

Reshaping Resilience: Mental Health Challenges in Post-Pandemic Students and Workforce Readiness

Susan Miller¹, Julia Boyd¹, Ryan Potts¹, Tarandeep Kaur Arora¹

¹Department of Occupational Safety and Health, Murray State University, Murray, Kentucky 42071

Corresponding author's Email: mmiller4@murraystate.edu, jboyd16@murraystate.edu

Author Note: Dr. Susan Miller has 30 years of health and safety experience and serves as an assistant professor at Murray State University, teaching since 2008 in various capacities. She earned her PhD in Health Education from Southern Illinois University in 2020 and holds a Master's in Occupational Safety and Health, which she completed in 1995. Dr. Julia Boyd brings 23 years of experience in health and safety and is an assistant professor at Murray State University, where she has taught for eight years. She received her PhD in Occupational Safety and Health from Capitol Technology University in 2021 and holds a Master's degree with an emphasis in Industrial Hygiene from Murray State University, earned in 2001. Dr. Boyd is a Certified Industrial Hygienist (CIH-CP 12267). Mr. Ryan Potts is a graduate assistant in the Department of Occupational Safety and Health at Murray State University, pursuing a Master's in Occupational Safety and Health. He also serves as the Research Leader for the university's student section of the American Society of Safety Professionals. Ms. Tarandeep Kaur Arora is a graduate student in the Department of Occupational Safety and Health at Murray State University. She is working toward her Master's degree in Occupational Safety and Health with a dual focus in Industrial Hygiene and Risk Management. She has served as a research assistant on multiple studies within the department. The group thanks Dr. Traci Byrd, Chair of the Department of Occupational Safety and Health at Murray State University, for her unwavering support and encouragement of faculty and student endeavors.

Abstract: The COVID-19 pandemic, which at its peak affected more than 1.6 million high school students (Rao & Rao, 2021), has thrust us into uncharted territory. Overnight, students transitioned from traditional classroom settings to non-traditional schooling, a shift that had to be executed swiftly with little to no preparation. Many students found themselves lacking the resources for online studies at home, and if they did have the resources, they often lacked internet access due to socioeconomic or location challenges. The pandemic has significantly impacted school-aged children and college students, disrupting their education and social environments. This crisis demands immediate attention to the mental health needs of our student population.

This study explores the mental health effects of the pandemic on students at a university in Western Kentucky (Murray State University), focusing on changes in anxiety, depression, relationships, and academic performance. The study aims to understand the trends across pre-, during, and post-pandemic periods, collecting qualitative data and utilizing surveys from volunteer student participants in the Occupational Safety and Health (OSH) and Nursing programs. There were 164 responses to the study across both departments, comprising 92 responses from OSH classes, which were surveyed first, and 72 responses from nursing classes. Of these 164 participants, 141 were 18-22 years, and 23 were aged 23 years or older. The departmental breakdown comprised 47.6% OSH participants and 44.5% Nursing students. Data reveals that the number of people experiencing significant anxiety or depression dropped after the pandemic, but this number is still significantly higher than it was before the pandemic started. The study's findings show a significant increase in anxiety and depression during the pandemic, with effects lasting post-pandemic. There were also differences in how students from various demographics experienced the pandemic's challenges. The number of people experiencing significant anxiety or depression jumped from 4.3% before the pandemic to 14.6% during the pandemic and then down to 12.2% after the pandemic. The results underscore the urgent need for prioritizing mental health resources on campuses and the implications for workforce readiness as this generation transitions into professional roles. The study also identifies opportunities for future research on the long-term mental health impacts of the pandemic and their relevance to workforce development, contributing to initiatives like NIOSH Total Worker Health.

