A Radical Change in Policy for Online Learning Regarding those with both Physical and Mental Special Needs

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With remote learning anticipated to continue throughout the rest of the COVID-19 pandemic, how can the United States make education more accessible to students with disabilities? The policy discussed in this paper covers impediments ranging from physical disabilities (visual and auditory impairments) to mental disabilities, such as ADHD, autism, and depression/anxiety. By implementing assistive technologies and flexible schedules for these students, this policy seeks to make online education navigable and attainable for all students.

Introduction

Towards the middle of March 2020, the threat of SARS-CoV-2 - the virus that causes the disease COVID-19 - abruptly changed the lifestyles of millions in the United States. As a result of enforcing quarantine guidelines across the country, many businesses and schools had to shut down to prevent an increase of virus transmissions among workers and students. As a result, many academic administrations had to switch to a remote format for teaching—a drastic change that had nearly 93% of students engaged in a form of "distance learning" (McElrath, 2020). The transition left millions unprepared to adapt to the new online format. As schools become more accustomed to teaching through the internet, more flaws regarding the remote arrangement have become increasingly apparent to educators and students. Of the many problems that arose alongside online learning, some have exposed the disadvantages that

accompany individuals with both physical and mental disabilities. The policy introduced in this paper will aim to create solutions for alleviating the many academic and technological complications that disabled students struggle with in these remote academic environments.

Details & Analysis

Within this section, disabilities are split into two categories to recognize the many different disabilities present in the United States today: physical and mental. Each section will discuss the current amount of students or children diagnosed with a certain disability and move forward on specific policies geared towards targeted disabilities on how online learning can be made into a positive experience.

Physical Disabilities

Roughly 6.8% of children in the United States suffer from eye conditions causing visual impairments (CDC, 2021). These conditions vary in severity from minor refractive errors to debilitating diseases causing complete blindness. Another 14.9% of children suffer from hearing loss, ranging from minor to complete loss of hearing (CDC, 2019). Individuals suffering from visual and auditory impairments in a typical school setting were provided with many physical resources to aid in their learning. The recent transition to online learning has shifted from these types of resources to sleek devices, proving difficult for students with physical disabilities. Most online programs are inaccessible for these individuals considering that developers do not take into account accessibility guidelines, leaving disabled students far behind their peers. In an attempt to circumvent the challenges of switching to an online platform, some schools provided students with braille cards and visual aids. Some students take tests in paper format and send them through mail to be graded, which takes weeks to process. Other schools have adapted to online learning in a fully accessible manner. For instance, the Hadley School for the Blind offers classes to visually impaired individuals in an affordable way. The layout is accessible to screen reader software and provides screen magnification as well as braille displays. This format allows students to submit assignments through email, thereby expediting response time between professor and student.

In compliance with the Americans with Disabilities Act of 1990, online learning must create websites to make education accessible to all. This policy requires the implementation of assistive technologies to courses with functions such as text to speech, descriptive audios for images, and designs for software to operate with only a keyboard. Services such as interpreters or Communication Access Realtime Translation (CART), which allows for captioning in real-time, are to be included in courses. A live online chat will also be included to assist those with questions or issues using programs. Teachers should also be taught how to

use these programs efficiently. An example of where this has worked includes Washington University where they have found that when using CART services during online lecture, it had over 90 percent accuracy and has helped students not only get accurate notes down, but also helped in comprehending lessons better (Washington University, 2021). This is a similar trend found in other institutions that could prove to enhance the lives of those with physical disabilities even more so than the mainstream public.

Mental Disabilities

ADHD

Attention-Deficit/ Hyperactivity Disorder (ADHD) is one of the most common childhood neurodevelopmental disorders in the world, and with it are two main subtypes of the disorder that are categorized based on how individuals outwardly present them: Inattentive and Hyperactive-impulsive (CDC, 2021). Individuals with ADHD, regardless of which type is predominant, tend to struggle with remaining inactive over long intervals of time and find difficulty finishing tasks with large amounts of detail (CDC, 2021). The symptoms associated with ADHD are especially challenging to handle with the sudden transition to remote learning for schools, which were enforced due to the risks COVID-19 established in grouped school settings. According to the Children and Adults with Attention-Deficit/Hyperactivity Disorder organization, the majority of students with ADHD find "the lack of novelty and variety of [an exciting] experience" that accompanies online learning to be very challenging, for the lack of it leads to disinterest and an inability to remain focused on tasks (2021).

