COVID-19's IMPACT ON CALIFORNIA EDUCATION K-6

A Systematic Literature Review

By

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A Capstone Project Submitted for Graduation with University Honors

May 12, 2023

University Honors

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ABSTRACT

Since the initial outbreak of the COVID-19 virus in 2019 the disease has spread throughout the world disrupting every aspect of society. The education sector was one of the areas most negatively affected as the lockdowns and social distancing produced an unprecedented number of obstacles for K-6 institutions to overcome (Dorn et al, 2021). This systematic literature review examines the effects of the COVID-19 pandemic on California's education system in order to propose practical and effective solutions to the education system's current crises. First, the debilitating effects that have recently surfaced within K-6 students as a result of both the virus and the measures enacted to combat its transmission such as remote learning and decreased socialization will be presented. By analyzing test scores through the California Department of education and condensing data from multiple studies and sources we will demonstrate the direct effects the state's remote learning policies have had on K-6 students and educators. Second, current approaches to combating these problems will be presented. Additionally, explanations for the ineffectiveness of these approaches in preventing the troubling regression in quality of California's grade school education will be presented. Finally, novel and potent solutions that will work towards removing the gap in knowledge that has precipitated in current students, especially those of low socioeconomic status who have been disproportionately affected by recent events will be presented.

ACKNOWLEDGEMENTS

I want to thank all my incredible support, my friends, and family. Thank you all for being so understanding these past couple of years. Thank you for all of your encouragement, especially in those tough moments when I wanted to give up. I want to thank University Honors, thank you for all of the great opportunities. I especially want to thank my partner, John. Thank you for being with me throughout this whole journey. Thank you for believing in me, even when I didn't believe myself. Your support is unmatched.

I want to dedicate this research to all the students at Highgrove Elementary. Thank you all for changing my life. Without any of you, I would not be here today. I wish you all well as you all head out to your own endeavors. May you always keep your smiles, your radiant light, and know that I will be your biggest cheerleader.

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INTRODUCTION

The COVID-19 virus has spread throughout the world since its initial outbreak in 2019, upsetting every aspect of society. The lockdowns and social alienation created an unprecedented number of challenges for K–12 institutions to solve, making the education sector one of the most adversely impacted industries (Dorn et al., 2021). In order to suggest workable and efficient answers to the present difficulties facing the educational system, this capstone examines the literature research on the effects of COVID-19 on California's educational system. First, we will list the detrimental consequences that K–12 children have recently experienced as a result of the virus and the protective measures put in place to stop its spread, such as remote learning and less socializing. We will show the direct effects the state's remote learning regulations have had on K–6 students and educators by examining test scores through the California Department of Education and compiling data from other research and sources. Second, we'll go over the methods currently being used to address these issues and explain why they haven't been able to stop the alarming decline in the standard of education in California's elementary schools. Finally, we will put forth fresh and effective ideas for closing the knowledge gap that has arisen among current students, particularly those from low socioeconomic backgrounds who have been disproportionately impacted by current events.

The lackluster transition to remote learning and the months of cancelled sessions have left grade-school kids well behind their predecessors. Unfinished learning has been developed as a term to explain the devastating effects of missed lessons and poorer teaching (Dorn et al., 2021). This phrase effectively captures the truth that many scholars nowadays do not receive the education that many did before them. If they are to compete successfully when they reach the labor market, their unfinished education must be remedied. Due to the hurried changeover and

lack of training for instructors, millions of kids in California are not obtaining the education they require to be prepared for the future. Their diminished knowledge will have long-lasting effects and is already evident in all grades. According to McKinsey & Company researchers who analyzed test results from more than 1.6 million primary pupils in 40 states, there was a 10-point reading and mathematics loss from earlier years in 2021 (Dorn et al., 2021). Based on prior students, this corresponds to a roughly five-month deficit in math and a four-month difference in reading, and it will continue to widen over time.