Keywords: Total Worker Health, Generation Z, COVID-19, Pandemic, Mental Health, Pandemic Generation

1. Reshaping Resilience: Mental Health Challenges in Post-Pandemic Students and Workforce Readiness

1.1 Total Worker Health

The COVID-19 pandemic was unprecedented, leaving profound and possibly unfathomable lasting impacts. Within a few weeks, nearly 70% of the American workforce and almost all of the world's 1.5 billion students transitioned to online work and learning due to COVID-19 (Brynjolfsson et al., 2020; Teras et al., 2020). Such a vast transition had inevitable effects on the population, especially concerning the mental health of students at the time. A group of student researchers at Murray State University recognized the importance of understanding the pandemic's impact on students' mental health in the Occupational Safety and Health (OSH) and nursing programs. This survey was influenced by similar studies, such as a COVID-19 mental health survey outlined in an article from the *Frontiers in Education* journal (Rao M & Rao D, 2021). These studies and personal observations underscore the significance of researching how college students' mental health might have been impacted due to the COVID-19 pandemic. This qualitative study aimed to collect information about how students classified their mental health in different categories before, during, and after the pandemic, highlighting the importance of this research in understanding and addressing the mental health crisis.

The COVID-19 pandemic has exposed the reality that people face challenges in countless ways. Whether the difficulties are professional, personal, or academic, they inevitably remain with an individual. It was a pivotal moment in modern history, reshaping individuals and communities. Before COVID-19, workforce readiness primarily focused on the role of skills, knowledge, and technology to prepare students for future careers (Illanes et al., 2018). The results of this study demonstrate the need to shift the view of the total student/future worker to include mental health as well in a post-COVID-19 world.

The National Institute of Occupational Safety and Health (NIOSH) defines total worker health as “policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness-prevention efforts to advance worker well-being” (NIOSH, 2016). Psychosocial factors are one of the subcategories outlined by NIOSH. Psychosocial factors include psychological protection of workers and issues impacting workers' mental health, such as stress related to COVID-19. Given the significance of these psychosocial factors in evaluating and enhancing overall worker health, safety professionals have an opportunity to collaborate with other corporate stakeholders to address the mental health challenges faced by new employees leaving or graduating from college and entering the workforce after the COVID pandemic. Vulnerable workers include those 25 years of age and younger and new to the workforce (NIOSH, 2016).

Workforce preparedness in this vulnerable population is an outcome of higher education that influences work and education's current and future landscape (Krishnamoorthy & Keating, 2021). In addition, in the Student Voice 2024 survey, less than half (42%) of respondents described their mental health as excellent or good (Flaherty, 2024). Herein lies the challenge for corporations - finding the balance between meeting the mental needs of these vulnerable workers and pushing them to be productive and effective workers at their facility.

The pandemic dramatically reshaped how organizations approach employee health. Organizations must view their workforce not as mere cogs in the machinery of production but as human beings and essential stakeholders whose positive energy is vital to achieving the organization's purpose (Schneider, 2004). As NIOSH's definition of total worker health implies, corporations should address employees as a whole human with great potential. Addressing mental health in the workplace is currently one of the most urgent priorities for occupational safety and health professionals (Lecours, St-Hilaire, and Daneau, 2022).

1.2 Pandemic Generation Blending into the Workplace

The COVID-19 pandemic significantly impacted the workforce and school-aged individuals. Parents were suddenly thrust into a world of catchphrases, including non-traditional instruction (NTI), Zoom, Google Classroom, and Study Island, to name a few. Few parents were trained, let alone equipped to teach their children. While this gap in quality education will gradually narrow over time, it remains a significant hurdle for those in educational roles. Harris et al. (2024) studied the effects of the COVID-19 pandemic on educational attainment. According to Harris et al., although high school graduation rates increased, college attainment rates have dropped by 21% after two years, particularly among those who immediately transition to two-year colleges. Relaxing high school standards was suspected to be the reason for the reduction in college attainment numbers (Harris et al., 2024).

