

# Virtual Reality and Artificial Intelligence for Increasing College Aspirations and Enrollment Behaviors

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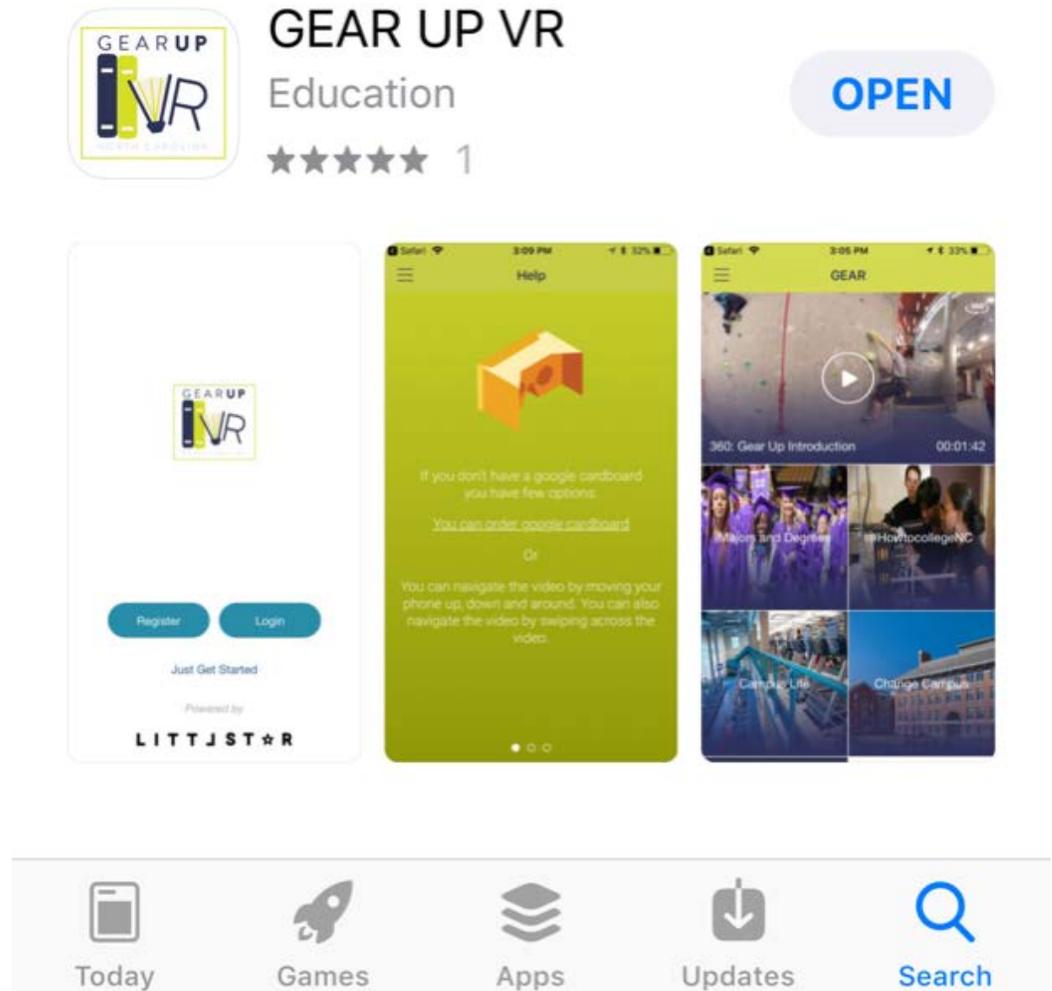
Judith Meece, Ph.D.



