

Final Project

Analyzing The Frequency of History Degrees Awarded by Kent State Through a Historical Perspective

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Kent
State:

Taylor Hall, site of the May 4 shootings

Context and Continuity

Kent State University is a school loaded with history. The May 4, 1970 massacre, where the National Guard killed four students and wounded nine during an otherwise peaceful antiwar protest, permanently cemented the university in history books the world over. Adjacently, Kent State students played pivotal roles in the development of organized student protest groups in the sixties and were the first to propose and celebrate Black History Month.

Due to the history attached to Kent State, one would assume that it would also be home to a substantial history *department*. As a history major myself, I entered the program assuming this to an extent. However, as it currently stands, not many undergraduates at Kent State are pursuing the major. I did not fully grasp the extent of this shortcoming until a discussion I witnessed in my historical research methods class. Some of my peers were bemoaning the lack of history electives for the upcoming semester and were frustrated at overlapping times with other classes, a gripe common among Kent State students. Our professor chimed in with an explanation for the university's lack of focus on satisfying the academic inquiry of history students: the history department had 110-some kids. The biology department, on the otherhand, boasted a good 1,100. It put into perspective the humbleness I had noticed about our history department in relation to

other, more widely pushed programs, and it frustrated me. Shouldn't there be **more Kent State students majoring in history** - or, rather, more history students attracted to attending a university so entrenched in national and international historical narratives?

Connecting Kent State's History Dilemma to Data

This analysis seeks to place the Kent State history department's current undergraduate enrollment into perspective. Using data collected by the [Ohio Department of Higher Education](#) on the degrees awarded by Ohio's colleges and universities, we can analyze **the awarding of undergraduate bachelor's degrees to history majors by Kent State over the years**. While not a direct statement of student enrollment in the major, as undergrads often change their majors like they do clothes, this data can provide a good measure of how many students in a class are studying history at a time. From there we can estimate

Due to Kent State's **association with May 4**, I am most curious as to how many degrees were awarded during years that coincide with prominent anniversaries of the shootings - 2005 was the 35th, 2010 was the 40th, and so on. From my experience as someone involved heavily in May 4 activism on campus, I have heard recounts of those years commenting on a wider interest in May 4 among students. Even when the COVID-19 pandemic wrecked in-person commemorations for the 50th, the student body was apparently at a heightened state of awareness and curiosity of the shootings. I wonder if, as a result of this awareness of history, more history students were enrolled at Kent State during the years of and surrounding these larger, more publicized commemorations. There is obviously no pure correlation between the interests, but I don't think that May 4 awareness would not have some sort of effect on student interest in the history department in general.

From these considerations, I propose the following hypothesis for the data trend: the awarding of bachelor's degrees in history by Kent State University ultimately **declined between the years 2002 to 2022**; however, years during which the university commemorated prominent May 4 commemorations (**2005, 2010, 2015, 2020**) and the years surrounding them coincided with a **spike** in the awarding of history degrees.

First let's load in the tools we will need to analyze this data.

```
In [15]: import pandas as pd
import numpy as np
from matplotlib import pyplot as plt
```

Data Frame 1: 2002-2011

Next let's load in the data tables we will be analyzing. We will start with the first data table of earlier years.

```
In [16]: df_2002_2011 = pd.read_csv("20022011.csv")
df_2002_2011.head()
```

```
Out[16]:
```

	Sector	Institution	Discipline Area	Subject Field	Level of Degree or Certificate	Awards in FY 2002	Awards in FY 2003	Awards in FY 2004	Awards in FY 2005	Awards in FY 2006	Awards in FY 2007
0	Community Colleges	Belmont Technical College	Arts & Humanities	Liberal and General Studies	Associate Degree	0	0	0	0	0	0
1	Community Colleges	Belmont Technical College	Business	Accounting	Associate Degree	8	16	8	14	14	14

2	Community Colleges	Belmont Technical College	Business	Accounting	Less than One-Year Award	0	0	0	0	0
3	Community Colleges	Belmont Technical College	Business	Accounting	One to less than Two-Year Award	2	2	2	0	3
4	Community Colleges	Belmont Technical College	Business	Administrative and Secretarial	Associate Degree	3	3	4	2	7

In this data table, degree awards are sorted by the sector of educational institution, the specific educational institution, the discipline area the degree belongs to, the degree subject, and the level of degree. As for the amount of degrees awarded per year, each year gets its own column.