Minorities and economically disadvantaged children, who are behind by more than half a year in both reading and mathematics, have been affected by incomplete learning the most thus far. However, it's crucial to take into account how the pandemic's side effects might have also contributed to this alarming fall in aptitude. Covid-19 has caused many students to lose far more than just their education. No amount of additional instruction can ease the mental stress that losing a close friend or family member causes in students. Additionally, the percentage of students that achieve or surpass the standards is dramatically declining in California, according to standardized examinations (Fensterwald, Willis 2022). Prior to COVID-19, standardized test scores for K–12 children in California had started to rise, which was positive. However, the recent shift to remote learning has undone all of those gains. The California Department of Education reports that Black and Hispanic children are more likely than other students to have these recent learning gaps.

There are a variety of possible tactics that might be used to lessen these impacts and try to make up for the learning loss. The creation of summer learning programs that might provide a chance to make up for the lost months of instruction, increased access to online resources for students and instruction on how to effectively research their own projects to work on with

constant guidance, and improved engagement in remote learning through encouragement of student discussion and collaboration are some of these strategies (George et al., 2021). Another strategy that has been suggested is to focus on efforts to re-enroll students and provide more stimulating learning environments. Ultimately, it is vital that California acknowledges the value of student mental health and works to develop programs that offer mental health services to all kids, educators, and parents.

METHODOLOGY

This systematic literature review is encompassed by a five-step process. These five step processes starts by framing the questions, followed by identifying relevant work. Then we assess the quality of the studies, and summarize the evidence, ending with interpreting the findings. In the first step we ask our questions; What were the virus's direct consequences, the crippling effects that showed up in K–6 students? What long- and short-term effects (such as reduced sociability and student involvement) were the measures put in place to stop its spread have on students? In comparison to other students, how did minorities and scholars from low socioeconomic backgrounds fare? What actions have been taken to address this social injustice? What are the present measures to fighting these difficulties, and to what extent have they been effective in preventing serious regressions in the quality of California's elementary school education from all backgrounds?

In step 2, and 3 we identify relevant work, and we assess the quality of the studies. By being able to identify inclusion criteria such as CAASPP results from the 2019 school year to 2022, we are able to see accurate results on grade levels 3-6 since these are the cohort that has been affected the most. Diving into ProQuest database, we were able to obtain and review academic journals in regard to school health and their research on physical education during the

pandemic. This article focused on interviewing 19 subjects in 21 school districts in California. Among them, 15 teachers, and 5 school health experts. We also relied on data compiled by Standford researchers which analysis the level of impact the virus had on grad school education on a mezzo level. I took exclusion criteria from the McKinsey & Company researchers, as the research was able to focus on a bigger controlled group of 1.6 million elementary students from 40 different states.

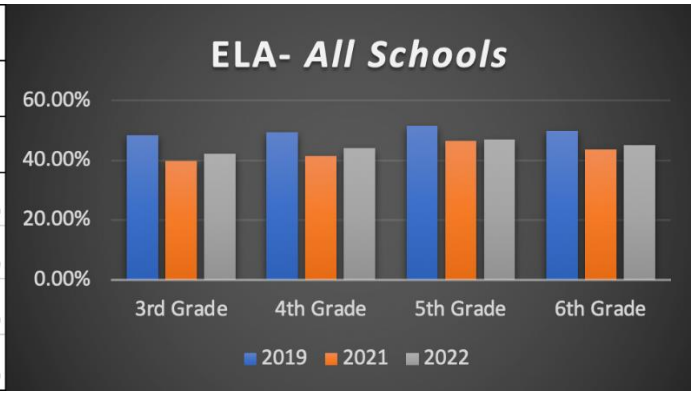
Finally, we will use research from *Policy Insights from the Behavioral and Brain Sciences* which focus on mental health and neural development in education achievement. The last two steps on this methodology process consist of taking all quality of studies and sources and compiling them into a comprehensive analysis to better understand the answers to our initial questions. Lastly, we can direct conclusions from the compiled data while carefully avoiding bias. As a literature review it is very important to stay clear of bias and focus on summaries of the research.