Considering the factors associated with the new format of remote learning, the policy would implement incentives for students with ADHD to maintain focus and interest in what their courses entail so that completing online assignments will become less exacting on their mental health. One requirement that will be expected of teachers is for them to receive proper education on what ADHD is and how individuals are particularly affected by its symptoms in order to create an understanding environment that prevents feelings of self-loathing or embarrassment among students. A 1999 study found that an environment's negative belief system towards mental health causes harmful self-perceptions within individuals with mental disorders, and even discourages them from seeking help (Angermeyer, Matschinger, and Riedel-Heller, 1999); thus, having teachers show compassion regarding their students' challenges is crucial for their mental health. This is ever so important as a study from the 2012 Association for Middle Level Education found that 66% from a sample did not receive any education on how to treat or teach students with disabilities in their education and only 46% had proper general knowledge about ADHD (Guerra and Brown, 2012). Another methodology for schools to implement is that of extending deadlines for assignments and to assign homework in divided increments for students to

complete. Allowing assignment flexibility for students with ADHD will prevent them from using too much mental energy to the point where they find little interests in completing them (CHADD, 2021). Huntington Tutors, a widely used tutoring service in the United States, has recommended that small chunks of active learning could improve student cognition and attention to the material at hand. In addition to this, a study of a select group of university students has found that students with ADHD following their methodology took more time to complete the exam and still ended up with lower scores than their neurotypical peers (Waldey and Liljequist, 2012). By educating teachers on ADHD and how to provide the proper accommodations to students who are affected by ADHD, remote schooling could become much more accessible and easier to keep up with for these individuals. It is our hope that implementing this policy will result in a better online learning environment for students with ADHD to partake in throughout the duration of remote learning.

Depression/Anxiety

Depression and Anxiety Disorders are common mental illnesses. About 40 million individuals who are 18 or older are affected by an anxiety disorder and 17.3 million adults suffer from at least one major depressive episode a year (ADAA, 2021). In adolescents aging 3-17 years of age, about 1.9 million suffer from depression and 4.4 million from anxiety (CDC, 2020) Despite many individuals having or experiencing depression and anxiety, students and faculty living with depression and anxiety are not being accommodated properly online. How depression and anxiety disorders, such as general anxiety disorder (GAD), social anxiety disorder (SAD), obsessive compulsive disorder (OCD), etc, affect individuals differs symptomatically and vary in severity. With the abrupt transition to virtual learning, individuals suffering from depression and an anxiety disorder(s) are experiencing an increase in severity of symptoms and a frequency in display of symptoms.

The abrupt and drastic increase in mental illness rates and an increase in the severity of symptoms among students and faculty may be linked to the high amount of screen time students and faculty are spending in front of a screen. In a study conducted by multiple researchers found that there was an increased risk in anxiety and depression the more time an individual spends in front of a screen in young adults and in adults (Khouja, 2019) (Madhav, 2017). In studies like the ones mentioned previously, there are a lot of covariate variables that could also be influencing how depression and anxiety is affected when screen time is also increased. The pandemic is a relevant example of a covariate as COVID-19 is affecting individuals differently in all aspects, especially mentally. To help alleviate the pressure of online learning and the negative effects screen time has on students and faculty mental health, implementing screen breaks could be vital to academic success. Screen breaks can also provide an opportunity for students and faculty to recharge mentally, emotionally, socially, and physically. Overall, the hope of

allocating times for individuals to recharge and take screen breaks is to improve school performance and mental health. This policy intends to do so by allowing allotted time for individuals to focus on school work but also allocate time for individuals to take care of themselves and maintain their mental health needs.

Even though mental illnesses like anxiety and depression can significantly impact work and academic success, access to mental health resources remains difficult, especially in a remote setting. According to a study conducted by multiple researchers, nearly a third of students receive their mental health services exclusively from school (Ali, 2019). Besides the abrupt change to a mostly online academic and social world cutting off resources that help individuals maintain their depression and anxiety, stigmatization from students' peers and teachers also hinders mental health resources. One study examined whether increasing mental health education among educators would lead to drastic changes in their approach to mental illnesses (Kitchener et al., 2010). Through randomized trials, the authors concluded that implementing training reduced stigmatizing attitudes and improved teachers' confidence in aiding struggling students, as well as led to students receiving more mental health information from their educators.