The sector and discipline area columns are needed for this project, so we can drop them. More importantly, we can define parameters for our data frame that isolate the data to the data we need, that being of bachelor's degrees in history granted by Kent State.

```
In [17]: df_2002_2011 = df_2002_2011[df_2002_2011['Institution'] == "Kent State University"][df_2002_2011['Subject Field'] == "History"][df_2002_2011['Level of Degree or Certificate'] == "Bachelor's Degree"]
df_2002_2011 = df_2002_2011.drop(columns=['Sector', 'Discipline Area'])
df_2002_2011
```

```
/var/folders/dz/bmyfzjwj11n3v1wj7dck4frm0000gn/T/ipykernel_24861/2858164942.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.
df_2002_2011 = df_2002_2011[df_2002_2011['Institution'] == "Kent State University"][df_2002_2011['Subject Field'] == "History"][df_2002_2011['Level of Degree or Certificate'] == "Bachelor's Degree"]
/var/folders/dz/bmyfzjwj11n3v1wj7dck4frm0000gn/T/ipykernel_24861/2858164942.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.
df_2002_2011 = df_2002_2011[df_2002_2011['Institution'] == "Kent State University"][df_2002_2011['Subject Field'] == "History"][df_2002_2011['Level of Degree or Certificate'] == "Bachelor's Degree"]
```

```
Out[17]:
```

	Institution	Subject Field	Level of Degree or Certificate	Awards in FY 2002	Awards in FY 2003	Awards in FY 2004	Awards in FY 2005	Awards in FY 2006	Awards in FY 2007	Awards in FY 2008	Awards in FY 2009	Awards in FY 2010	Awards in FY 2011
5868	Kent State University	History	Bachelor's Degree	0	0	0	66	69	54	53	54		

The other data frame we will be using has one column for year values as opposed to a column for each year. We can consolidate the year columns in this data frame into the same format as the other data frame using the Melt property.

First, let's rename the year columns to just the year for simplicity's sake.

```
In [18]: df_2002_2011 = df_2002_2011.rename(columns={"Awards in FY 2002": "2002",
"Awards in FY 2003": "2003",
"Awards in FY 2004": "2004",
"Awards in FY 2005": "2005",
"Awards in FY 2006": "2006",
"Awards in FY 2007": "2007",
"Awards in FY 2008": "2008",
"Awards in FY 2009": "2009",
"Awards in FY 2010": "2010",
"Awards in FY 2011": "2011"})
df_2002_2011
```

Out[18]:	Institution	Subject Field	Level of Degree or Certificate	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
5868	Kent State University	History	Bachelor's Degree	0	0	0	66	69	54	53	54	55	49

With the Melt feature, we can keep the columns that we want to remain the same as they were (the ID variables) while sublimating the other columns (the value variables) from wide to long format. Then we can rename the default variable and value columns to the actual values they represent

```
In [19]: df_2002_2011 = df_2002_2011.melt(id_vars = ['Institution', 'Subject Field', 'Level of De
df_2002_2011
```

Out[19]:	Institution	Subject Field	Level of Degree or Certificate	variable	value
0	Kent State University	History	Bachelor's Degree	2002	0
1	Kent State University	History	Bachelor's Degree	2003	0
2	Kent State University	History	Bachelor's Degree	2004	0
3	Kent State University	History	Bachelor's Degree	2005	66
4	Kent State University	History	Bachelor's Degree	2006	69
5	Kent State University	History	Bachelor's Degree	2007	54
6	Kent State University	History	Bachelor's Degree	2008	53
7	Kent State University	History	Bachelor's Degree	2009	54
8	Kent State University	History	Bachelor's Degree	2010	55
9	Kent State University	History	Bachelor's Degree	2011	49

```
In [20]: df_2002_2011 = df_2002_2011.rename(columns={"variable": "year",
df_2002_2011
```