RESULTS

The California Assessment of Student Performance and Progress, or better known as *CAASPP*, is a test designed to support high-quality teaching and learning through the use of various methods of evaluation and item kinds. It was developed for use by educators, administrators, students, and parents (California Department of Education, 2023). Additionally, it shows if children are on track to graduate from high school prepared for success in either college or the workforce. Taking into consideration that grades 3-6 were the ones that were most impacted, we can see below the results of the academic years 2019-2022. Table 1 (ELA), and 2 (mathematics) shows the results for all schools in California, the results can see the accurate

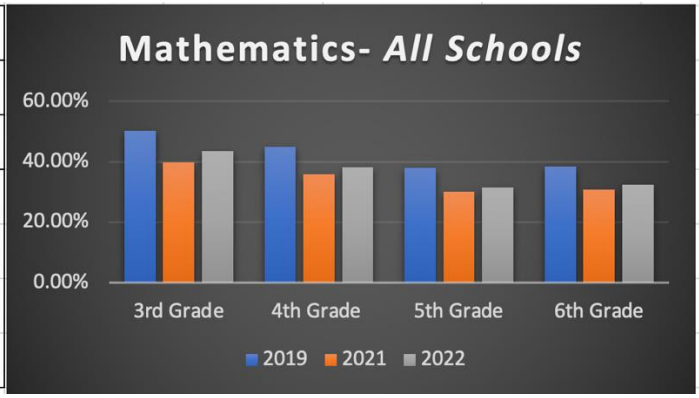
decline in the learning curve from the pre-pandemic year to the 2022 school year. These are the results for students that have met or exceeded expectations in both ELA and mathematics.

CAASPP Test Results			
ELA- Met or Exceeded Expectation- All schools			
	2019	2021	2022
3rd Grade	48.54%	39.79%	42.17%
4th Grade	49.46%	41.48%	44.22%
5th Grade	51.68%	46.45%	47.09%
6th Grade	50.01%	43.57%	45.11%



Source: Department of Education 1

CAASPP Test Results			
Mathematics- Met or Exceeded Expectations- All Schools			
	2019	2021	2022
3rd Grade	50.22%	39.74%	43.51%
4th Grade	44.94%	35.87%	38.26%
5th Grade	37.99%	30.09%	31.56%
6th Grade	38.52%	30.76%	32.46%



Source: Department of Education 2

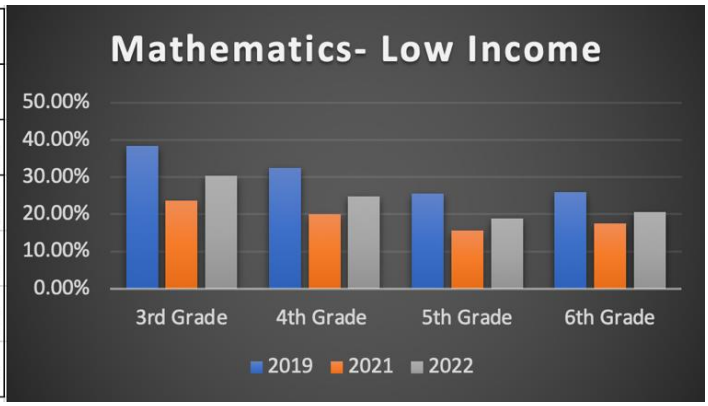
Table 3 and 4 focus on low-income students, the results from 2019 and 2021 show a severe decline from the pre-pandemic year. Researchers from both Harvard and Standford have analyzed the learning gap and have found disparities among income groups. The inequalities are very clear among income groups. Researchers have found that the math data for California showed districts with a wealthier demographic were only a few weeks behind in learning, rather

than months such as less fortunate school districts (Fensterwald, 2022).

CAASPP Test Results			
ELA- Met or Exceeded Expectation- Low Income			
	2019	2021	2022
3rd Grade	36.61%	23.94%	29.41%
4th Grade	37.49%	26.18%	31.54%
5th Grade	39.60%	31.99%	34.78%
6th Grade	37.88%	29.75%	33.49%

Source: Department of Education 3

CAASPP Test Results			
Mathematics- Met or Exceeded Expectations- Low Income			
	2019	2021	2022
3rd Grade	38.48%	23.59%	30.35%
4th Grade	32.47%	19.96%	24.83%
5th Grade	25.52%	15.67%	18.94%
6th Grade	25.99%	17.55%	20.52%