Given the importance of mental health education for teachers and its beneficial effects for both the instructor and students, more schools should be encouraging such crucial training, especially for online learning. Institutions should better equip and train their staff to accommodate students struggling with mental illnesses negatively. Rather than being punished for not being able to submit their assignments in time or for not consistently participating in class, schools should focus on accommodating the students' needs and avoid expressing stigmatizing behavior towards them. For faculty, academies should also provide more resources for faculty to help them cope with the pandemic and mental illness themself, for if they are unable to manage their mental health, they cannot help students manage their mental health and accommodate them academically. Implementing required screen breaks and mental health training for educators school-wide would potentially help both students and faculty by allowing them time to focus and take care of their mental health as well as better understand it. By doing so, this could potentially increase academic success overall between students and faculty.

Autism Spectrum Disorder

Autism Spectrum Disorder (ASD) is a developmental condition in which affected individuals have behavioral issues as well as difficulties with social communication. As of 2020, 1 out of 54 children born in the United States has been diagnosed with ASD (CDC, 2020). While autism has a wide spectrum in terms of intellectual disabilities, a majority of autistic students require some kind of assistance such as being put into a special class dedicated to teachers trained to teach special needs youth, extra assistance with course work, or extra time for exams. To be able to

accommodate such resources are tough to get in some areas of the United States and now have gotten even tougher after the onset of COVID-19; although some autistic children are used to having online school in many cases, many parents and students are trying to learn through this new environment which has had its difficulties (Autism-Help, 2021). However, there are effective strategies in which the current online schooling environment can be fruitful for children diagnosed with an autism spectrum disorder.

In focusing on elementary school-aged children (ages 4-11), the need for recess - defined as play such as board games or physical activity - is vital for students, as it fosters not only a physically and mentally healthy life, but also encourages students to be social with one another (AAP, 2013). However, the number of students participating in such activities has seen a decline in the United States even if schools mandate a separate time for such activity (Lee et al., 2007). During the pandemic many school districts have not allocated this essential time to young students and this could serve as a major downfall for autistic students who lack the essential skills in communicating and interacting with individuals. This policy proposes that elementary-aged students be given an allocated 30 minutes to a full hour of the recess to interact with their classmates online along with playing games that can not only be done remotely but have some level of physical activity. Interactions with other students can help children with autism to get more accustomed to knowing their classmates and slowly developing bonds with them which are key to overall development in the pediatric population. In addition, such a break can give students the opportunity to play games that can let the student relax from the coursework given and develop other skills such as sharing, kindness, and humility. But as well, recess can be used - especially for children with autism - as a reward to look forward to during the school day which in turn could lead autistic children to better stay focused in class; this is with the support that autistic students have a hard time focusing on certain material (ChildMind Institute, 2021). Such as study from the University of Washington has revealed that 30% of recess time for elementary aged autistic students was engaging with peers but about another 25% of recess time was spent playing alone but engaging with multiple toys or one person games (Eckart, 2019). The researchers also expressed that inclusive recess without much competition can possibly increase this percentage of engagement. Such a study provides evidence that allocating time out for recess has a good chance to not only relax the mind, but for students with autism to engage with their peers.

Now, focusing on students with autism that are of high school age (ages 14-19) comes with a new set of issues with online learning with one issue standing out from the rest: workload. In a recent survey, 10,000 high school students reported an increase in time spent on daily homework by 90 minutes on average (NBC, 2021). As mentioned previously, students with autism have difficulties with focusing on work and an additional hour

and half of work on top of an average 3.5 hours of homework assigned per night by high school teachers raises the bar and leads to increased risk of depression, no motivation, and even more difficulties understanding concepts learned in class (Hansen and Quintero, 2017). This policy proposes a drop in homework to only an hour a night and for special tutoring services provided by the school to the students with autism in order for them to have a much greater chance of understanding the material given to them. With that being said, this amount of homework will allow the student to focus on other aspects of the class that might be causing him or her issues. In addition to this point made, students with ASD can now have additional time to go get therapy if need be as well as further develop their social skills that are complementary to the workforce that they might enter within a few years after graduation. It is the hope that the elementary and adolescent pediatric population with ASD will be able to have these policy reforms to improve their current online education environment.

