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12-8-2022

### Evidence-Based Study: The Effect of the COVID-19 Pandemic on Post-Secondary Enrollment and Chosen Fields of Study

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Fall 2022

**Evidence-Based Study: The Effect of the COVID-19  
Pandemic on Post-Secondary Enrollment and  
Chosen Fields of Study**

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**Abstract**

The onset of the COVID-19 pandemic in the United States in March of 2020 derailed educational systems at all levels. Specifically, at the post-secondary level, the pandemic sent many students online or forced them to take a fifth year to complete their degrees. As a result, post-secondary enrollment rates are likely to have dropped to reflect these changing post-COVID views surrounding education. Additionally, changing viewpoints about the essentiality of certain jobs and roles changed the chosen fields of study of these same students. Data for this study was collected by way of a short-scale meta-analysis, and enrollment rates were split by two and four-year institutions, sex, and race and ethnicity. Fields of study were collected from various sources and then compared by similar majors. Significant results were found in total enrollment, in the form of a decrease in 2-year enrollment and total enrollment. There was also a significant increase in science-related fields of study, all of which point to a changing mindset of both the efficacy of a degree and the importance of science professionals in a post-COVID society.

**Objective**

The COVID-19 pandemic globally disrupted educational systems, and while its effects have been widely theorized, there is little concrete evidence surrounding the significance of the pandemic's effect on high school and undergraduate students. Information about the effect of the pandemic on post-secondary enrollment rates and the proportions of specific fields of study that are being chosen by students can lend interesting insights into things such as the true worth of a college education and the societal significance of various occupations, among others.

**Introduction**

When the COVID-19 pandemic hit US schools in early 2020, it created immediate and lasting damage. Students of all ages and education levels were and still are, feeling the effects of the pandemic on their educational opportunities, learning attainment, and future education plans. The pandemic has greatly lessened the learning experience and capabilities of students, both reducing their standardized test scores and the sheer amount that they are capable of retaining, effectively creating academically weaker students than those in pre-pandemic classes (West et al., 2021). However, the pandemic has effects reaching beyond the academic strength of students.

High school and college-aged students who were preparing to finalize their post-graduate decisions found themselves frozen in online learning and a cycle of raising and lowering prevention guidelines. For many, this influenced the way that they viewed secondary education and the importance of education in general. Rather than entering college immediately out of high school, students had entirely new views about online education, the types of jobs available to them, and the choice to go to college at all. When these decisions are compared to the same decisions being made in a pre-pandemic world, there are many interesting comparisons to make. Mainly, in a post-COVID educational system, college enrollment rates will be lower than their pre-pandemic levels and students will have an increased interest in science-related fields.

The study of the changing educational habits of students brings several interesting observations to the table. By studying the enrollment rates of students post-pandemic, the effectiveness and general likeability of online learning can perhaps be analyzed. If students had overall negative experiences with the classes that were forced online during the pandemic, their dislike for school could have transferred to a lack of interest in higher education and, therefore, a drop in enrollment rates. Enrollment rate decline could also point to the financial instability that has been associated with the pandemic (Oliff, 2021). COVID has forced student loan rates to rise, and rising with it is the uncertainty of the financial payback of a college education. Students and their families are being forced to determine if the cost of their education will be returned to them by the degree they stand to gain.

Trends in the field of study choice in a pre and post-pandemic world could also lend interesting insight into the societal values placed on various jobs. COVID divided the workforce into “essential” and “nonessential” jobs in an attempt to limit the spread of the virus, and as such, placed a higher or lower value on various jobs. Students who had yet to declare a major or who were just entering college may have been influenced by these shutdowns and therefore decided to go into a field that was deemed “essential” in an attempt to raise their own societal value. It has been shown that applications to medical schools in 2021 alone have risen by 18%, largely influenced by students who have seen the importance of healthcare workers in times of crisis firsthand (Ngo, 2021). The enrollment rates and subsequent fields of study of students entering college before and after the COVID pandemic have many valuable insights to offer.

### **Literature Review**

As mentioned previously, not much research has been done in the field of the pandemic’s effect on college enrollment; however, there has been much discussion on both the education that students have missed as a result of the pandemic as well as how the pandemic has opened up cracks in the educational system that have been around long before the coronavirus. The COVID-19 pandemic did not create the issues that are the topic of today’s news articles and studies, it merely exacerbated and exposed them.