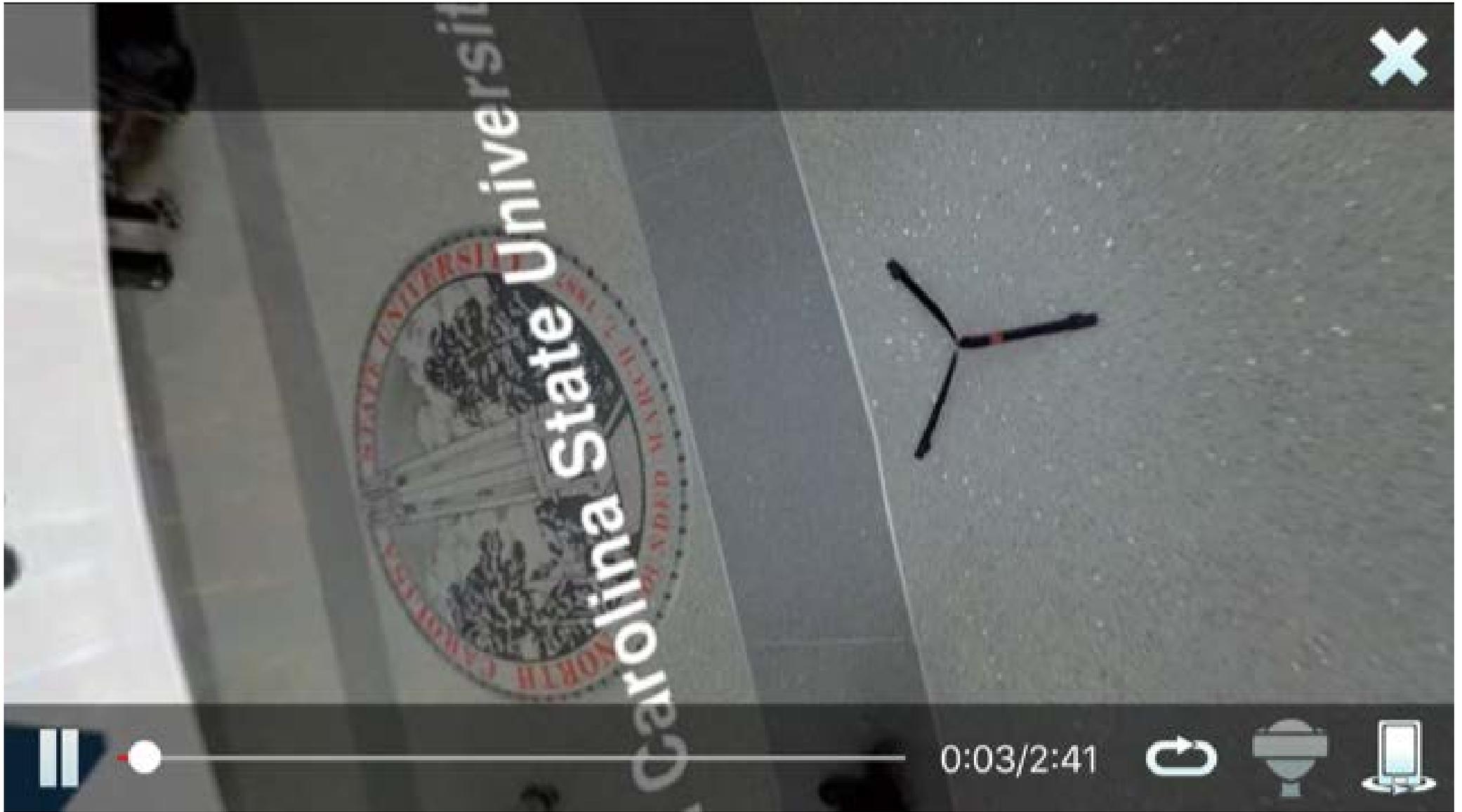
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# Download the app