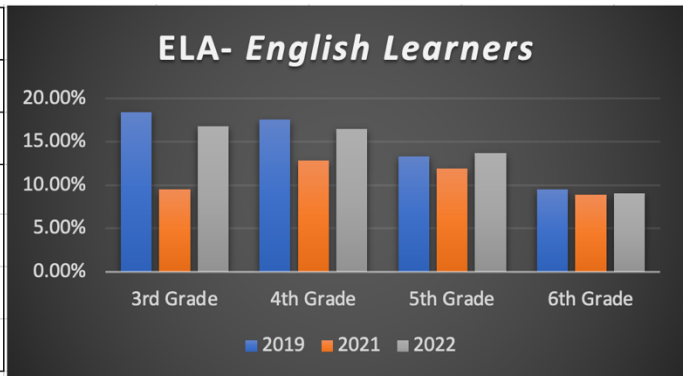


Source: Department of Education 4

The hardest hit comes from English learners. The results show single digits for students that have met or exceeded expectations. Taking a look at tables 5 and 6, we see that 6th grade has been the grade that has fallen behind in all sectors. Students at the sixth-grade level are struggling to jump back to pre-pandemic years. Over 1 million students in California are considered English learners, and as we can clearly see with the results below, these are the students that are always struggling to catch up in regard to their academic success. *The Los Angeles Times* report that parents along with educators, and experts need to take quick action in order to help English language learners. In fact, eighty percent of English learners in California

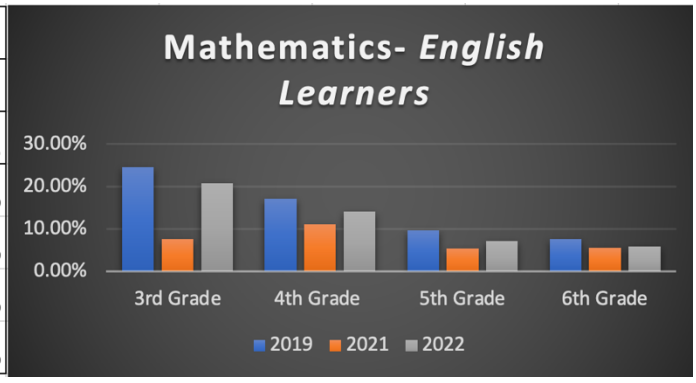
speak Spanish as their first language (Esquivel, 2021).

CAASPP Test Results			
ELA- Met or Exceeded Expectation- English Learners			
	2019	2021	2022
3rd Grade	18.43%	9.50%	16.81%
4th Grade	17.59%	12.89%	16.52%
5th Grade	13.30%	11.94%	13.68%
6th Grade	9.50%	8.88%	9.09%



Source: Department of Education 5

CAASPP Test Results			
Mathematics- Met or Exceeded Expectations- English Learners			
	2019	2021	2022
3rd Grade	24.58%	7.50%	20.72%
4th Grade	17.16%	11.00%	14.16%
5th Grade	9.59%	5.42%	7.03%
6th Grade	7.50%	5.52%	5.78%