The Center on Reinventing Public Education’s report entitled “How Much Have Students Missed Academically Because of the Pandemic? A Review of the Evidence to Date” focuses mainly on the shortcomings of education during COVID, but it also acknowledges that there is much that is still unknown. As a whole, literacy and numeracy measures are a foundational source of explanation for the future educational and professional success of students, and when the pandemic’s educational disruption is paired with additional social and economic consequences such as rising inflation, employment loss, and increased stress of losing family members, students have taken a devastating blow. Not only this, but there is a serious lack of reliable and continuous data to critically evaluate the issues mentioned above. A multitude of state and national exams were canceled in 2020 and 2021 due to the pandemic, and even when schools returned to in-person or hybrid instruction, many baseline and standardized tests were discontinued. The students who were most likely to be affected by the pandemic also happen to

be the students whose performance on tests like these is integral to evaluating what additional support they need in the classroom. Thus, without these tests as a resource for schools, already underperforming students will continue to fall behind (West et al., 2021).

However, students who are traditionally below the baseline are not the only students who have suffered academically. Elementary and middle school students as a group performed lower on standardized testing in the Fall of 2020 than in previous years, both based on testing scores and predicted growth scores. Not only this, but the difference in predicted scores and actual scores were lower in the Winter of 2021 than in the Fall 2020 or other pre-pandemic testing periods (West et al., 2021). Students were shown to have only learned 67% of the math and 87% of the reading that their peers had learned in a non-pandemic year. This equates to roughly three months of math learning loss and 1.5 months of reading loss (Goldberg, 2021).

In doing research for this work, it was predicted that secondary education enrollment levels of high school graduates will show a decrease as a result of the pandemic. Interestingly enough, this is not a trend specific to higher education. Public primary school enrollment dropped by 3 percent in the last 18 months, with preschool and kindergarten enrollment alone dropping 13 percent (West et al., 2021). This is once again an indication of an issue within the greater educational system and not simply a one or two-year problem in lowered enrollment rates.

Moving forward, the pandemic did not merely affect education, it also exposed and widened issues and disparities within educational systems. Historically marginalized and underserved students bore the brunt of the pandemic, both in terms of illness and death rates but also in terms of access to resources (Gold, et al., 2020). The Office of Civil Rights can be quoted as saying:

“Long before the pandemic first shuttered America’s schools in spring 2020, students from historically marginalized communities already faced challenges in accessing basic educational resources—from well-trained, well-paid teachers and staff to adequate buildings and books. For these students, there was already a crisis of educational opportunity—a crisis that COVID-19 appears to have made worse” (Goldberg, 2021)

While the pandemic did not start these issues, it did bring them to light. Schools across the country scrambled for resources to support students' mental, physical, and technological needs, but while they saw increases in things like time spent per day in live instruction and the number of students receiving in-person instruction, these increases were substantially less for Black, Latinx and Asian students (Goldberg, 2021). The increase in mental health issues was also seen in all grade levels, and while some students reported only mild issues, students with preexisting conditions decreased dramatically (Goldberg, 2021). Across all sectors, students suffered from the pandemic but not simply because of the pandemic.

With all the information that has been gathered regarding the COVID-19 pandemic and its effects, there is much to be done to rectify the situation. Students were hit hard academically,

but the widened disparities and shortcomings within the education system are what truly need to be addressed and solved.

## **Method**

Data for this study was collected by way of meta-analysis. Of more than 20 sources, nine studies were collected and examined for data that could be collected and compared with other studies to gain insight into changes in undergraduate enrollment rates as well as the fields of study that undergraduate students were choosing.

The majority of studies that were selected for collection had already been analyzed in various ways by their original publishers. In these cases, the studies were searched for their original source of raw data, which was then used in this research. There were also multiple studies that reported the total number of individuals enrolled in a certain program or field of study. These were then taken and converted into a percentage for that year in order to be analyzed comparatively with other studies. For studies such as those performed by the Bureau of Labor Statistics or the National Center of Education Statistics, studies were conducted each year, and data was published independently. For these sources, various years and therefore studies were collected and inputted consecutively.

There was a variety of information to be collected from various sources, but not all gave data that was formatted to fit our preexisting charts. For example, the National Student Clearinghouse Research Center provided a plethora of data, but in the form of a change in percentage from the year prior. With no actual value for the yearly values, it is not possible to perform significance testing that will be of use. However, the discussions and comments regarding the data from sources such as this proved helpful in later discussion and analysis.

