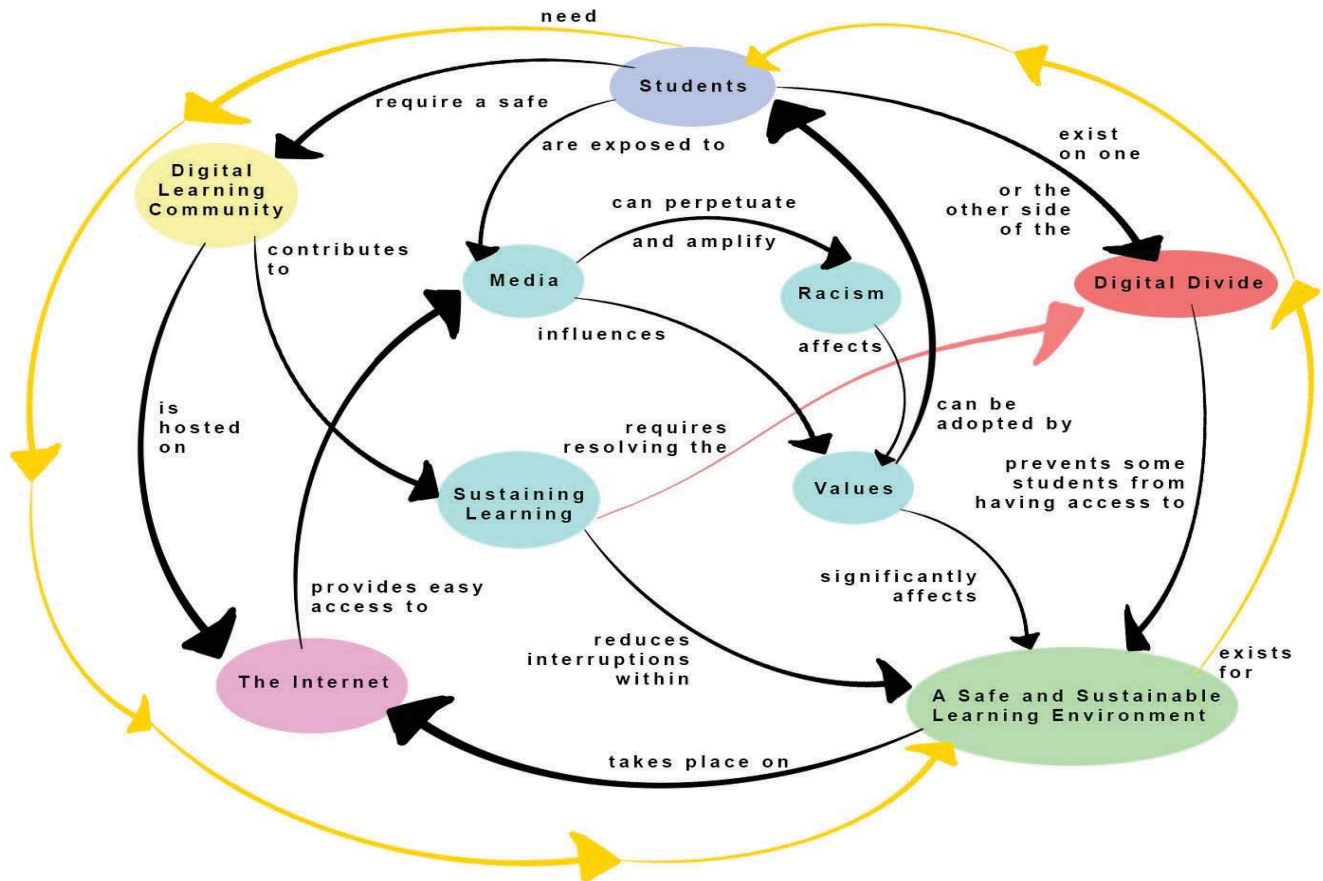


Fig. 2. Digital Learning Community Systemigram

system. As with any complex system, we can apply Systems Thinking skills [37], [38], [44] to see how the parts of the system relate to each other and gain insight into structure. We propose a *Systemigram* (see Fig. 2), a type of *system flow chart*, depicting one view of the relationships between the considerations discussed in this paper in the context of creating a successful digital learning community.

The Systemigram “begins” in the top left corner with the Digital Learning Community in the light-yellow oval. Various parts of the system are shown in the middle area of the diagram within light blue colored ovals. The diagram “ends” in the bottom right corner, with the goal of the safe and sustainable remote learning environment in green. This diagram is one way of considering the way these parts relate to each other. It is not intended to be comprehensive, and is proposed as starting point on a path towards further thinking.

Referring to the Systemigram students need a safe and sustainable learning environment within which effective education can take place. Such a learning environment is provided through a Digital Learning Community, which is hosted on the internet. The internet provides easy access to media, which can influence racism and values. These values can, in turn, significantly affect the very learning environment upon which the students rely. Additionally, students exist on one or the other side of the digital divide, which prevents some of them from having access to the learning environment which they need to sustain learning.

Given the multifaceted technological and media considerations present while creating a remote learning environment, educators must be aware of the populations that may be left out of the digital community and the dangers and empowering uses of media. Teachers need to put these considerations at the forefront of their practices and see themselves as agents of change [11]. Creating a sustainable system for a digital learning community requires a shift in thinking about teaching, as well as reflection on how to create an environment that is safe, conducive to learning, and culturally responsive in a digital form.

III. CONCLUSION

We propose that creating digital learning communities can yield the successful implementation of remote learning. These digital learning communities should be safe spaces for students to learn and should be created for a target community based on the specific strengths and needs of that community. The four major considerations discussed in this paper are broad and not intended to be a one-size-fits-all solution. However, they are essential considerations while creating an effective digital learning community. We provide a visualization of the relationships between these four considerations and how they affect students and their associated remote learning environments. Despite the closure of physical school structures during the pandemic, education must continue, and technology provides the means for this continuation to occur.

As a first step in creating a digital learning community, technological resources should be distributed amongst the student populations to create an equitable situation in which students from intersecting oppressions such as low socio-economical and minority populations can still have access to education. Once equal access is available for the student population, educators should consider how media can influence discrimination and empower students to better utilize culturally responsive media sources in curriculum material. To sustain quality education for all students, leaders at the federal, state, and city-level worldwide should consider making changes in the system to ensure sustainability in learning. When these considerations are thoughtfully engineered into the system, the envisioned digital learning community should flourish with rich learning opportunities.

Many of the issues described in this paper, although perhaps newly surfaced as a result of the COVID-19 pandemic, are in fact not new at all. The socioemotional ramifications of remote learning are tremendous, yet the digital environment remains an excellent medium through which students can connect and reflect on a deeper level about their experiences surrounding the pandemic. Teaching can also be used as a positive form of activism by using media to empower students as they encounter situations in which they may feel helpless. Media literacy has always been an important, but often-neglected part of education. The greater susceptibility of students to media influences in a digital community only serves to highlight the importance of media literacy on the educational stage. Ultimately, the pandemic and resultant switch to remote learning is presenting a rare opportunity for paradigm shifts in education. We believe it is the responsibility of educators, administrators and policymakers to navigate these paradigm shifts in ways that will be most beneficial to student learning.

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