Out[20]:	Institution	Subject Field	Level of Degree or Certificate	year	awards
0	Kent State University	History	Bachelor's Degree	2002	0
1	Kent State University	History	Bachelor's Degree	2003	0
2	Kent State University	History	Bachelor's Degree	2004	0
3	Kent State University	History	Bachelor's Degree	2005	66
4	Kent State University	History	Bachelor's Degree	2006	69
5	Kent State University	History	Bachelor's Degree	2007	54
6	Kent State University	History	Bachelor's Degree	2008	53
7	Kent State University	History	Bachelor's Degree	2009	54
8	Kent State University	History	Bachelor's Degree	2010	55
9	Kent State University	History	Bachelor's Degree	2011	49

Data Frame 2: 2012-Present Day

Now let's move on to the other data frame.

```
In [21]: df_2012_2023 = pd.read_csv("20122023.csv")
df_2012_2023.head()
```

```
/var/folders/dz/bmyfzjwj11n3v1wj7dck4frm0000gn/T/ipykernel_24861/159119792.py:1: DtypeWarning: Columns (2) have mixed types. Specify dtype option on import or set low_memory=False.
df_2012_2023 = pd.read_csv("20122023.csv")
```

```
Out[21]:
```

	sector	campus	awlevel	UNITID	Inst_code	SUBJECT_TITLE	subject_field	subject_code	discipline_area
0	University Main Campuses	University of Akron	7	200800	AKRN	Geophysics and Seismology	Geology and Hydrology	400603.0	Natural Science & Mathematics
1	University Main Campuses	University of Akron	5	200800	AKRN	Geography	Geography	450701.0	Social & Behavioral Sciences
2	University Main Campuses	University of Akron	7	200800	AKRN	Keyboard Instruments	Music, Performance	500907.0	Arts & Humanities
3	University Main Campuses	University of Akron	5	200800	AKRN	Voice and Opera	Music, Performance	500908.0	Arts & Humanities
4	University Main Campuses	University of Akron	7	200800	AKRN	Foods, Nutrition, and Wellness Studies, General	Family and Consumer Studies	190501.0	Social & Behavioral Sciences

For this data frame we can do what we did for the other one and isolate out the data that we need for history bachelor's degrees granted by KSU. It does not need Melt at all due to already having a single year column, but it has many more columns that are unnecessary for this analysis and therefore can be cut.

```
In [22]: df_2012_2023 = df_2012_2023[df_2012_2023['SUBJECT_TITLE'] == 'History, General'][df_2012_2023['campus'] == 'Kent State University'][df_2012_2023['Degree_Desc'] == 'Bachelor Degree']
df_2012_2023 = df_2012_2023.drop(columns=['sector', 'awlevel', 'UNITID', 'Inst_code', 'subject_code', 'discipline_area'])
```

```
/var/folders/dz/bmyfzjwj11n3v1wj7dck4frm0000gn/T/ipykernel_24861/1624054849.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.
df_2012_2023 = df_2012_2023[df_2012_2023['SUBJECT_TITLE'] == 'History, General'][df_2012_2023['campus'] == 'Kent State University'][df_2012_2023['Degree_Desc'] == 'Bachelor Degree']
/var/folders/dz/bmyfzjwj11n3v1wj7dck4frm0000gn/T/ipykernel_24861/1624054849.py:1: UserWarning: Boolean Series key will be reindexed to match DataFrame index.
df_2012_2023 = df_2012_2023[df_2012_2023['SUBJECT_TITLE'] == 'History, General'][df_2012_2023['campus'] == 'Kent State University'][df_2012_2023['Degree_Desc'] == 'Bachelor Degree']
```

```
Out[22]:
```