It is somewhat of an obstacle to note that we are not officially in a post-COVID world, and as such the data collected for this study can only represent the choices and behaviors of students in a world source with decreasing levels of COVID influence. For the purpose of this study, all data that was collected before 2020 is considered to be pre-COVID data, as the pandemic did not fully hit the US education system until early/mid 2020. As such, data collected during 2020 will be regarded as our student information in the midst of the pandemic. As was mentioned previously, there is no true metric for data collection in a post-COVID world, and so the results of this study must be interpreted with that in mind. From this point on, 2021 will be used as a post-COVID comparison for the data collected in 2020 and previously.

## **Results**

With the data collected from the meta-analysis, much of it came in the form of whole samples that needed to be converted into proportions through the use of their sample size. As such, two proportion z-tests will be used to compare the proportions of individual sources. These z-tests assume a null hypothesis of no change and an alternative hypothesis of any change, thus warranting the need for a two-tailed interpretation of the z-statistic. Cross-source comparisons were not possible for this study due to the variances in sample sizes and therefore, differences in standard errors and overall sample proportions. If there is significance found within one or more

z-tests, it should still be a rather useful indication of the relativity of the data to the overall research question.

Undergraduate Enrollment Rates						
		2017	2018	2019	2020	2021
<b>Harris &amp; Chen, 2022</b>	2-Year College	0.265	0.261	0.261	0.261	0.218
	4-Year College	0.305	0.308	0.313	0.309	0.292
	Total	0.570	0.569	0.573	0.569	0.510
<b>Howell, et al., 2022</b>	Public 2-Year College		0.142	0.146	0.136	0.123
	4-Year College		0.465	0.453	0.42	0.425
	Total		0.608	0.599	0.556	0.548
<b>Digest of Education Statistics, 2021</b>	2-Year College	0.226	0.255	0.218	0.199	
	4-Year College	0.442	0.436	0.444	0.428	
	Total	0.667	0.669	0.662	0.627	

**Figure 1:** Undergraduate Enrollment Rates by 2 and 4-Year Colleges

The statistics presented by Harris & Chen display the institutional average enrollment of recent high school graduates of 1547 2-year institutions and 2396 4-year institutions. Howell, et al. presents the immediate college enrollment rates of high school graduates from public 2-year colleges, public and private 4-year colleges, and all public and private 2 or 4-year colleges in the United States, with no data coming from 2017. Data was collected by the College Board through students taking the PSAT. The Digest of Education Statistics represents enrollment rates of individual students, with sample sizes varying from 2,870 (2017) to 3,212 (2018).

Significance testing was performed between years for both 2 and 4-year institutions. For 2-year institutions, the comparison of 2020 to 2021 yielded a z-score of 2.738 and a p-value of 0.00614. A comparison of 2020 to 2019 is not useful for this sample because the proportions are the same due to a relatively small sample size. A comparison of 2021 to 2019 also resulted in a z-score of 2.738 and a p-value of 0.00614. 2-year comparison of the Digest of Education Statistics between 2020 and 2019 resulted in a z-score of 1.877 and a p-value of 0.0601.

Moving onto comparisons amongst 4-year institutions, the information from Harris & Chen comparing 2021 to 2020 resulted in a z-score of 1.292 and a p-value of 0.1971. Comparison between 2020 and 2019 resulted in  $z=0.281$  and  $p=.7795$ . 2021 compared to 2019 yielded  $z=1.5729$  and  $p=0.1164$ . A comparison of the 2020 to 2019 data from the Digest of Education Statistics resulted in the following values:  $z=1.2664$  and  $p=0.2041$ .

While 2 and 4-year comparisons are important in their own right, a comparison of the overall enrollment rates of students will likely be the broadest and most applicable value that this data can provide. Using data from Harris & Chen, a total comparison of 2021 to 2020, 2020 to 2019, and 2021 to 2019 yielded  $z=5.264$ ,  $p<0.0001$ ;  $z=0.359$ ,  $p=0.7288$ ; and  $z=5.614$ ,  $p<0.0001$ , respectively. For the Digest of Education Statistics, total comparisons of 2020 to 2019 yielded a z-score of 2.9011 and a p-value of 0.0037.