- Apple store
  - GEAR UP VR
- Google Play store
  - GEAR UP VR

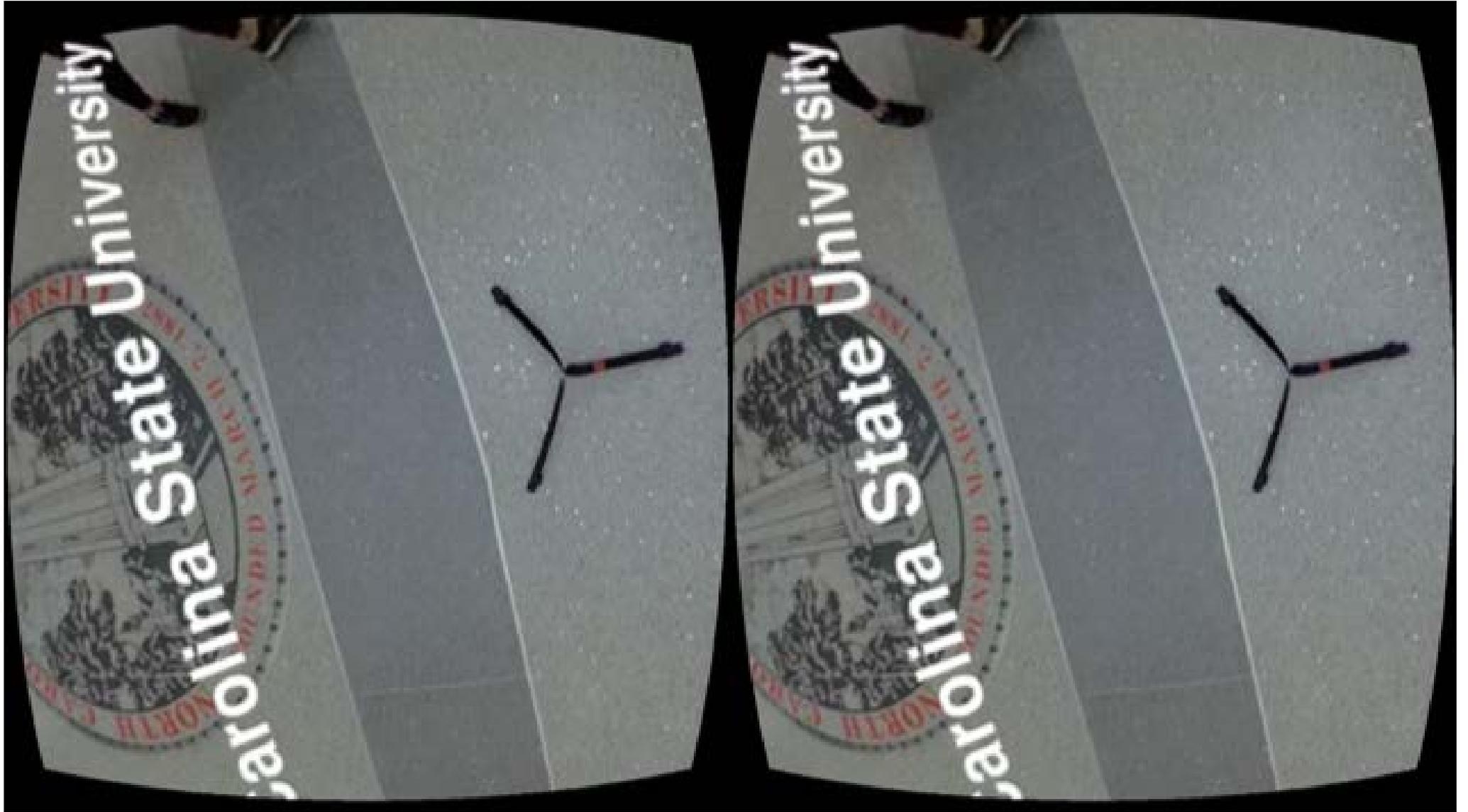


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Click here to view in goggles





Goggle view

# GEAR UP

NORTH CAROLINA

- Federally funded college access program.
- State grant in NC is operated by the University of North Carolina system.
- [www.northcarolina.edu](http://www.northcarolina.edu)
- 20,000 students
- Seven years
- Rural high schools
- 60% FRL on average



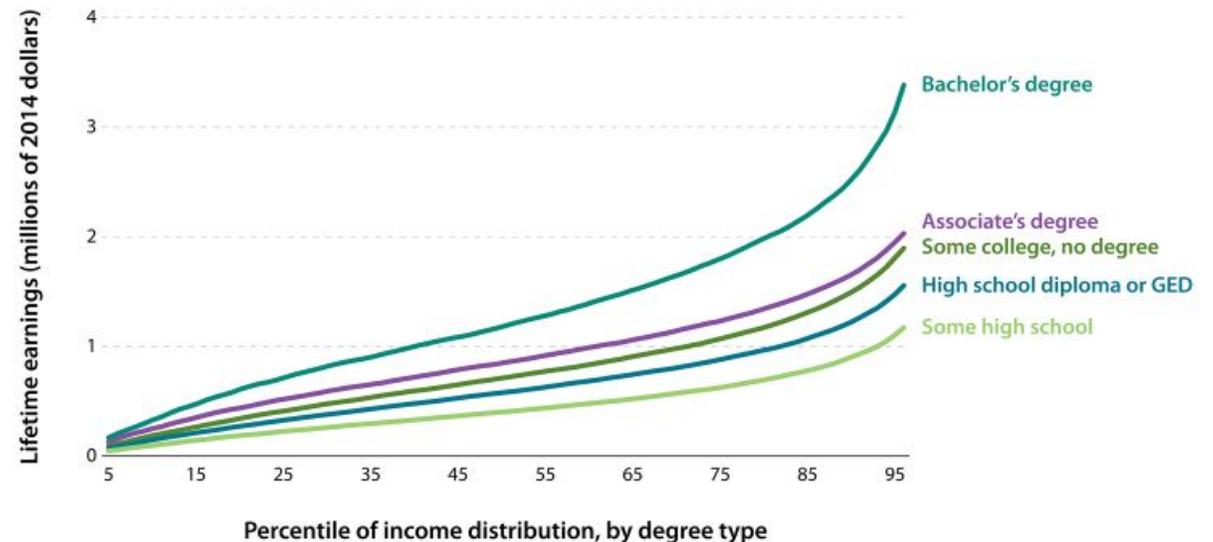
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# Background and justification

- High returns to postsecondary education investment.
  - Labaree, 2017; Black & Smith 2004; Dale and Krueger 2011; Hoekstra 2009; Long 2008).
- 65% of all jobs will require some form of postsecondary education by 2025
  - (Georgetown Center on Education and the Workforce)

FIGURE 1.  
Lifetime Earnings by Degree Type

The median college graduate earns \$1.2 million over their lifetime, twice as much as a high school graduate.



Sources: Hershbein and Kearney 2014, based on Census Bureau 2009–12.