Generation Z students, born 1997-2012, were impacted most by the pandemic. During the pandemic, these high school and college students worked remotely for most of their academic careers (Wilmot, 2024). The college graduation classes of 2024-2025 will be the first group of students entering the workforce who were in high school and college during the height of the pandemic. The stress of the unknown, trying to complete work without a computer, a lack of Wi-Fi or a

quality streaming service, and a lack of knowledge of software platforms put extreme pressure on this pandemic generation. The lack of human interaction forced them further into depression as they looked to social media sites for a place to receive affirmation, not acknowledging that social media can portray a fake world, a snap in time, that others may be struggling with the same (Harari et al., 2022). All the above-listed can cause one to have signs and symptoms of a mental health issue or contribute to exacerbating a current state of mental health challenges.

An online career readiness resource conducted a qualitative study of a pool of 1,000 managers (Center, 2024). The study results showed that the most frequently cited reasons for the new hires' lack of success were a lack of motivation or initiative (50%), poor communication skills (39%), and a lack of professionalism (46%). Other factors included poor communication skills (39%), struggles with feedback (38%), and inadequate problem-solving abilities (34%). This success is particularly critical now, as one of the largest generations, the Baby Boomers, are retiring in large numbers over the next five years (Harari et al., 2022). This will leave a significant knowledge gap for companies. How do they prepare entry-level and middle-level professionals to take on roles with a large volume of acquired knowledge? The millennials and baby boomers were challenged to learn how to restructure, teach soft skills, and adapt to educate better our first-year class, which was primarily taught online during the pandemic. This pressure can add to the current mental health status of the working generations. Workplaces should make efforts to prevent scenarios that lead to failure.

1.3 Project Significance

This research evaluates mental health awareness pre-, during, and post-COVID-19. The focus area of the study will be only student-based; students from OSH and nursing will be volunteer participants. This research is necessary to identify an area of focus for future, more robust studies involving student mental health, especially in roles considered "essential" during the pandemic. The study will compare the pre-, during, and post-COVID-19 pandemic results to identify differences and, if present, determine which stage (pre-, during, or post-COVID-19 pandemic) participants exhibit the most signs of mental health challenges. Pre-COVID-19 mental health study data outcomes will be statistically compared to both the during-COVID-19 and post-COVID-19 study data sets. This study's outcome could indicate whether there are more symptoms of anxiety and depression during the pandemic's peak or after the pandemic's height. The outcomes will contribute to science by narrowing the focus of future studies in this area. Mental health issues are being identified not only in the workforce but also significantly impact the student base. The outcome of this study could help address some of these gaps and pave the way for a larger-scale study.

2. Methods

Google Forms was used to collect data from students participating in this survey. The team of researchers worked with the Psychological Center at Murray State University to compile questions for the survey. Questions used in the form were carefully selected by research team members and considered based on their ability to measure the pandemic's impact on students effectively. These questions utilized a multiple-choice ranking system for responses with options ranging from "Not at all," "Mild," "Moderate," and "Major." This labeling system enabled the data collected to be easily classified, allowing for the display of changes between the chosen periods. These time frames for the questions were "Pre-Pandemic," "During Pandemic," and "Post-Pandemic," "Pre-Pandemic" was defined as anything before March 2020, "During Pandemic" was defined as the period between March 2020 and March 2022, and "Post-Pandemic" was defined as March 2022 through April 2023, the time at which the study was conducted.

The same questions were used for these different periods to determine if one participant's responses changed after the pandemic started or ended. For example, one of the questions included was, "Were you experiencing any anxiety or depression?" and this was given for "Pre-Pandemic," "During Pandemic," and "Post-Pandemic." The options of "Not at all," "Mild," "Moderate," and "Major" were provided for each period of this question. Some questions were excluded from the "Pre-Pandemic" portion because they were inapplicable to this time frame. For example, "How did the Pandemic impact your relationships with friends and family?" could not be applied to the "Pre-pandemic" portion because the pandemic had not begun and therefore could not impact one's relationships. This was the format for most questions, but other identifier questions included year in school, age, major, and employment status. These questions were submitted to the Institutional Review Board (IRB) for review and were approved to proceed with the study involving human participants.