Undergraduate Enrollment Rates by Sex						
		2017	2018	2019	2020	2021
<b>Howell, et al., 2022</b>	Male	0.611	0.669	0.620	0.593	0.549
	Female	0.717	0.713	0.698	0.662	0.695
	Total	0.667	0.691	0.662	0.627	0.618
<b>Digest of Education Statistics, 2021</b>	Male	0.611	0.669	0.620	0.593	
	Female	0.717	0.714	0.698	0.662	
	Total	0.667	0.691	0.662	0.627	

**Figure 2:** Undergraduate Enrollment Rates by Sex

The data displayed by Howell, et al. in this table comes from multiple publications of Bureau of Labor Statistics studies, all with a sample population of around 3 million respondents. These respondents, however, ranged in age from 18-24 and as such the overall proportions of Howell et al.'s data is likely to be smaller than any proportion of just college-enrolled men and women. The data for the Digest of Education Statistics comes from a much smaller pool of respondents, with sample sizes ranging from 2,870(2017) to 3,212 (2018). This data displays near exact results from source to source, aside from Women in 2018, although neither source is based on the other.

Undergraduate Enrollment Rates by Race and Ethnicity						
		2000	2010	2018	2019	2020
<b>Hussar, et al., 2020</b>	White	0.39	0.43	0.42		0.41
	Black	0.31	0.38	0.37		0.36
	Hispanic	0.22	0.32	0.36		0.36
	Asian	0.56	0.64	0.59		0.64
	Pacific Islander		0.36	0.24		0.34
	American Indian/Alaskan Native	0.16	0.41	0.24		0.22
	Two or more Races		0.38	0.44		0.34
	Total	0.35	0.41	0.41		0.4
<b>Digest of Education Statistics, 2021</b>	White	0.654	0.701	0.693	0.68	0.666
	Black	0.654	0.661	0.581	0.575	0.536
	Hispanic	0.486	0.623	0.634	0.615	0.596
	Asian	0.813	0.874	0.821	0.821	0.863

**Figure 3:** Undergraduate Enrollment Rates by Race and Ethnicity

Hussar, et al. for this data also displays the proportions of enrollment by race and ethnicity for individuals 18-24 which will likely result in smaller values than data that focuses specifically on high school graduates. Data about enrollment by race and ethnicity is not collected as frequently as data focused on sex or overall enrollment, and so the chronological columns of this data vary from those of the other figures. For the Digest of Education Statistics, data collected in 2000 for Asian individuals also includes the data of individuals who identify as Pacific Islander. All data collected after 2003 does not include Pacific Islander within Asian data. Any individual of two or more races was excluded from this data. This table displays both race and ethnicity, to look at data based solely on race, the data from those of Hispanic ethnicity must be omitted.

Unfortunately, while both the above sources did provide reliable proportions upon which to make observations, no sample sizes were provided, once again rendering significance testing unusable. Using the information from the Digest of Education Statistics, the only group that showed an increase in enrollment rates from 2019 to 2020 was Asian. All other groups decreased



in enrollment rates, ranging from 0.014 (White) to 0.019 (Hispanic) to 0.039 (Black). Without any data from 2019, Hussar, et al. can merely give us an idea of how race and ethnicity play into undergraduate enrollment, but we can see that enrollment rates of Asian individuals were much higher than their counterparts. Measuring 0.23 higher than the second highest enrollment rate (White), the enrollment rate for Asians was at times double or even triple of other rates.