Note: Earnings are in millions of 2014 dollars and represent those who worked at least one week in the past year. Individuals who earned a graduate degree are not included.

THE HAMILTON  
PROJECT  
BROOKINGS



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# Challenge 1: Low income and first gen students

- Low income, first generation students enroll at less selective institutions than their higher income peers.
  - (Alon & Tienda 2007; Astin & Oseguera 2004; Bastedo & Jaquette 2011; Posselt et al. 2012).



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# Challenge 2: School and college access counselors

- In 2013, the nationwide average ratio of students to high school guidance counselors was 470:1.
  - American Counseling Association, 2014.
- High poverty schools have fewer college access resources.
  - Avery & Kane, 2004.



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# Challenge 4: Rural college access

- Rural schools may also lack access to school counselors particularly in the early years of high school.
  - (Monteiro-Leitner, Asner-Self, Milde, Leitner, & Skelton, 2006; Griffin, Hutchins, & Meece, 2011).



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# Challenge 5: Potential bias

- African American students who did not have any contact with school counselors had **a higher likelihood of applying** to at least one college when compared to those African American students who saw a counselor after Grade 10.
- For Hispanic students, **no contact with school counselors** raised the likelihood that they would apply to multiple colleges.
  - (Bryan, Holcomb-McCoy, Moore-Thomas, & Day-Vines, 2011).



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# Summary of challenges

- Information asymmetry
- Low school counselor availability
- High need high schools
- Rural locations
- College application and financial aid is a complicated process



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# Potential solution – Virtual Reality



- VR has the potential to “democratize education” by bringing learning opportunities to learners who otherwise would not have access to them.
  - (Bailenson, 2017).



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# VR – interactivity and exposure



- As a learning tool, immersive VR presents **a number of innovative elements** including three-dimensional simulations, **interactivity, and exposure to novel situations.**
  - (Castaneda, Cechony, Bautista, & Pacampara, 2017).



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# GEAR UP

NORTH CAROLINA

- Use technology to address distance, time, and cost.
- Create direct connections to campuses.
- Curate college choice process.
- Empower individual exploration.
- Free download.



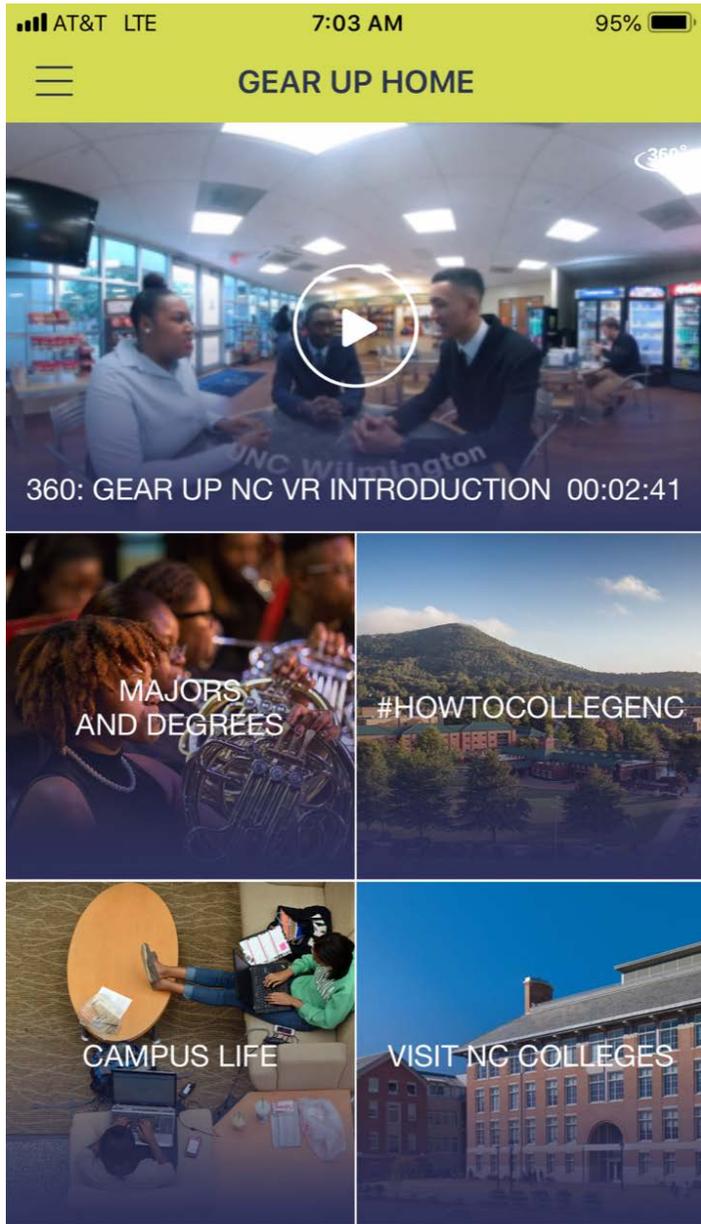
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# School launch