Source: Department of Education 6

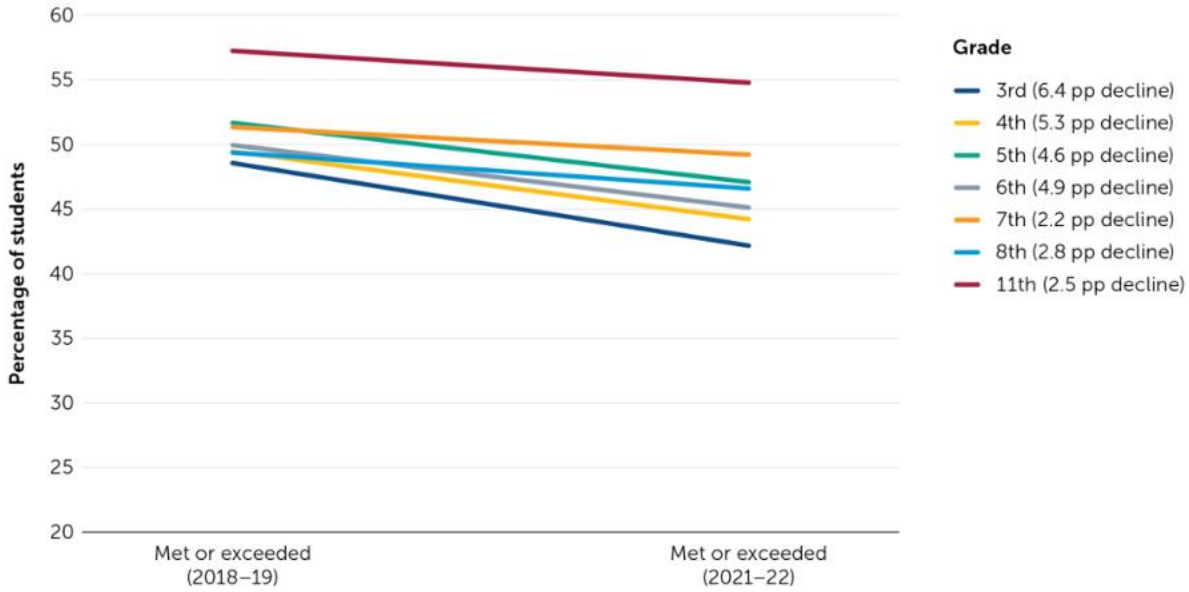
Heather Hough and Belen Chavez from Stanford University have conducted a policy analysis for California education in regard to California test scores among grades 3-8. The results show a significant regression in student learning. These scores analyze both language arts and mathematics between the 2018-2019 school year and 2021-2022 year. Their analysis shows that both economic measures and the pandemic did in fact contribute to the decline in student enrollment. They demonstrate a finding of a loss of 270,000 students just in California. That does however put a hiccup on the projections of reported test results in comparison to previous years. Hough and Chavez find that student tests did decline by six percent from the last three years, of course it does vary by grade level.

Hough and Chavez focus on 4 major findings of their analysis. First, findings from the English language arts/ literacy (ELA), have severely impacted all grade levels, considerably third graders. Second, mathematics scores have dropped nearly equally among 3-6 grade. Third, the most impacted have been students of color, English language learners, and low- socioeconomic students. Finally, and perhaps the most concerning has been the considerable distinctions by California districts.

In comparison between the 2018-2019 and 2021-2022 academic year, the table below created by both Hough and Chaves shows a decline that averages to a 5.3% among third graders on to sixth grade. The most impact being on third graders, there was a 6.4 % decline in their ELA test scores. To restate what these authors have stated about the primary grades, it is severely concerning as children are at the prime of their academic development. In a research done by the Annie E. Casey Foundation and the Center for Demographic Analysis, they report that children at the third grade level, when lacking the proper reading skills, are four times less likely to graduate high school than those that meet or excel expectations (Hernandez, 2011). Research supports that there will be a snowball effect that will not only impact those children that are behind but their families and the country as well (Annie E. Cassey Foundation, 2010). These test scores are brought by the children that were in Kindergarten and whose learning was interrupted by the school closures. Following spring 2023, California test score will be able to determine if there has been any improvement, especially on those children from struggling school districts.

Just like language arts test scores, math test scores have taken a downward spiral. Children that were in fifth grade when the closures happened, have struggled to catch up. Although not our focus, we need to point out that 8th graders (at the time of the closures 5th graders) have had the one of the worst impacts. This takes effect on the future of these children

that one day might want to pursue a STEM-focused career. Both third and fourth graders show a 6.7 decline for those that met or exceeded expectations, and there is a 6.4 drop on 5th followed by a 6.1 for 6th grade.



Note. pp = percentage point

Source: PACE, 2022 – Figure 8

Unfinished Learning

Any particular or broad loss of knowledge along with abilities, as well as reversals in academic progress, are all considered to be unfinished learning. These are typically brought on by lengthy gaps or discontinued in a student's education (EdCircut, 2022). The McKinsey researchers assessed and analyzed the *Curriculum Associates i-Ready* in- school assessment results which focused on over 1.6 million grade school students. By assessing results of the 2021 academic school year, it was found that these students scored 10 points behind in mathematics and 9 points behind in reading in comparison to pre pandemic school years. The researchers

approached this by converting the estimated points into months. What was ultimately estimated; elementary students fell 5 months behind in mathematics, and 4 months behind in reading.