The IRB approved the consent form, which was printed and distributed to students during class. This form contained information about the study and a QR code that participants could scan to access the Google Form with the approved questions. Then, at the bottom of the consent form, there was a line for students to sign, consenting to using their responses. This information was kept separate from the Google Form responses, ensuring the study remained anonymous. The research team distributed copies of the survey to several OSH and nursing classes. They would ask permission from professors beforehand and then use the first few minutes of class to explain the study, distribute forms, have students complete the

survey, and collect the completed forms. There were 164 responses to the survey across both departments, comprising 92 responses from OSH classes, which were surveyed first, and 72 responses from nursing classes.

The question given the most focus was “Were you experiencing any anxiety or depression?” because this provides the most insight into how mental health has impacted college students, as there is data for the pre-, during and Post-Pandemic periods. Due to this, one can see how students’ anxiety and depression were characterized before the pandemic started, throughout the pandemic, and then the lasting effects of the pandemic during the “Post-Pandemic”.

3. Results

As stated previously, 164 responses to the survey were collected between March 2023 and April 2023 (44 days). Of these 164 participants, 141 were aged 18-22, and 23 were 23 or older. 47.6% of participants were OSH students, and 44.5% were nursing students. The survey included nine first-year students, 54 sophomores, 67 juniors, 31 seniors, and three graduate students. Figures 1 and 2 show the results of the survey data collected from participants gauging their anxiety and depression levels and the impact on relationships with family and friends.