[Graham High School GEAR UP VR launch](#)



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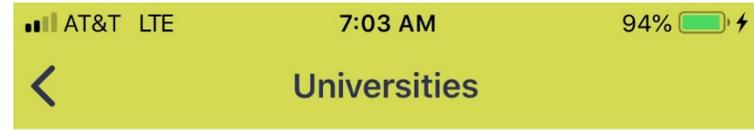
# GEAR UP VR

- Messaging targets first generation students
- Introduction
- Majors and Degrees
- #howtocollegenc
- Campus Life
- Visit NC Colleges



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# University of North Carolina System campuses - 16



Appalachian State University



East Carolina University



Elizabeth City State University



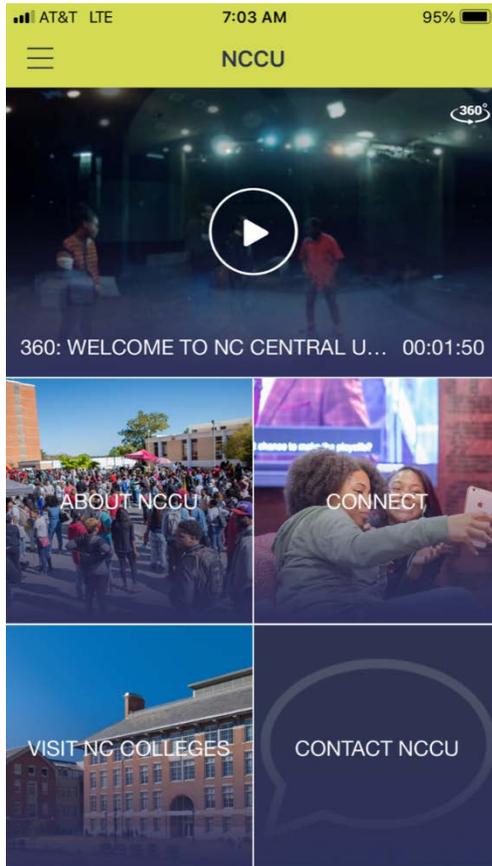
Fayetteville State University



North Carolina Agricultural and  
Technical State University



# Campus specific tour



- Highlights unique campus.
- Outlines degree and major opportunities.
- Connect (social media).
- Encourages match and fit.
- Contact button connects students through email or AI chatbot.



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# “Hardware”



- Cardboard goggles distributed to 15,000 high school students.



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# Research Methodology

- Twenty-one high schools
- Purposively selected four high schools
  - Rural
  - High minority populations



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# Three modes of inquiry

- In class observation and feedback
- Survey
- Focus groups



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# User feedback

- Students reported a “feeling” of being on campus.
- Students across all high schools reported the app gave them information to make a college decision.



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# Student sense of connection

Students indicated that they felt a sense of connection or a sense of "being there." In their words:

*"I would say way being able to see the students up close made me **feel like I was there**. Since I haven't been on a college tour, it made me feel like I was there."*

*"It made you **feel like you were actually there**. Sometimes you cannot get there physically."*

*"We were able to see action on campus **without going there**. Better than online pictures. "*



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# User feedback

*"I like this better than the campus tour. All we did was walk by buildings. I got to see inside buildings."*