	campus	SUBJECT_TITLE	awards	year	Degree_Desc
19570	Kent State University	History, General	36	2019	Bachelor Degree
20118	Kent State University	History, General	38	2018	Bachelor Degree
20323	Kent State University	History, General	36	2015	Bachelor Degree
20464	Kent State University	History, General	55	2014	Bachelor Degree
20756	Kent State University	History, General	29	2017	Bachelor Degree
21072	Kent State University	History, General	54	2013	Bachelor Degree

21420	Kent State University	History, General	42	2020	Bachelor Degree
21555	Kent State University	History, General	71	2012	Bachelor Degree
21762	Kent State University	History, General	42	2016	Bachelor Degree
22211	Kent State University	History, General	34	2022	Bachelor Degree
22250	Kent State University	History, General	42	2021	Bachelor Degree

While all of this data frame's visible columns have the same values as the first data frame, some of them have different names. Let's rename them so that the two data frames are parallel to each other.

```
In [23]: df_2002_2011.columns

Out[23]: Index(['Institution', 'Subject Field', 'Level of Degree or Certificate',
              'year', 'awards'],
              dtype='object')

In [24]: df_2012_2023 = df_2012_2023.rename(columns={"campus": "Institution",
              "SUBJECT_TITLE": "Subject Field",
              "Degree_Desc": "Level of Degree or Certificate",
              "year": "year",
              "awards": "awards"},
              df_2012_2023)
```

```
Out[24]:
```

	Institution	Subject Field	awards	year	Level of Degree or Certificate
19570	Kent State University	History, General	36	2019	Bachelor Degree
20118	Kent State University	History, General	38	2018	Bachelor Degree
20323	Kent State University	History, General	36	2015	Bachelor Degree
20464	Kent State University	History, General	55	2014	Bachelor Degree
20756	Kent State University	History, General	29	2017	Bachelor Degree
21072	Kent State University	History, General	54	2013	Bachelor Degree
21420	Kent State University	History, General	42	2020	Bachelor Degree
21555	Kent State University	History, General	71	2012	Bachelor Degree
21762	Kent State University	History, General	42	2016	Bachelor Degree
22211	Kent State University	History, General	34	2022	Bachelor Degree
22250	Kent State University	History, General	42	2021	Bachelor Degree

Now that the two frames are parallel to each other, we can combine them into one data frame using `combine_first`.

```
In [25]: frame = df_2002_2011.combine_first(df_2012_2023)
         frame
```

```
Out[25]:
```

	Institution	Level of Degree or Certificate	Subject Field	awards	year
0	Kent State University	Bachelor's Degree	History	0	2002
1	Kent State University	Bachelor's Degree	History	0	2003
2	Kent State University	Bachelor's Degree	History	0	2004
3	Kent State University	Bachelor's Degree	History	66	2005
4	Kent State University	Bachelor's Degree	History	69	2006
5	Kent State University	Bachelor's Degree	History	54	2007

6	Kent State University	Bachelor's Degree	History	53	2008
7	Kent State University	Bachelor's Degree	History	54	2009
8	Kent State University	Bachelor's Degree	History	55	2010
9	Kent State University	Bachelor's Degree	History	49	2011
19570	Kent State University	Bachelor Degree	History, General	36	2019.0
20118	Kent State University	Bachelor Degree	History, General	38	2018.0
20323	Kent State University	Bachelor Degree	History, General	36	2015.0
20464	Kent State University	Bachelor Degree	History, General	55	2014.0
20756	Kent State University	Bachelor Degree	History, General	29	2017.0
21072	Kent State University	Bachelor Degree	History, General	54	2013.0
21420	Kent State University	Bachelor Degree	History, General	42	2020.0
21555	Kent State University	Bachelor Degree	History, General	71	2012.0
21762	Kent State University	Bachelor Degree	History, General	42	2016.0
22211	Kent State University	Bachelor Degree	History, General	34	2022.0
22250	Kent State University	Bachelor Degree	History, General	42	2021.0