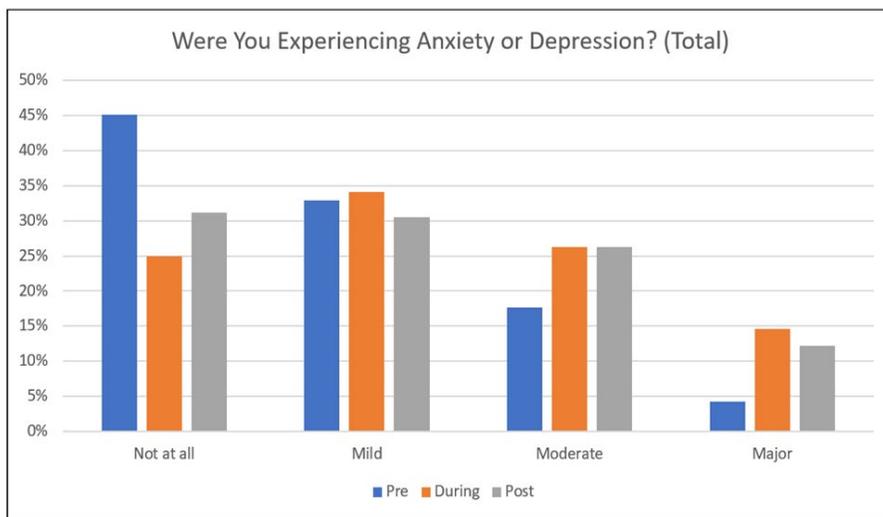


Figure 1: Anxiety or Depression Levels

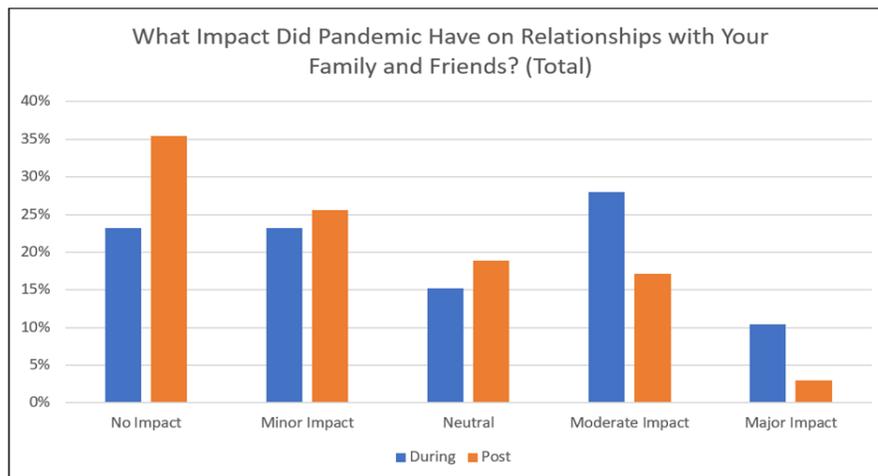


Figure 2: Relationship Impacts

The question given the most focus was “Were you experiencing any anxiety or depression?” because this provides the most insight into how mental health has impacted college students, as there is data for the pre-, during and Post-Pandemic periods. Due to this, one can see how students’ anxiety and depression were characterized before the pandemic started, throughout the pandemic, and then the lasting effects of the pandemic during the “Post-Pandemic” period. For example, the number of people experiencing significant anxiety or depression jumped from 4.3% before the pandemic to 14.6% during the pandemic and then down to 12.2% after the pandemic (Figure 1).

Although the number of people experiencing significant anxiety or depression dropped after the pandemic, this number is still significantly higher than it was before the pandemic started. Additionally, the number of people experiencing moderate anxiety or depression increased from before the pandemic into the “Post-Pandemic” period, rising from 17.7% before the pandemic, 26.2% during, and 26.2% after the pandemic. These results show that the pandemic likely still had lasting effects on the mental health of college students, even after the lockdowns and other protocols were lifted.

However, the results from other questions revealed that removing these protocols often improved the condition of participants. The percentage of respondents who reported that the pandemic significantly impacted their relationships with friends and family decreased from 10.4% during the pandemic to 3% after the pandemic (Figure 2). Additionally, those who reported that the pandemic had no impact on their relationships rose from 23.2% during the pandemic to 35.4% afterward. Thus, the trends in other categories show that ending pandemic protocols has improved the mental health of these college students.

A comparison of the results from the different departments displayed differences in responses. For example, more nursing students reported experiencing significant anxiety and depression during (17.8%) and after (15.1%) the pandemic than OSH students (13% during and 10.9% after). Additionally, a significant number (37%) of nursing students reported that the pandemic moderately impacted them.

Their relationships with family and friends. In comparison, 21.7% of OSH students reported this moderate impact. More OSH students reported feeling “not at all” overwhelmed by the pandemic during the “During-Pandemic” period (29.3%) than nursing students (19.2%), indicating that nursing students were, in general, more stressed and overwhelmed by the pandemic than OSH students. Figures 3 and 4 show the results of the survey data collected from participants, revealing their impact on school and work performance.

When participants were asked about the impact of the pandemic on their work performance, 46% indicated that there was no impact once pandemic restrictions were lifted. However, nearly 20% of participants reported that their work performance was either moderately or significantly affected after the pandemic (Figure 3). This suggests a potential concern for students entering their careers with lingering work performance issues. Additionally, data indicated differing impacts between OSH students and nursing students. A higher percentage of OSH students reported a “moderate” (34.8%) and “major” (21.7%) impact on their school performance compared to nursing students, who reported 24.7% moderate and 9.6% significant impacts (Figure 4). This discrepancy may be attributed to each major's differing course loads and responsibilities. Another influencing factor could be the age difference between the two groups, as a majority of nursing students were sophomores or juniors, while most OSH students were juniors or seniors. This variation in academic standing may have affected their responses to various aspects of life altered by the pandemic. Despite these differences, many results were similar and remained consistent across demographics. Finally, a staggering 70% of participants indicated that their overall mental health had been negatively impacted by events surrounding the pandemic (Figure 5).