Chosen Fields of Study by Undergraduate Students							
		Field of Study	2017	2018	2019	2020	2021
<b>Niche Enrollment Insights, 2022</b>	<b>Bachelor's Degree</b>	Biology	0.1128	0.1154	0.1168	0.1249	0.1250
		Business	0.1025	0.1003	0.0991	0.0921	0.0790
		Nursing	0.0863	0.0886	0.0892	0.0772	0.0643
		Engineering	0.0788	0.0777	0.0763	0.0774	0.0730
		Psychology	0.0545	0.0535	0.0550	0.0575	0.0576
		Computer Science	0.0326	0.0377	0.0410	0.0432	0.0433
		Communications	0.0262	0.0237	0.0224	0.0220	0.0194
		Mathematics	0.0073	0.0070	0.0074	0.0094	0.0108
<b>Digest of Education Statistics, 2021</b>	<b>Associate's Degree</b>	Agriculture and Natural Resources	0.014	0.013	0.013	0.013	
		Biological and Biomedical Sciences	0.006	0.006	0.007	0.013	
		Business/Management	0.122	0.116	0.102	0.110	
		Communication	0.007	0.008	0.008	0.009	
		Computer Science	0.031	0.031	0.031	0.031	
		Engineering	0.059	0.059	0.058	0.055	
		Health Professions (i.e. nursing, dental, EMT)	0.180	0.174	0.171	0.169	
		Homeland Security/Law Enforcement	0.037	0.035	0.034	0.034	
		Liberal Arts and Sciences	0.385	0.393	0.396	0.395	
		Mathematics and Statistics	0.003	0.004	0.004	0.005	
		Social Sciences and History	0.021	0.023	0.025	0.028	
<b>Digest of Education Statistics, 2021</b>	<b>Bachelor's Degree</b>	Agriculture and Natural Resources	0.020	0.020	0.021	0.021	
		Biological and Biomedical Sciences	0.060	0.060	0.060	0.062	
		Business/Management	0.195	0.195	0.194	0.190	
		Communication	0.048	0.047	0.046	0.045	
		Computer Science	0.037	0.040	0.044	0.048	
		Engineering	0.068	0.071	0.073	0.073	
		Health Professions (i.e. nursing, dental, EMT)	0.121	0.123	0.125	0.126	
		Homeland Security/Law Enforcement	0.030	0.029	0.028	0.028	
		Liberal Arts and Sciences	0.023	0.022	0.022	0.021	
		Mathematics and Statistics	0.012	0.013	0.013	0.013	
		Social Sciences and History	0.081	0.081	0.080	0.079	

**Figure 4:** Chosen Fields of Study by Undergraduate Students

Niche Enrollment Insights displays information about the interests of students from the graduating classes of 2017 through 2021. The sample size for this data was 2,081,665 students in 2020, although data was given as their respective proportions. This source offers 46 potential majors to categorize students into, which could contribute to the comparatively low proportions of students within each field of study. The Digest of Education Statistics separates fields of study into those of undergraduate students receiving their Associate’s or Bachelor’s Degree. Samples sizes for this source ranged from 1,005,687 (Associates, 2017) to 1,036,640 (Associates, 2019) and 1,956,114 (Bachelors, 2017) to 2,038,431 (Bachelors, 2020).

In order to reduce error, comparisons will only be made between the data recorded from students pursuing Bachelor's Degrees. Additionally, due to the fact that Niche Enrollment Insights did not categorize fields of study to the same complexity as Sources 15 D and E, the following comparisons will be used between fields:

<b>Niche Enrollment Insights</b>	<b>Digest of Education Statistics</b>
Biology	Biology and Biomedical Sciences
Business	Business/Management
Nursing	Health Professions
Engineering	Engineering
Psychology	Social Sciences and History
Computer Science	Computer Science
Communications	Communication
Mathematics	Mathematics and Statistics

Niche Enrollment Insights provides several barriers to our significance testing, which is doubly frustrating because it is the only data source that provides data through 2021, and therefore into a relatively post-COVID world. Niche Enrollment Insights does not provide sample sizes for any of its years, making significance testing impossible, and leaving only observation and speculation. The sample size for 2020 was able to be approximated due to knowing the number of students who selected Biology and its respective proportion overall, and simple calculations yielded a sample size of around 2 million students. If a relatively similar sample size can be assumed for all other years of data collection, we can assume that a change of a tenth to a hundredth of a value may represent significance, but with values as close as those above and no true way to tell significance, assumptions are not concrete enough evidence upon which to base our conclusions.

Regardless, we see an overall increase in Biology from 2019 to 2021, with an increase of 0.0081 from 2019 to 2020 and 0.0001 from 2020 to 2021. Business decreased by 0.007 from 2019 to 2020 and 0.0131 from 2020 to 2021. Nursing decreased by 0.012 from 2019 to 2020 and 0.0129 from 2020 to 2021. Engineering increased by 0.0011 from 2019 to 2020 but decreased by 0.0044 from 2020 to 2021. Psychology decreased by 0.0025 from 2019 to 2020 but increased by 0.0001 from 2020 to 2021. Computer Science increased by 0.0022 from 2019 to 2020 and again by 0.0001 from 2020 to 2021. Communications decreased by 0.0004 from 2019 to 2020 and 0.0026 from 2020 to 2021. Mathematics increased by 0.002 from 2019 to 2020 and by 0.0014 from 2020 to 2021.