As we can see, the year column has alternating values with and without decimals, keeping us from generating a graph. In identifying the values in this column as floats, we can then convert them into integers, forcing them to drop the decimal and be in the correct format for analyzing.

```
In [26]: type(frame.loc[19570]['year'])
```

```
Out[26]: float
```

```
In [27]: frame['year'] = [int(x) for x in frame['year']]
frame
```

```
Out[27]:
```

	Institution	Level of Degree or Certificate	Subject Field	awards	year
0	Kent State University	Bachelor's Degree	History	0	2002
1	Kent State University	Bachelor's Degree	History	0	2003
2	Kent State University	Bachelor's Degree	History	0	2004
3	Kent State University	Bachelor's Degree	History	66	2005
4	Kent State University	Bachelor's Degree	History	69	2006
5	Kent State University	Bachelor's Degree	History	54	2007
6	Kent State University	Bachelor's Degree	History	53	2008
7	Kent State University	Bachelor's Degree	History	54	2009
8	Kent State University	Bachelor's Degree	History	55	2010
9	Kent State University	Bachelor's Degree	History	49	2011
19570	Kent State University	Bachelor Degree	History, General	36	2019
20118	Kent State University	Bachelor Degree	History, General	38	2018
20323	Kent State University	Bachelor Degree	History, General	36	2015

20464	Kent State University	Bachelor Degree	History, General	55	2014
20756	Kent State University	Bachelor Degree	History, General	29	2017
21072	Kent State University	Bachelor Degree	History, General	54	2013
21420	Kent State University	Bachelor Degree	History, General	42	2020
21555	Kent State University	Bachelor Degree	History, General	71	2012
21762	Kent State University	Bachelor Degree	History, General	42	2016
22211	Kent State University	Bachelor Degree	History, General	34	2022
22250	Kent State University	Bachelor Degree	History, General	42	2021

Visualization

From here we will be able to create data visualizations of the number of history bachelor's degrees awarded by Kent State over the years and analyze trends in the data. Most useful for our purposes is a bar graph with an x axis of years and a y axis of the amount of degrees awarded.

For better readability we can supplement the graph with formatting and labels.