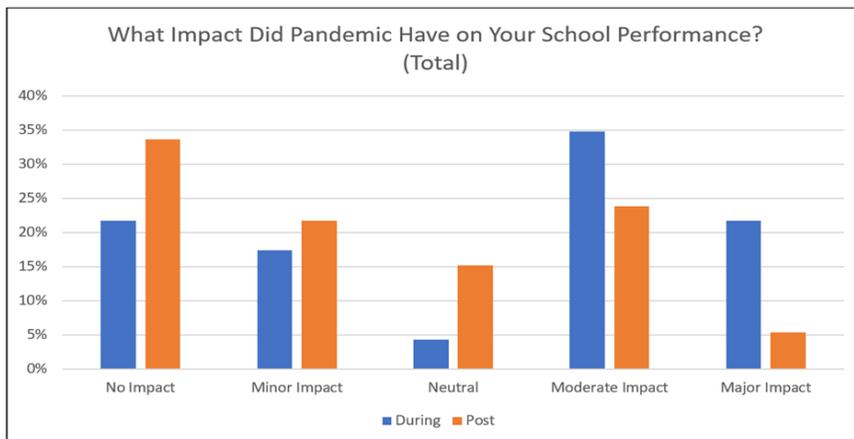


Figure 3: Participant School Performance

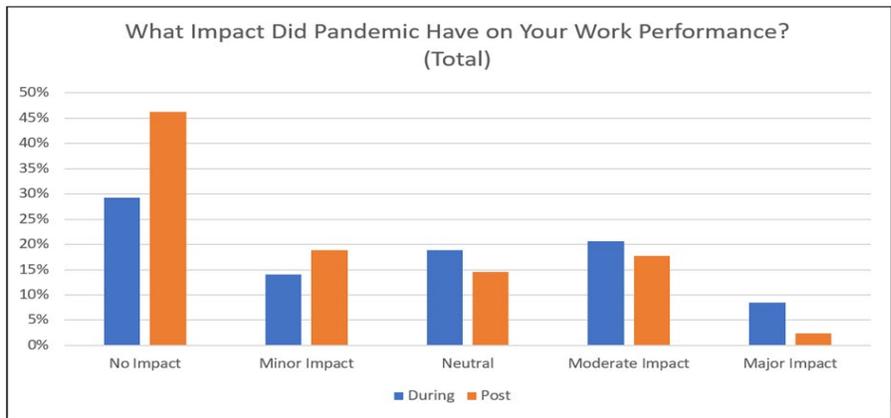


Figure 4: Participant Work Performance

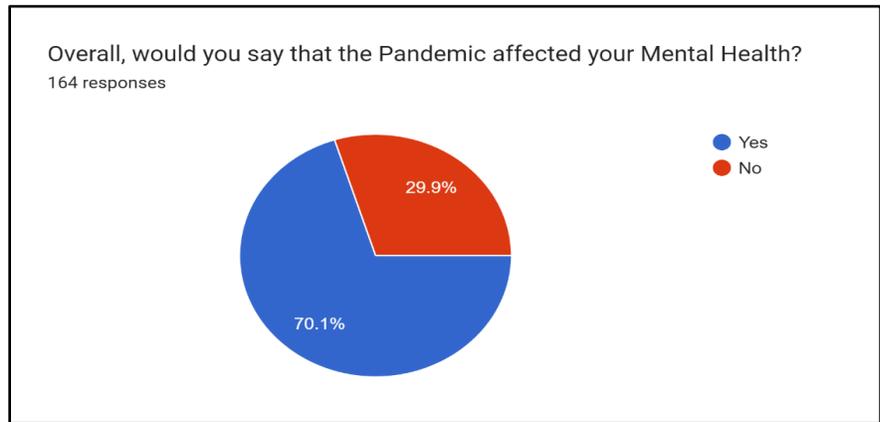


Figure 5: Overall Pandemic Participant Mental Impact

4. Conclusion

Overall, the findings indicate that the levels of anxiety and depression among these students are higher now than they were before the onset of the pandemic. This increase may stem from various factors, including ongoing concerns related to the pandemic, the pressures of college life, heightened work responsibilities, or other potential influences. While some trends suggest that mental health improved in various aspects after the pandemic, this raises the question of whether the rise in anxiety and depression can be attributed to pandemic-related factors or other external influences. Regardless of the underlying causes, it is evident that students are experiencing greater levels of depression and anxiety than they did before the pandemic began. Given the insights from the mental health study regarding students' well-being in college, how can we better equip this vulnerable population for success in the workplace?