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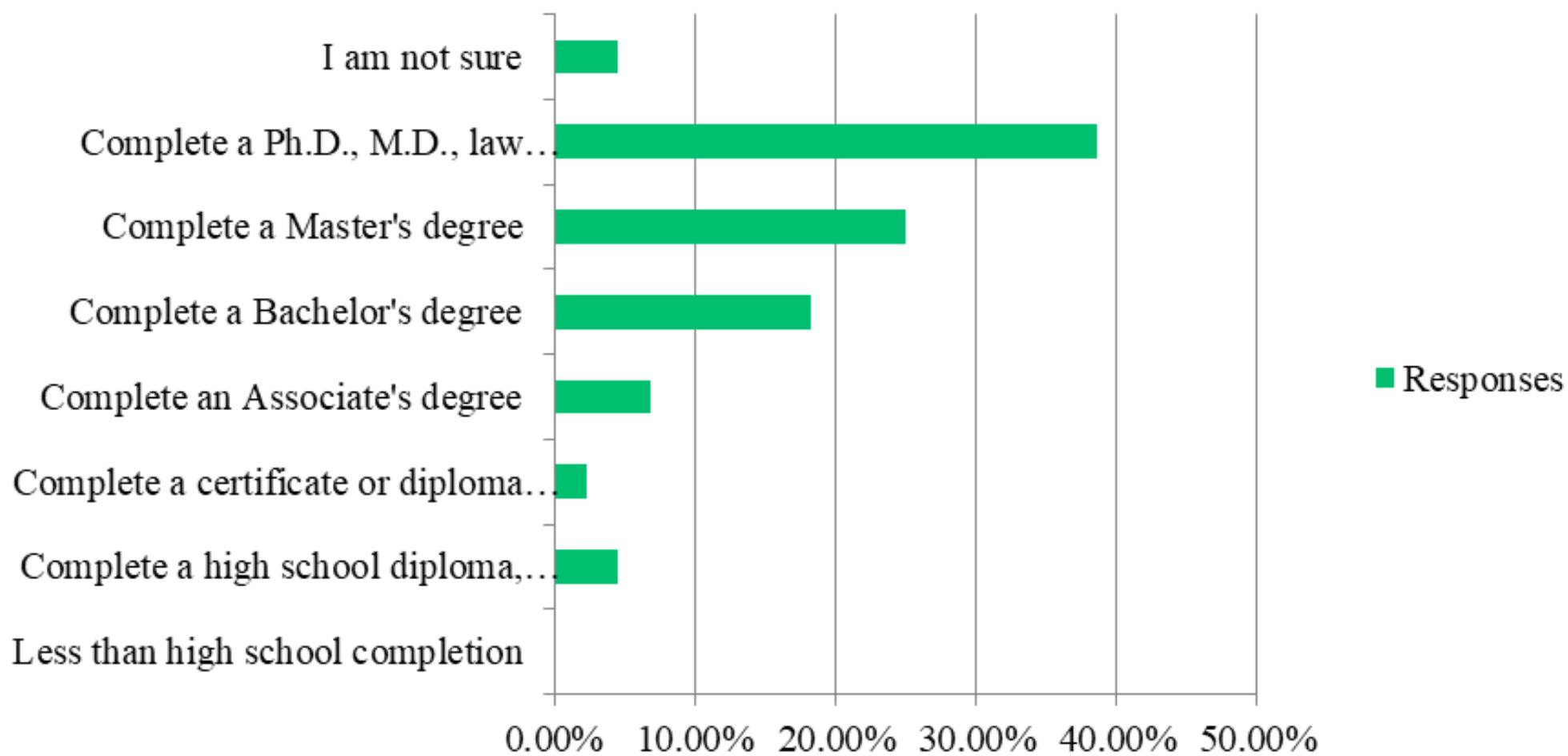
# Survey responses

- A majority of the questions were answered by 44 11<sup>th</sup> grade students.
- These students were academically capable (GPA 3.5 to 4.4) and 43% of the students indicated that neither parent (guardian) completed a Bachelor's degree.