Many of the proportions displayed in the table for the Digest of Education Statistics did not fully reflect the actual values of their fields of study. With a sample size as large as that of this source, the difference between significance and insignificance was as small as one-hundredth of a value. In order to keep the data readable and concise, all proportions were rounded to three

decimal places within Figure 4. To work around this, the actual number of students who reported a certain field of study instead of the sample proportion were used to get the z-score. This is why some results, such as Engineering students between 2019 and 2020 both report the same proportion in the table (0.073), when in reality they were 0.0726637 (2020) and 0.0726805 (2019) and had a z-score of 0.0648 and a p-value of 0.952. Comparisons between 2019 and 2020 were the only comparisons possible with the Digest of Education Statistics and the fields of study and their corresponding z-scores and p-values are as follows: Biology, 7.892/<0.001; Business, -9.468/<0.001; Nursing, 5.183/<0.001; Psychology, -3.720/0.0002; Computer Science, 17.218/<0.001; Communications, -4.829/<0.001, and Math, 3.168/0.002.

## Discussion

The results of this study indicate that there have been multiple, significant changes in the post-secondary education system as a result of the COVID-19 pandemic. It was originally hypothesized that the pandemic would result in a decrease in college enrollment levels while also increasing the number of students interested in science-related fields of study. There have certainly been many changes in both of these sectors, but before going further, it is once again to point out that these values can continue to change as we move further and further from the original onset of the pandemic in 2020. While 2021 was used as a post-COVID metric for this study, further research using figures from 2022 and onwards could very easily support or disprove the findings of this study.

An analysis of undergraduate enrollment rates for both 2 and 4-year institutions showed significant decreases in enrollment rates from both 2019 to 2020 and 2020 to 2021. For all but the comparison of 2020 to 2019 for the Digest of Education Statistics, the decrease in enrollment rates amongst 2-year colleges was significant at the 0.05 level. With this information, it can be said that our hypothesis of a decrease in enrollment values has been proven correct at the 2-year level.

This was entirely different, however, from the comparisons amongst 4-year colleges. The lowest reported p-value came from a comparison of 2021 to 2019 from Harris & Chen and was reported at 0.1164, rather far from a 0.05 level. While the enrollment proportions were still decreasing within 4-year institutions, there were no significant differences, pointing to a lack of evidence for our hypotheses.

The differences between the significance of decreased in 2 and 4-year enrollments may refer back to the previously discussed idea of the pandemic forcing individuals and their families to reevaluate the cost-benefit analysis of a college education. According to the National Center for Education Statistics, “The most frequently cited reason reported for the cancellations [of postsecondary classes] was not being able to pay for classes/educational expenses because of changes to income from the pandemic (48%)” (National Center for Education Statistics, 2022). It is also safe to say that both Associate’s degrees and Bachelor’s degrees are pricey investments. In fact, while costs vary amongst institutions, a 2-year degree typically costs \$20,000 to \$25,000, while a 4-year degree runs about \$40,000 (National University, 2020). However, those with a Bachelor’s degree earn an average of \$19,000 more per year than an individual with an

Associate's degree (Eastwood, 2022). Looking at these numbers, one year of working with a Bachelor's instead of an Associate's returns most, if not all, of the additional investment of the degree. The insignificant decrease in Bachelor's degrees is most likely due to the much better cost to benefit ratio that it provides compared to an Associate's.

While individual 2 and 4-year comparisons are useful in part, the majority of applicable information for this data comes from the trends in total enrollment rates. Analysis of the data from Harris & Chen showed a statistically significant decrease from 2020 to 2021 and 2019 to 2021, but an insignificant decrease from 2019 to 2020. The difference in significance between these could potentially be attributed to the reduction in high school graduation requirements as a result of the pandemic (Harris & Chen, 2022). Students in the Class of 2020 received reduced graduation requirements because of the interference of the pandemic with their high school education, but this had no impact on their enrollment rates because when the pandemic hit in March, their college applications and decision letters had already been received. For the most part, college applications are due in November, and many universities send out notice of acceptance in advance of or around mid to late March (Prepory, 2022). This is different for the Class of 2021, who experienced those same relaxed graduation requirements at the same time as their college applications started. The decline in high school work expectations could have resulted in students who were less prepared for college, and as such did not receive the same amount of acceptances and subsequent enrollments as 2020 high school graduates.