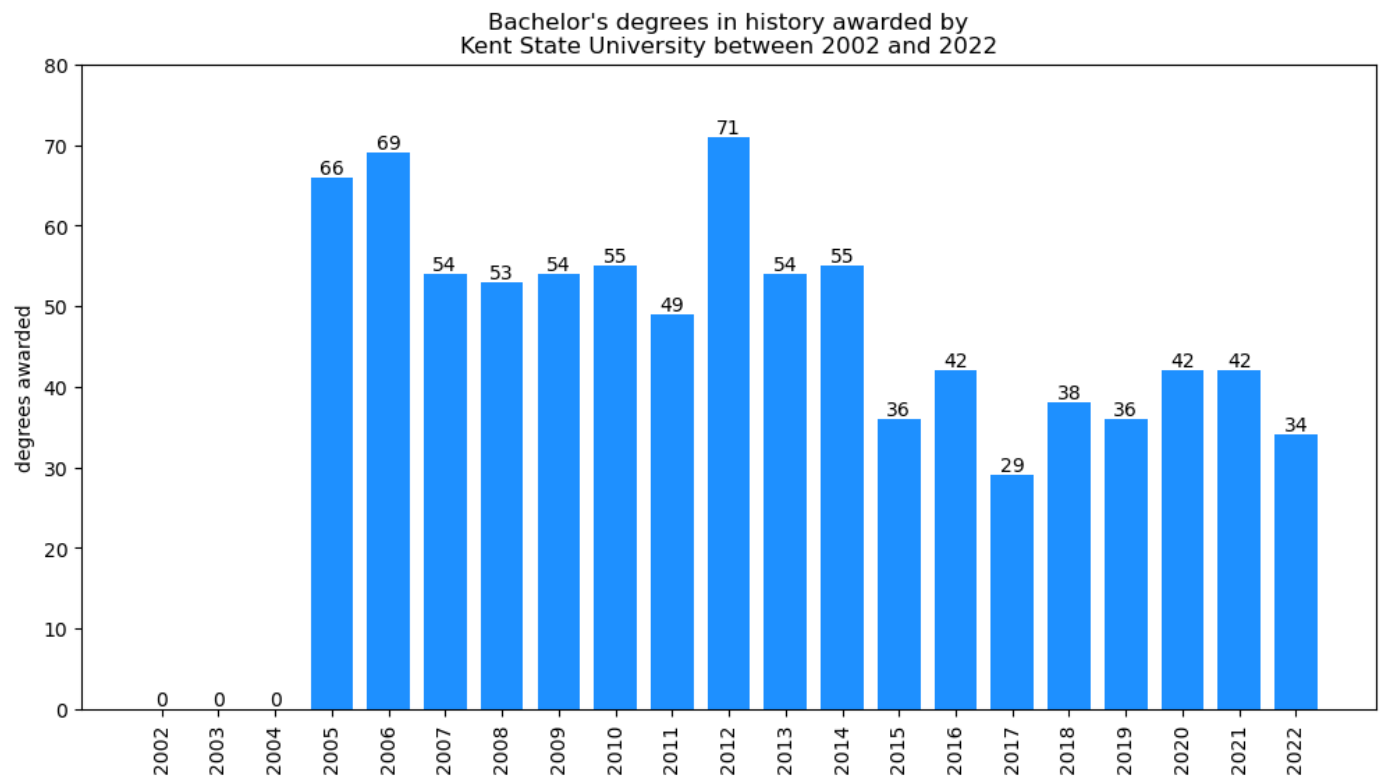
```
In [28]: fig, ax = plt.subplots(figsize = (12, 6))

b = ax.bar(frame['year'], frame['awards'], width = 0.75, color = ['dodgerblue'])
ax.set_title("Bachelor's degrees in history awarded by\nKent State University between 20

ax.set_xticks(frame['year'], frame['year'], rotation = 'vertical')
ax.bar_label(b, fmt='{:,.0f}')

ax.set_ylabel('degrees awarded')
ax.set_ylim(0, 80)

plt.show()
```

Analysis

The original hypothesis predicted two components: 1. a **general decline** in history degrees being awarded and 2. **spikes** in history degrees being awarded during years of and surrounding **highly publicized commemorations of May 4** (the thirty-fifth, fortieth, and so on).

A Notable Decline in History Degrees

As is visible in the graph, from the first recorded year (2005) to the last (2022), the number of degrees being awarded **did** take on a very rocky albeit prominent **downwards slope** akin to what was predicted. The year with the highest amount of history degrees awarded was 2012 with 71 degrees. The other two highest years were 2006 and 2005, the first two years recorded, with 69 and 66 degrees respectively.

After 2014 there was a sharp decline in history degrees being awarded. After that year, the amount of history degrees being awarded never went above 42 and hit its low with only 29 being awarded in 2017. 2022, the most recent year measured, as the second lowest year of students graduating from the history department. In the past twenty years, the history department has unfortunately shrunk smaller and smaller, owing to its previously noted lack of general presence on campus.

May 4 and the Kent State History Department

The date of 2012 coming out on top is both surprising and not surprising. It is a large outlier in terms of breaking the general flow of a steady decline in history degrees being awarded. However, the year was just two years after the fortieth commemoration of May 4, which was probably the most prominent commemoration in the twentieth century (thanks to COVID-19 scrapping plans for the fiftieth). The students receiving history degrees in the spring of 2012 would have been sophomores during the fortieth commemoration. This somewhat coincides with the overarching statement made in my hypothesis, though any possible influence by the commemoration on students to pursue history degrees was obviously delayed.