Economics

The cost behind such a massive effort targeting students with these specific disabilities is subject to variation when considering a multitude of factors. Focusing in on physical disabilities, speech to text software can cost anywhere from free on certain software platforms like Google Docs to around $200 for certain external devices. The average price of such a device is around $50 dollars and considering this would be used by mainly blind students and with the note that 6.8% of 50.1 million public student bodies in the United States has some form of visual imparities, this brings the cost to around $170 million dollars. This cost could become millions of dollars less when considering that not all visually impaired students need this device.

For the deaf, services such as Communication Access Realtime Translation (CART) are essential when providing close captioning on live lectures and other such recorded class videos. This technology costs around $190 dollars for around 2 hours. However, some companies have better pricing such as Zoom which charges $200 a month for closed captioning. Considering the average school year lasts 180 days in the United States and of the student population and there are 13,506 school districts, the total cost for this Zoom technology would be $16.2 million dollars. Translators for deaf students would cost around $100 dollars per hour which would be a service that is dependent on the student but it will be estimated that about 3,000 translators are present in the U.S public school system, that they stay for the entire day, and are used for only 80 days out of the school year which would cost around $144 million dollars. For the blind, testing can cost $1.49 per exam and when considering there are about one million functionally blind students and an average of 64

exams are taken throughout the school year, this cost would be about $95 million dollars.

Economics of Policy	**Unit Price**	**Estimated Total Price**
Speech to Text Software	$50 on average	$170 million
Zoom Closed Captioning	$200 a month	$16.2 million
Translators for Deaf Students	$100 per hour	$144 million
Specialized Texting for Blind	$1.49 per exam	$95 million
Tutoring Services	$40 an hour	$200 million

FIGURE 1. The table gives a breakdown of the policy's liberal cost projection with five identifiable categories: Speech to Text Software, Zoom Closed Captioning, Translators for Deaf Students, Specialized Texting for Blind, and Tutoring Services. The Unit price and estimated price per category is given and brings out the total cost of the policy to be $625.2 million.

Costs for students with ADHD are specifically tied to teacher education, and since there is no mandate as of yet, this cost is negated as teachers can use free resources online to educate themselves on the disorder. Screen breaks for students with depression are also negated and resources for psychologists are paid by private insurance, and for this policy's purposes, is not included.

Finally, for autistic students, resources such as less homework and recess time are also free. However, special tutoring comes at a cost. Imagining an even distribution in the United States public school system, there would be a consideration of 250,000 students with ASD, tutoring services costing $40 an hour for 20 sessions; this total cost will evaluate itself to be $200 million. Noting all costs given in this policy, the total budget results to be 625.2 million dollars. Although this cost may seem aspirational, it must be noted that there are several factors that could increase or decrease this total budget that is dedicated to the field of online learning.

Challenges

During the pandemic, many school districts are suffering from undercut budgets and struggling to adequately accommodate their special needs students. Unfortunately, an estimated cost of $600 million dollars needed to help fund the needs for online learning may face harsh repercussions from some lawmakers on Capitol Hill. In addition, some school districts might find required breaks and recesses to be a waste of the time needed for core academic subjects. It has also been noted that although many disabled students are facing increased scrutiny in terms of school-related stress, teachers and staff may not be able to comprehend such emotions and possibly ignore requests from some students, such as those with ADHD, who need extra leeway when completing school assignments. But while these challenges may pose hurdles for equality in online education, the policy laid out has successfully been used in other school districts throughout the United State—resulting in massive improvements for their body of students with disabilities. The plans developed in this paper will meet the challenges noted above and give online learning a whole new experience to those disabled students who are in need of the specific accommodations listed.

Conclusion

The academic transition to remote learning has exposed many of the disadvantageous challenges that plague both physically and mentally disabled students. The policy introduced in this paper seeks to dismantle technological and instructional hurdles in an inclusive and cost-efficient manner. Covering a wide range of demographics, which include students with visual and auditory impairments, as well as those with intellectual disabilities such as ADHD, autism, and depression/anxiety. In accordance with the Americans with Disabilities Act of 1990, it is of utmost importance for education to be the most comprehensive for all students. The implementation of this policy will offer solutions to a variety of common issues with these students, such as forming programs with assistive technologies (descriptive audio software and close-captioning) to aid visually and auditorily impaired students. Typical class structure would also undergo changes to better accommodate the needs of students with mental disabilities, such as increasing flexibility in assignment due dates and allowing for longer breaks between consecutive courses. By following this plan, remote learning should become more accessible for millions of students until academies are allowed to fully reopen for in-person classes.

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