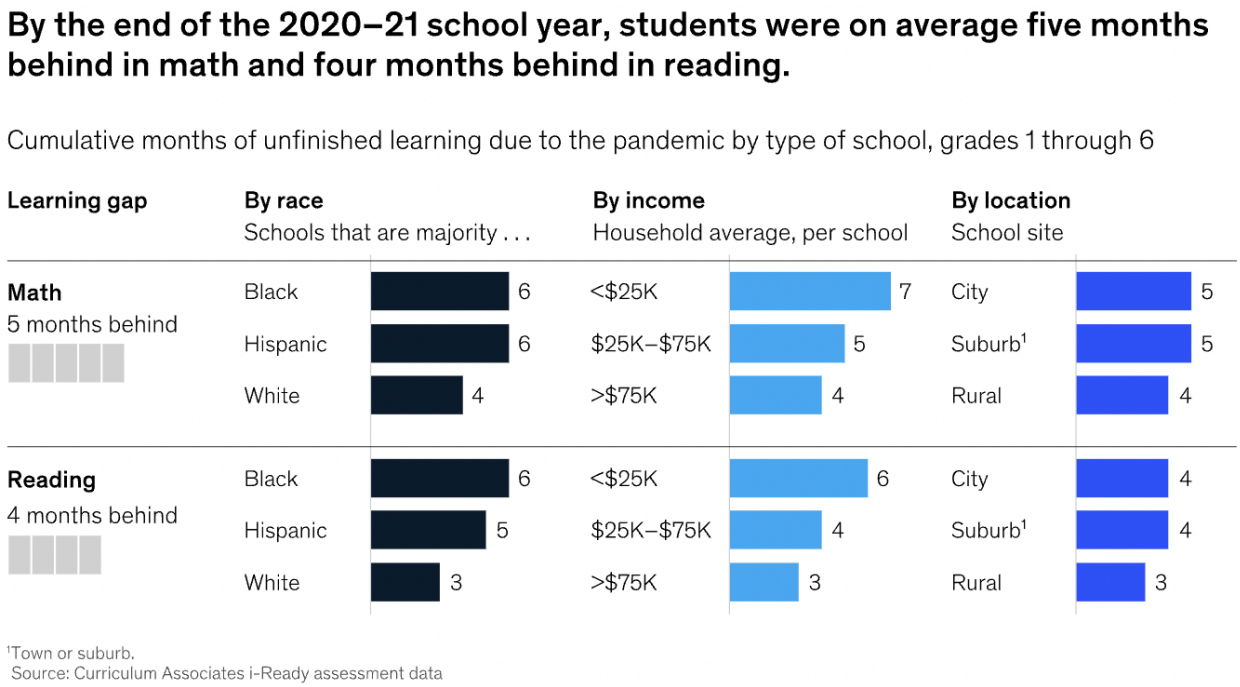


Figure 9

McKinsey researchers predict a long-term effect that will continue to impact scholars for years to come. The prediction states that without intervention, scholars will see a decline in lifetime earnings at an average of $49,000-$60,000. The higher the loss of learning, the more a student will lose. Additionally, this will impact minorities the most. It is estimated that when these affected scholars join the workforce in 2040, the anticipated annual GDP loss will be between $128-$188 billion with will highly be related to unfinished learning. In unforgiving terms, this means that minorities such as Black and Hispanic students could potentially lose up to 2.1 and 2.4 percent, of their lifetime earnings in comparison to 1.4% of white students (Dorn et al, 2021). Moreover, this fails to take into account all of the added long-term effects of student achievement.