The year
after, the
number



Bowman Hall, home of the history department at Kent State

immediately sunk to previous levels, which hovered between 50 and 60 per year, until the big drop after 2014.

When I crafted my hypothesis, I intended for my prediction of May 4's influence to be easily fallible. As shown by the spike in 2012, if May 4 has any influence on history degree enrollment, that influence is very complex and not easily predictable, but is still worth considering given the university's context.

Going Forwards

Limitations and alternative approaches

As predicted, the history department's awarding of degrees did suffer a downwards slope over the course of the measured years of the twentieth century. Numerous spikes in award numbers did occur, though whether or not May 4 was a direct influence on these spikes needs further analysis.

This project was not without its flaws. It is important to note that there is no data for degrees awarded in 2002, 2003, and 2004! In retrospect, this is likely a result of the earlier data table only measuring degrees awarded during the years in which the high school classes of those years were beginning to enroll in high education, hence the absence of that data. Further analysis would be wise to find data for these years, though the data that was available does a good enough job of providing the data needed to reach a valid conclusion, in my opinion.

There is also the very complex nature of the factors behind fluctuations in enrollment, which this project simplified to take a May 4 focused approach. A further investigation could consider other factors at play and go forwards with further research. There are so many questions to be asked regarding this data which could even be expanded to more laborious data analysis: what activities was the Kent State history department engaged in during the years preceding peak years of award granting that could have influenced student enrollment? Why did the amount of history degrees being awarded remain the same during the two peak years of the COVID-19 pandemic? On a larger scale, students are often told that a bachelor of arts, such as

that in history, will squander their chances of finding a relevant job or force them into the world of education; do such attitudes have an impact on students enrolling in such a program?

Fittingly, these questions fit within the realm of historical analysis, and any good student of history knows that history is a very complex discipline that is shaped by the lenses that its researchers apply to it. Focusing on different contextual considerations of the data can help paint a larger picture regarding such phenomena, which can be applied to higher education as a whole but also enhance perception on Kent State's educational climate, adding to larger conversations.

Final



Students engage in the annual candlelight walk and vigil the night before the May 4 commemoration

conclusions

The implications this sort of data analysis has on conversations on numerous levels, but it is in my opinion that taking a May 4 related approach to this data and further analysis of it is crucial. This may seem superfluous in terms of influencing students to study history at Kent State, especially considering the inherent complex variety of factors associated with the topic of the data analysis. However, I believe it deserves greater research and consideration in this frame considering Kent State's image and role as a living proponent of history on a national and global scale. The pure data analysis conducted in this study could be and deserves to be supplemented with personal recounts of Kent State history students' relationship with May 4 and involvement in May 4 related activism. Such experiences would provide a more complete portrayal of the climate surrounding the Kent State student body and the history department in particular in relation to May 4. As we near the fifty-fifth anniversary of the shootings and the fiftieth anniversary of the founding of the May 4 Task Force in 2025, it is crucial to continue conversations on May 4. It is also notable that, in recent years, the Task Force, which held commemorations independently until the university took partial charge of the responsibility in 2020, has unfortunately experienced a decline in membership and campus presence. This student engagement in May 4 activism should also be considered as the Task Force enters a new era in the aftermath of COVID-19, which led to immediate declines in student extracurriculars across the board which are still being recovered from.

This data could also be beneficial for the department itself as it has been actively making efforts to increase campus presence and student engagement in a post-COVID world. The department holds informational sessions that double as get togethers for students in the history major and minor, providing a casual forum for discussion with professors and department faculty, information on various related opportunities around campus, and, of course, free food. There is also a new Historical Student Society club that hosts study events

to further connect history students. In a few years, the analysis conducted in this report could be revisited to consider the effect of these developments on enrollment in the bachelor's degree. Hopefully, as the history department continues to be more active, the graph will start to turn upwards.

In []: