A grayscale photograph of a person wearing large headphones, looking intently at a laptop screen. The person's hand is resting on their chin in a thoughtful pose. The background is blurred, suggesting an indoor setting like a home office or library.

# ONLINE STUDENT RETENTION: HOW HAVE THINGS CHANGED SINCE THE PANDEMIC?

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# Purpose

**Purpose of the research was to better understand student retention in online college courses from before, during, and after the COVID-19 global pandemic.**

With the increase in online learning and the number of students taking online courses, retaining online students is a valuable component of the health and growth of colleges.

College leaders need to understand which students struggle with online learning to develop targeted interventions and strategies to help improve online student retention.





# Methods

- Archival data from a single central Illinois community college covering three time periods.
  - Pre-pandemic: Spring 2019 – Fall 2019
  - Intra-pandemic: Fall 2020 – Spring 2021
  - Post-pandemic: Fall 2021- Spring 2022
- Data used from each time period was for each student enrollment in an online course ( $N = 15,435$ ) and included:
  - Gender, ethnicity, age, Pell-eligibility, GPA, total credit hours taken, previous online experience, and whether the student was retained in the course.

# Research Question 1

Is there a relationship between specific demographic measures (gender, ethnicity, Pell eligibility, previous online experience, online course retention) and time period?

**The results indicated a significant shift in gender, ethnicity, Pell eligibility, previous online experience, and online student retention across the time periods.**

- **Gender:** Women were higher across all periods but dipped down intra-pandemic before coming slightly up post-pandemic. Men increased during the pandemic and came down slightly post-pandemic,  $\chi^2(2, N = 15,435) = 86.55, p < .001$ .
- **Ethnicity:** White students were higher across all periods but dipped down intra-pandemic before coming up a little post-pandemic. African American students went up intra-pandemic and stayed higher post-pandemic,  $\chi^2(12, N = 15,435) = 51.18, p < .001$ .
- **Pell eligibility:** Pell eligible students were higher across all periods but dipped down intra-pandemic and post-pandemic. Non-Pell eligible students went up during the intra and post-pandemic periods,  $\chi^2(2, N = 15,435) = 29.35, p < .001$ .
- **Previous online experience:** Students with online experience went down intra-pandemic and then up post-pandemic higher than pre-pandemic levels. Students without online experience went up intra-pandemic and then dropped post-pandemic lower than pre-pandemic levels,  $\chi^2(2, N = 15,435) = 64.78, p < .001$ .
- **Online course retention:** Retained online students went up intra and post-pandemic, while non-retained students dropped across the periods,  $\chi^2(2, N = 15,435) = 27.99, p < .001$ .

# Research Question 1: RW Findings

Is there a relationship between specific demographic measures (gender, ethnicity, Pell eligibility, previous online experience, online course retention) and time period?

- **Gender:** Women were less likely to take online courses during the pandemic, while men were more likely to take online courses. After the pandemic, the percentage of women went back up, but not as high as pre-pandemic levels. The percentage of men went down after the pandemic, but not as low as pre-pandemic levels.
- **Ethnicity:** Even though high, during and after the pandemic, white students were less likely to take online courses compared to pre-pandemic. African American students taking online students went up during and after the pandemic.
- **Pell eligibility:** Pell eligible students went down intra-pandemic and post-pandemic compared to pre-pandemic levels. Non-Pell eligible students went up during the intra and post-pandemic periods.
- **Previous online experience:** Students with online experience went down during the pandemic compared to before, but was higher after the pandemic. Students without online experience went up intra-pandemic and then dropped post-pandemic.
- **Online course retention:** Retained online students went up intra and post-pandemic, while non-retained students dropped across the periods.

# Research Question 2

Is the mean of specific demographic measures (GPA, total credit hours, and age) different across time periods?

The results indicated a difference in age, GPA, and number of credit hours across the time periods. Pairwise post hoc analysis using Dunn's procedure with a Bonferroni correction provided information on which time periods were significantly different.

- **Age:** For age there was a significant difference pre ( $Mdn = 24$ ) and inter-pandemic ( $Mdn = 21$ ),  $H(2) = 1,373.32$ ,  $p < .001$ . A significant difference was also found for pre ( $Mdn = 24$ ) and post-pandemic ( $Mdn = 21$ ),  $H(2) = 1,202.47$ ,  $p < .001$ .
- **GPA:** For GPA there was a significant difference intra ( $Mdn = 2.88$ ) and post-pandemic ( $Mdn = 3.00$ ),  $H(2) = -352.39$ ,  $p < .001$ .
- **Number of credit hours:** For number of credit hours there was a significant difference pre ( $Mdn = 30.5$ ) and inter-pandemic ( $Mdn = 24$ ),  $H(2) = 1,068.24$ ,  $p < .001$ . A significant difference was also found for pre ( $Mdn = 30.5$ ) and post-pandemic ( $Mdn = 24$ ),  $H(2) = 888.29$ ,  $p < .001$ .

# Research Question 2: RW Findings

Is the mean of specific demographic measures (GPA, total credit hours, and age) different across time periods?

- **Age:** Students taking online courses were significantly older before the pandemic compared to during and after.
- **GPA:** Students taking online courses got significantly higher grades after the pandemic compared to during.
- **Number of credit hours:** Students taking online courses had a significantly higher number of credit hours before the pandemic compared to during and after.

# Research Question 3

Is there a relationship between demographic measures and online course retention during a specific time period?

The results indicate a statistically significant relationship between student gender, ethnicity, Pell eligibility, previous online experience, GPA, total credit hours, and age and online course retention over different periods.

- *Pre-pandemic*: The logistic regression model was statistically significant and correctly classified 62.4% of cases.
  - $\chi^2(12) = 168.65, p < .001$
- *Intra-pandemic*: The logistic regression model was statistically significant and correctly classified 65.6% of cases.
  - $\chi^2(12) = 604.11, p < .001$
- *Post-pandemic*: The logistic regression model was statistically significant and correctly classified 66.7% of cases.
  - $\chi^2(12) = 403.78, p < .001$



# Research Question 3: RW Results

Is there a relationship between demographic measures and online course retention during a specific time period?

**Age, total credit hours earned, previous online experience, and GPA had a significant and similar effect across all three time periods. Ethnicity was only significant during the intra-pandemic time period.**

- **Age:** Being older decreased the odds of being retained.
- **Total Credit Hours Earned:** The more credit hours earned, the more likely to be retained.
- **Previous Online Experience:** Having prior online experience increased the odds of being retained.
- **GPA:** The higher the GPA, the more likely to be retained.
- **Ethnicity:** Being white or Pacific Islander increased the odds of being retained.

Note: Gender and Pell eligibility were not statistically significant for any of the time periods.

# Research Question 4

Do demographic measures and time period predict student online retention?

The results indicate that student gender, ethnicity, Pell eligibility, previous online experience, GPA, total credit hours, age, and time period significantly predict student online course retention,  $\chi^2(14) = 1,166, p < .001$ .

The model correctly classified 64.8% of cases.

# Research Question 4: RW Results

Do demographic measures and time period predict student online retention?

**Six of the eight independent predictor variables were statistically significant.**

- **Age:** Being older decreased odds of being retained.
- **Total credit hours earned:** The more credit hours earned, the more likely to be retained.
- **Previous online experience:** Having prior online experience increased the odds of being retained.
- **GPA:** The higher the GPA, the more likely to be retained.
- **Ethnicity:** Being Hispanic, Pacific Islander, two or more races, or white increased the odds of being retained.
- **Time period:** Being in the intra and post-pandemic time periods increased the odds of being retained.

Note: Gender and Pell eligibility were not statistically significant for any of the time periods.



# Pandemic?

The pandemic caused a significant shift in the demographic make-up of online students.

Yet, overall, online student retention was significantly higher intra- and post-pandemic compared to pre-pandemic.