OTHER INFORMATION

Students and Mental Health

In a time with so much ambiguity, transitions, and loss, there is bound to be met with other hardships that follow. Given the sudden and forced transition, grade school students could be lacking the necessary social support, academic tools, or study space environment. This resulted in student's increased feeling of isolation, boredom, and anxiety that could possibly have a negative psychological impact (Elharake et al., 2022). While some students had an easy transition onto remote learning, other students- especially those from low-income families, and first-generation families struggled the most mentally. Some students were not prepared for a successful transition, variables such as secure housing, internet connection, and actual parental assistance play a big part in the additional stress added to a child. Additionally, there is also the matter of taking into account the children of parents who are essential workers and that face different kinds of stress. Chronic stresses that affected children's neurodevelopment include worries that their parents could lose their jobs or become ill with the coronavirus (George et al., 2021).

Policy Insights from the Behavioral and Brain Sciences address that children's brain development have been disproportionately affected, both in the hippocampus and prefrontal cortex portion of the brain. The hippocampus is linked to the amygdala, both sectors of the brain are vital in children's brain development as they help control memory and emotions. These emotions are the ones that cause tantrums, meltdowns, and regulate excitement (Miller, 2017). Whereas the prefrontal cortex plays a role in cognitive functions, for example, reasoning-

understanding consequences, or continuously repeating bad behavior (Tsujimoto, 2008). The interruption of brain development in the prefrontal cortex can affect the ability to multitask, which can often lead to a meltdown when asking a child to pick up their toys or get dinner- this is hard for them to understand because it becomes complex for them to switch concentration. This all comes full circle with the hippocampus. Researchers have found that grade school students when transitioning back into an in-person learning environment have shown severe behavior issues, and emotional meltdowns (George et al., 2021). Over time, stress can induce emotional imbalances which can result in more aggressive behavior, and if not jumping into action to reverse the affect, it can lead to possibly bad outcomes in life.

Students and Physical Health

The American School Health Association report that children's physical health activity is vital to their academic success, cardiovascular health, sleep, mental health, and improved body composition (Vilchez at al., 2021). Learning physical health and practicing at a young age forms habits that can help a child as they grow older. The sudden transition to online learning put a tremendous pause on physical activity for millions of children. The lack of physical activity increased the issues of social-emotional learning according to health experts. They further have expressed concern for students that are overweight, pre-diabetic, and who struggle with social anxiety. For the most part, educators, parents, and school officials have agreed that students physical health declined during the pandemic and transitioned back to in person learning. Again, if the issue is overlooked, the consequences that follow could be catastrophic, scholars are prone to aggression, social anxiety, or even suicidal behavior.

DISCUSSION

California's Backlash and Action

In a delicate time where no one was really prepared for, state officials did not end up on good terms with the media. In California, many people were not too pleased with Governor Gavin Newson's plan to reopen schools. In a ProQuest document link by the *Washington Post*, the argument from the media is that following a $2 billion plan to tempt school openings is not sufficient. Their argument further states that throwing a bunch of money on the situation is not the solution, there was also the decision that allowed for bars and restaurants to reopen far ahead of schools. California lacked in prioritizing children's education (Noble, 2021). With the amount of collected data in early January 2021, officials should have relied on the facts of the research that showed that following a 9-week observation on 100,000 subjects in academia, the results showed only 32 cases of transmitted infections. This pales in comparison to the predictions of 800 possible cases. It was then determined that enforcing a mask policy was the solution to low rates of infection. The information- the hard facts were out there from very reliable sources such as Duke University. California, however, failed to jump into action in a timely manner.

Behind the scenes however, Governor Newson was working on strategies on how to transition students back to in-person learning. Newsom stated, "Learning is non-negotiable, the virus will be with us for a year or more, and school districts must provide meaningful instruction in the midst of this pandemic. In California, health data will determine when a school can be physically open – and when it must close – but learning should never stop. Students, staff, and parents all prefer in-classroom instruction, but only if it can be done safely" (Newsom, 2020). His plan for action consisted of 5 steps; transitions back to in-class settings based on local health data, mask policy, physical distance, regular testing, and distance learning.