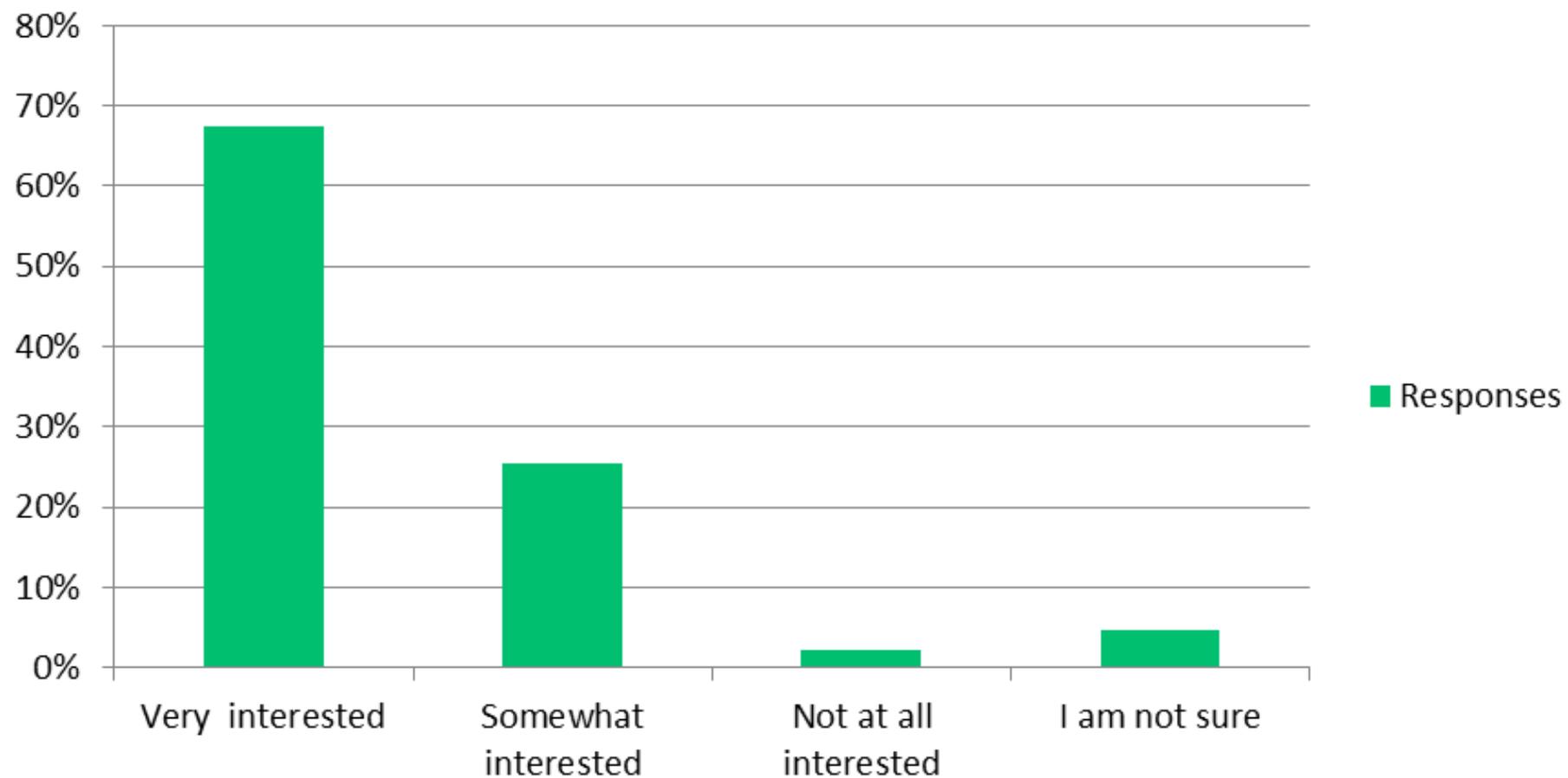


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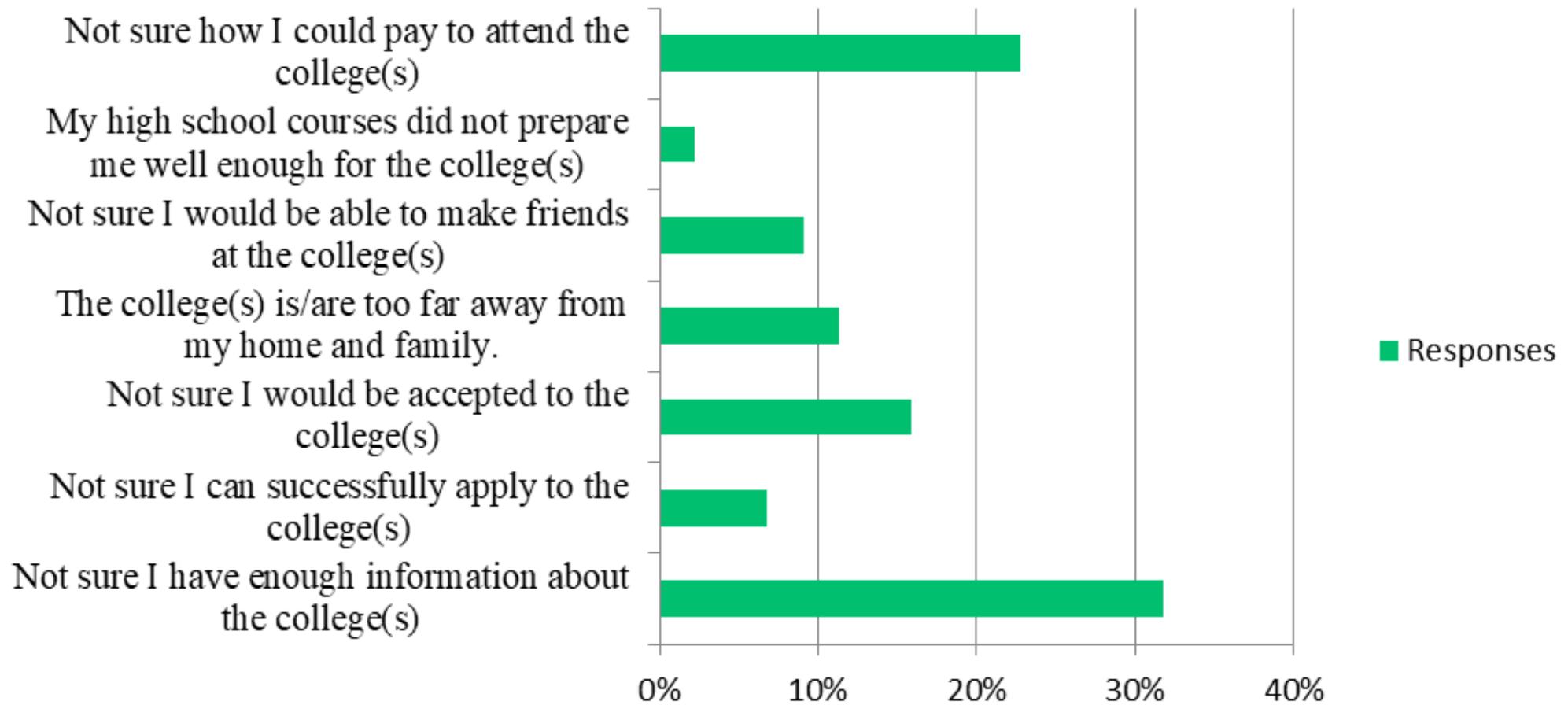
If there were NO barriers, how far in school would you want to go?