Unfortunately, there can be no significance drawn surrounding the enrollment rates categorized by sex or race and ethnicity, but decreases can be seen in both. For sex, total enrollment decreased, as did male enrollment rates, both from 2019 to 2020 and 2020 to 2021. However, the female enrollment rate declined from 2019 to 2020, but from 2020 to 2021 there was an increase from 0.662 to 0.695. Again, there is no way to tell if this is significant, but it is interesting to further research the reasoning behind this. Looking at race and ethnicity, it was mentioned that all rates decreased except for enrollment rates of Asian individuals, which increased in the same manner as females. Again, without significance nothing can be drawn from this, but further research into both significance and explanation would be insightful.

Trends in fields of study appear to prove the hypothesis that a general increase in science-related fields would occur as a result of the pandemic and an increased societal interest with medical and science-related topics, but our data also brings into question concerns about its validity in context. The sample size of this data source was so large, and the possible fields of study so innumerable, that individual proportions of fields did not make sense in context of the public's current interests. For instance, interest in Psychology declined with a p-value of 0.0002, incredibly significant. When combined with the state of mental health status and interest worldwide after the pandemic, it doesn't quite fit. The prevalence of anxiety and depression increased 25% globally as a result of COVID, and countries and universities worldwide began calling for mental health service reforms and increased access (Brunier, 2022). Why, then, would mental health increase in its popularity as a topic, when the field of study so closely related to it

decreases? The answer to this question requires further research, and would pose an interesting direction for the future.

Returning to the original hypothesis of an increased interest in science and health fields, this was proven by the data. Nursing fields increased at a significance of less than 0.001, while Biology, a common degree for Pre-Med students, also increased at a significance of less than 0.001. It was mentioned in the introduction that the trends in fields of study could lend interesting perspectives to the societal values that are placed on certain fields and jobs, and these increases are an excellent representation of this. Medical workers during the pandemic were lauded as heroes, and their jobs were never at risk of being shut down like many other professions. Not only this, but the importance of future global health efforts was viciously brought into the light as a result of COVID. This supposedly once-in-a-lifetime pandemic exposed all of the shortcomings and failures of current public health efforts. The pandemic targeted already vulnerable populations, highlighting the importance of and demand for future medical professionals who will deal with issues like coronavirus (Allen, 2020). Undergraduate students choosing to major in fields like Biology or Nursing are setting themselves up to take on the medical issues of the future.

A lack of background information was a very large and obvious limitation to this study. While all sources gave valuable information in the form of proportions or insight into the reasoning behind the values, many sources lacked a total sample size. As was seen, without a sample size to normalize the data, it is not really possible to do significance testing. While this was a setback, there is something to be seen in the visual trends of the data. Even just seeing that a certain race, sex, or type of institution is trending upwards or downwards allows for an analysis to be made about the overall population or reason for the change.

There is also something to be said about the data collected for fields of study. The large study size and large variety of fields to choose from did have a disproportionate effect on the resulting proportions, but it would be interesting to dig deeper into fields of study for future research. Asking students why they chose the fields they did or how they value jobs in a pre and post-pandemic society could either confirm or deny the assumptions that have been made in this study about the importance and reasoning behind fields of study choice. It is safe to say that there is much more that can be done with this research direction, and there is more to be said about both fields of study and occupations in a post-COVID world.

The results of this study currently accept the hypothesis that enrollment rates decreased as a result of the pandemic for reasons such as financial strain or lack of interest in education. It has also accepted the increase in science or medicine-related fields of study as statistically significant because of a changing occupational value system. Research done in the next year or beyond may provide different results, but there will always be more to know and investigate about the coronavirus pandemic and its effect on the education system.

**Acknowledgements**

I would like to thank the Honors Scholar Program and its directors, Rebecca Schindler and Amy Welch, as well as DePauw University for their support and inspiration throughout this project. I would also like to thank my Honors Seminar Professor, Naima Shifa, for her constant support and encouragement, as well as the academic knowledge that she has contributed to this project. Finally, I would like to thank all of the researchers who gathered and published the data that was used in this study, this work would not have been possible without them.

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