The first step relied heavily on constant updates from the California Department of Public Health. Relying on 6 indicators in order to track the level of infected people in each county which include the rates of positive testing, hospitalization rates, and the number of people which have been infected by the hundred thousand. Depending on the severity of the number of people infected, decision making revolved around it. With regard to the mask policy- California enforced students in third grade and up, and second grade and under were strongly recommended. Again, the hard data showed that masks worked, and they strongly slowed down the infection rates. Regular testing was highly encouraged to staff in every single school in California. The state provided the necessary resources in order for the transition to be effective. Under a rather new state law following closures, the state mandated schools to provide students with devices in order to effectively participate in distance learning. It was mandatory to have everyday live interactions between scholars and educators. Finally, working with materials that were challenging in contrast to in class learning (Office of the Governor, 2020).

Moreover, transparency played a big role with Gavin Newsom and Californians. School districts were required to provide reports to their communities the mandate states:

> *Local educational agencies will publish a written report to their communities explaining how they are responding to COVID-19. They will be required to explain steps they have taken to deliver high-quality distance learning opportunities, provide school meals in non-congregate settings, and arrange for supervision of students during ordinary school hours. They will also be required to explain the steps they have taken to meet the needs low-income students, English learners, and foster youth. The report will help provide transparency and accountability to communities.*

The state of California set a new effective and inspiring initiative: The Californians for all service. This initiative encompasses California volunteers taking the leap on making a change to the state. The program that stands out from California Volunteers is CollegeCorps. This program concentrates on enlisting college students- students from 47 different campuses. Among them, University of California institutions to California State Universities, on to community colleges. In the 2022 academic school year, California's Chief Service Office Josh Fryday and Governor Newsom welcomed 3,200 college students into the program. This is an all-hands-on deck program that for the first time ever, undocumented AB540 students got to be a part of and help make change to the state. Half of these fellows are working on education. Students from diverse backgrounds are going to do struggling communities and offering aid. Community centers, after school programs, and regular schools are being offered additional support in order to help combat the learning curve.

In exchange for 450 hours of service, California offers a $10,000 grant to help pay for their education. In a statement by the Governor he states, "Giving back to your community through service is at the very heart of what it means to be a Californian – and that's what College Corps is all about. There's nothing more valuable than getting hands-on with service projects that make our state a better place for all." The program has shown early signs of success, this is truly a program where everyone wins. Taking note of the success, other states are looking to implement the program. The 2022 cohort of CollegeCorps is stirring up a buzz and motivating other states to adapt to this strategy (Fryday, 2023).

Recommendations

In order to help to combat mental health concerns, experts believe that there should be increased access to online resources. Although most institutions already offer tech devices for

students, the nation should provide strong internet connection to poor and rural areas that struggle with internet connection. There is a big suggestion for expanding avenues for Wi-Fi access, for example city wide access. With strategic budgeting, states can build a strong broadband internet infrastructure in order to make it happen. Additionally, students, educators, and parents should have more access to telehealth and mental health resources. Again, in order to make it possible, telehealth needs more funding, this all comes down to strategic budget planning. The last recommendation, and probably the most potent one is increasing and encouraging summer school learning. There should be a recommendation about making summer school mandatory for students that are severely behind. Additionally, having properly trained educators ready to give comprehensive lectures of scholars prior academic year. This is in hopes of students being able to catch up to their peers. For educators it can be very frustrating to have scholars who met their grade level expectations, and having other students in the same classroom who are a year behind. That leads to a loss of learning for all students.

CONCLUSION

This systematic literature review has clearly demonstrated the profound impact that the COVID-19 pandemic has had on California's education system, especially for K-6 students. The transition into remote learning and subsequent reduced socialization of students has had significant negative effects on their academic performance and mental health especially among those of lower socioeconomic status. The state took many actions in order to combat this including devoting billions of dollars' worth of funding. However, the reviewed studies have shown that these actions were largely proven to be ineffective leaving us with potentially one of the largest problems facing the next generation: unfinished learning.

New and innovative solutions are necessary to solve the unfinished learning that will continue to hold back the current generation of students for years to come. We propose a combination of measures mostly geared towards providing the students hardest hit with a way to catch back up to their peers. These include not only improvements to the remote learning system but additional augmentations to in-person teaching as well. Fully addressing the challenges facing these students as well as the state's education system as a whole is a daunting task, but an essential one that will require the collaboration of educators, state officials, parents, and even the children themselves.

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