Based on the NC college(s) you have toured using the GEAR UP NC VR app, how interested are you in going to the college(s) toured?



Which of the following would stand in the way of the college(s) you toured with the GEAR UP NC Virtual Reality app?



# Survey open ended responses

1. **Easy access** to learn about colleges.
2. The app revealed the **interaction and everyday life** of students.
3. I **got to see** the campus and got the feel of being on campus and fitting in perfectly.
4. **Helped me feel closer** to the campus and college life.
5. It can give people who **don't have transportation access** to college tours.
6. It gave me a **somewhat experience** of what it would be like if I was there.
7. A quick way to get information about colleges with a **fun experience**.
8. It gives you a look at campus and help **determine if you would actually like to travel there**.
9. I really enjoyed getting to see the campuses. It's almost like **getting a feel for the atmosphere** more than still images. It was fun and engaging.

somehow  
students gave atmosphere engaging  
getting gives college  
quick travel closer still information app  
got like It's  
campus help really don't  
way images fun life get can feel look  
tours determine access

Helped campuses actually almost people  
transportation revealed

# Two way benefits for college decision making

- Helped students decide which campus to tour (if able)
- If students had toured a campus, helped remind students of what they liked.
- Students from one high school mentioned touring 3 - 10 campuses.
  - The campuses were diverse in terms of location (urban, mountains, coast), size, demographics, selectivity (flagship, regional, HBCU, etc.), and cost.



# Focus group response

*“I thought the app was all around kinda fun. It's VR. It's something that few get to experience. You know. It's kind of a new thing in the modern world. It's used in many ways. I thought this was a great way for exploring college. It's fun, it's new. Everybody can do it. Ninth graders would love it because it's brand new. And since it's cardboard, it's most likely really cheap compared to a big VR headset.”*



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# Significance and Implications

- Information, campus connections, and the capacity of virtual reality to “**transport**” **students for an experience** is now in the palm of a student’s hands.



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# Significance and Implications

- The early user testing indicates there is **promise in utilizing the VR technology** in the college access space and when combined with artificial intelligence to revolutionize the college choice process.



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# Future research

- Randomized control trial to examine the intervention's impact on short-term (i.e. application submitted), median-term (i.e. postsecondary enrollment), and longer-term (i.e. retention and degree completion) outcomes.
- Qualitative research examining the "lived experience"



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# User initiated improvements

- Orientation for new users
- Search feature
  - Cost of attendance
  - GPA and ACT/SAT admissions requirements
- Add community colleges
- Curriculum for school staff



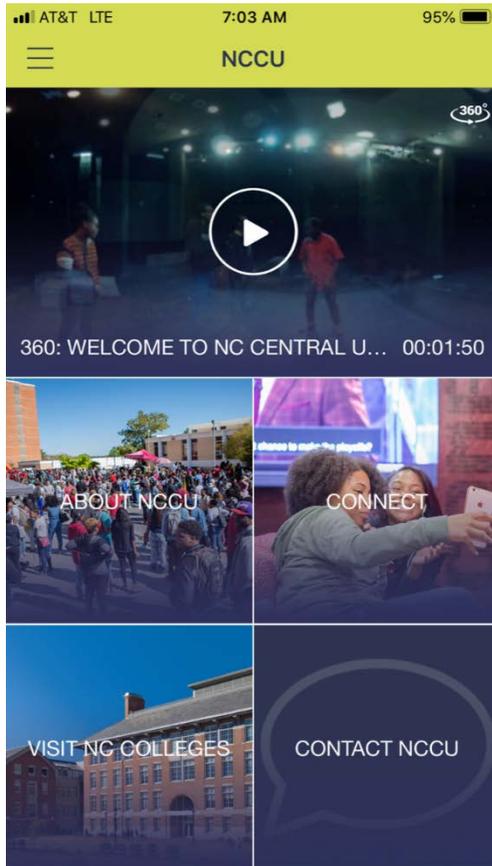
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# Repurpose the app's infrastructure

- The app can be repurposed for a variety of uses.
  - Individual colleges
  - College systems
  - Career exploration
  - Etc.

Questions?

# Highlights and research



- Free
- 24/7 response with AI
- Qualitative research
- Planned randomized control trial statewide
- Block randomization with whole schools



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