This study offers several recommendations to support students grappling with mental health challenges, including increasing awareness of available counseling services on campus, providing stress-relief activities such as meditation and yoga, and educating students about anxiety and depression. To prepare students for career transitions, universities and employers should implement new hire training that encompasses topics such as conflict resolution, public speaking, and business etiquette, including email and phone communication. These measures could facilitate a smoother transition into the workforce and mitigate the heightened risk of anxiety and depression among the pandemic generation. Ultimately, this research highlights the enduring impact of the pandemic on university students, and these implications are likely to persist as they transition into professional settings.

5. References

- Brynjolfsson, E., Rock, D., Horton, J., Ozimek, A., Sharma, G., & Ye, H. Y. T. (2020). COVID-19 and Remote Work: An Early Look at US Data (No.w27344). *National Bureau of Economic Research*
- Center, Utah Education Policy (2024). "Utah Workforce Alignment Study." https://ushe.edu/wp-content/uploads/pdf/reports/2024/2024_USHE_State_Workforce_Alignment_Study_Report.pdf
- Flaherty, C. (2024). *Inside Higher Ed.*, Student Voice 2024: Top 10 Findings. <https://www.insidehighered.com/news/student-success/academic-life/2024/12/19/top-10-college-student-survey-findings-2024>
- Harari, T. T., Sela, Y., & Bareket-Bojmel, L. (2022). Gen Z during the COVID-19 crisis: a comparative analysis of the differences between Gen Z and Gen X in resilience, values, and attitudes. *Current Psychology* (New Brunswick, N.J.), 42(28), 1. <https://doi.org/10.1007/S12144-022-03501-4>
- Harris, D. N., Chen, F., Martin, R. C., Bernhardt, A. F., Marsicano, C. R., & von Hippel, P. T. (2024). The Effects of the COVID-19 Pandemic on Educational Attainment. *RSF: The Russell Sage Foundation Journal of the Social Sciences*, 10(1), 152–180. <https://doi.org/10.7758/RSF.2024.10.1.07>
- Illanes, P., Lund, S., Mourshed, M., Rutherford, S., & Tyreman, M. (2018). Retraining and reskilling workers in the age of automation. *McKinsey & Company*.
- Krishnamoorthy, R., & Keating, K. (2021). Education Crisis, Workforce Preparedness, and COVID-19: Reflections and Recommendations. *American Journal of Economics and Sociology*, 80(1). <https://doi.org/10.1111/ajes.12376>
- Lecours, A., St-Hilaire, F., & Daneau, P. (2022). Fostering mental health at work: the butterfly effect of management behaviors. *International Journal of Human Resource Management*, 33(13). <https://doi.org/10.1080/09585192.2021.1886151>
- NIOSH. (2016). Fundamentals of Total Worker Health Approaches: Essential Elements for Advancing Worker Safety, Health, and Well-Being. *Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health*.
- Rao, M. E., & Rao, D. M. (2021). The Mental Health of High School Students During the COVID-19 Pandemic. *Frontiers in Education*, 6. <https://doi.org/10.3389/feduc.2021.719539>
- Schneider, P. A. (2004). Good Business: Leadership, Flow, and the Making of Meaning. In *Journal of Consumer Marketing* (Vol. 21, Issue 3). <https://doi.org/10.1108/07363760410534786>
- Teräs, M., Suoranta, J., Teräs, H., & Curcher, M. (2020). Post-Covid-19 Education and Education Technology ‘Solutionism’: a Seller’s Market. *Postdigital Science and Education*, 2(3). <https://doi.org/10.1007/s42438-020-00164-x>
- Wilmot, J. (2024, November 7). College Students, Don’t Despair: You May Be Better Prepared for the Workforce Than You Think - EdTech Digest. EDTECH Digest. <https://www.edtechdigest.com/2024/11/07/college-students-dont-despair-you-may-be-better-prepared-for-the-workforce-than-you-think/>