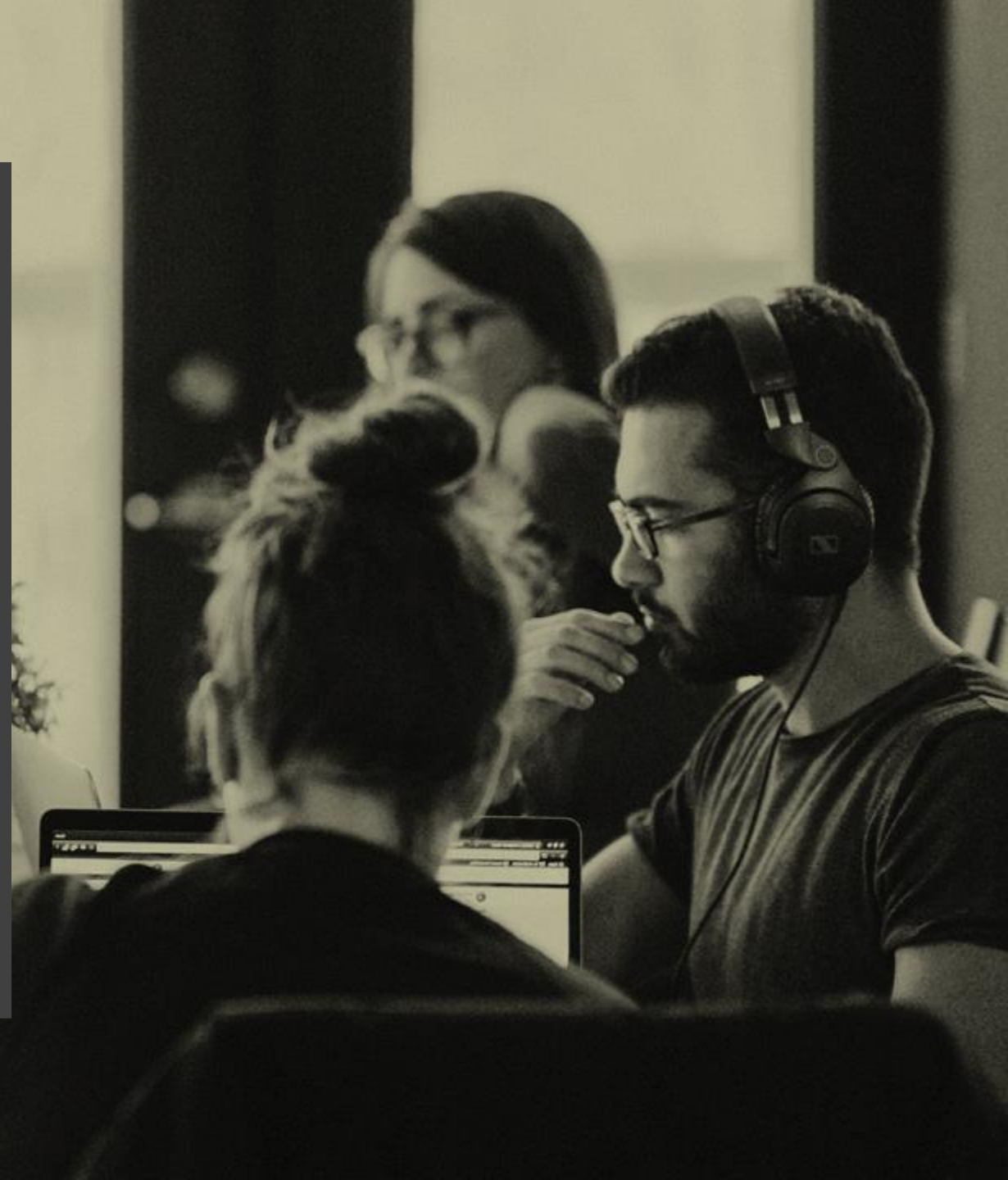
# Retention?

In terms of retention, most of the results align with previous pre-pandemic research.

- More credit hours, higher GPA, & previous online experience resulted in students being more likely to be retained.
- Ethnicity research is mixed, but often shows improved retention for white students, which aligns with this research.
- Gender & Pell-eligibility research is also mixed. For this research it was not significant.
- Yet, for age, the results were flipped, with younger students more likely to be retained than older students.

# Recommendations?

- Duplicate the research at different colleges with more ethnically diverse populations.
- Include course letter grades to understand student success in addition to retention.
- Explore the topic from a qualitative perspective.
- Continue to track student retention and demographics to see if the pandemic shift continues or gravitates back towards pre-pandemic numbers.
- Education leaders should consider different policies and procedures that might support students who are at higher risk of not being retained in online courses.





**THANK YOU!**

Questions?

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