Human Decision Making and the Enrollment Funnel

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Learning Outcomes

- Decision making heuristics and biases related to college choice, especially application behavior
- How you may already taking advantage
- How biases impact application behavior

- How they impacted application behavior to Richmond
- How the University of Richmond is learning about these behavioral trends by surveying their Common App starters
- What Richmond learned
The college decision process

Choices
1. Major
2. Inquiry set
3. *Application set*
4. Willingness to pay
5. Enrollment decision

Considerations
- Major
- Location
- Cost
- Fun/experience
- Cultural fit
- Intellectual fit
- Graduation likelihood
- Expected economic return
What is a decision? Rationality?

- Situation with three parts:
  1) Multiple courses of action
  2) Can form expectations
  3) Expectations assessed via personal values and goals

- Rationality
  - Expected Utility Theory – outcomes and their probabilities
  - An example: Gambles
    - A: Probability .20 – win $45, otherwise nothing. ($9)
    - B: Probability .25 – win $30, otherwise nothing. ($7.50)
Modern Decision Theory

• EU Theory: A good place to start – but not very realistic.
  – Decisions are multifaceted
  – Goals may be opposing
  – Time is involved
  – People are ‘cognitively limited’

• Try to optimize predicted happiness (utility) with respect to assets: money, intellect, psychological state, feelings, relationships

• Pretty overwhelming
Single Facet Optimization

- *US News* rankings
- Cost
- Proximity to home
- Cultural mandates (religion, legacy)
- Conformity/high school bandwagons

- Simple, but too superficial, so we try harder.
Shortcuts and mistakes

1) Availability heuristic, vividness in memory
   - Fancy viewbooks
   - Current students
     • Drunk at Open House
     • Smiling faces in cafeteria
   - Campus visits
   - Other people with campus connections
     • Abby hated her RA
     • Nate got into CMU’s PhD program in Decision Science
   - News of campus violence or scandals
Shortcuts and mistakes

2) Representativeness/Similarity
   – Perceived cultural or academic fit
   – Leads to neglect of base rates (like grad rate)
   – Stories
     • Completeness
     • Chronological order
     • Detail
     • Uniqueness
   – Vividness plus Representativeness/Conjunction Fallacy
Student Profiles from Instagram

1. @urichmond
   National Mall and Me...
   981 likes
   urichmond ‘we’re up in Washington, D.C., this afternoon talking to Avery Peters, ’18, who’s interning with the State Department this summer. She’s working on the Green Diplomacy Initiative, meeting with members of Congress and other leaders about how to make emitters and federal buildings more energy efficient.’

2. @urichmond
   Sydney Negus, ’16, has spent the last summer and fall researching freedom, power, and gender in the Alfred Hitchcock films Rear Window, North by Northwest, and Vertigo. She’s one of the University’s first Undergraduate Humanities Fellows, a new program that pairs a summer of faculty-mentored research with a semester-long collaborative course with faculty and students representing the full spectrum.

3. @urichmond
   “The way my relatives describe their introduction and the city of Richmond is covered in romantic charm and ‘back to a different time of our ancestors and a very different city,” says Keon Anderson, ’17. These stories form a collective and history of Keon’s family. And left him wondering, ‘Just how much was historically accurate and how much was family lore passed down through generations and edited by each person’s memory. ’

4. @urichmond
   For all of our Spiders returning from a summer abroad, a message from Moby Rossi, ’16, about finding your way home. “I’ve been asked over and over again about my experience, and I’ve told a million different stories: The time home was on top of an Italian shoe store. The man sitting at the café, who won a...
Shortcuts and mistakes

3) *Honoring Sunk Costs*

- Money
  - Campus visit expenses
  - Deposits
- Time and Effort
  - Application and scholarship essays
  - Choosing selective colleges – honoring HS effort
  - Campus visit
4) Anchoring and (insufficient) Adjustment
   - Sticker vs. net price
   - Total cost (T, R&B) estimates (4-year bachelor’s, 2012) (Bleemer & Zafar, 2014)
     
     • Public:
       - Perceived $29,100
       - Actual Net $12,400, Actual Sticker $18,170
     
     • Private:
       - Perceived $40,000
       - Actual Net $22,590, Actual Sticker $40,220

   - Less accurate perceptions and among low income (Grodsky & Jones, 2007)
   - Media attention on high costs (Horn et al., 2003)
How to do it better?

• List alternatives, all of them. Gap Year.
• List attributes, sort them.
• Know what you don’t know about relevant attributes.
• Restrict application set to conduct due diligence.
• Heuristics are required, but be aware of them.

• Attempt to evaluate colleges based on attributes you think will make you happy.
Predicting Happiness

• Time of decision: Make predictions about future happiness.

• Lots of ways to be wrong.
  – Overestimate how long positive things make us happy (The Hedonic Treadmill)
    • Campus beauty
    • Single interesting course
    • Engaging professor
  – Diversification Bias
    • More majors
    • Different types of colleges in app set

• General sense of well-being – mostly a trait!
Common App Behavior

• Change for 2014 cohort – Apps received sequentially
  – Application fatigue?
  – Does ordering of schools represent true preferences?
    • Easier essays submitted first?
    • Most prestigious colleges submitted first?
  – Colleges lose signaling and bond ratings
  – Incentive to require earlier
    • Early Action
    • Prior Prior Year

• University of Richmond Common Application Survey
Literature on Biases


CAO "Starters"

Sub-group within the larger group called CAO "starters"

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<thead>
<tr>
<th>As of Date</th>
<th>August 01</th>
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<table>
<thead>
<tr>
<th>Terms &amp; Rounds</th>
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<td><strong>Total</strong></td>
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<td>25%</td>
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<td>Fall</td>
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<td>6</td>
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<td>Regular Decision</td>
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<td>10</td>
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<td>66.67%</td>
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<td>Fall</td>
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<td>0</td>
<td>1</td>
<td>0%</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
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</tbody>
</table>
CAO Starters

• How prevalent are CAO starters?
  – Generally, one-third of all students who begin an application with Richmond never submit and remain CAO starters
  • Here are the CAO starter numbers for the past four admission cycles and the corresponding percentage of our application totals (i.e., starters and submitters) for that year:
    – Fall 2016: 3,473 (33.4%)*
    – Fall 2015: 3,321 (33.3%)
    – Fall 2014: 3,654 (36.8%)
    – Fall 2013: 3,547 (36.1%)
CAO Starter Significance

• Why is this phenomenon important?
  – It signals that not all students who we think are active because they started an application are in fact engaged in our process
  – Forecasting becomes more nuanced and difficult
  – If we were to count the creation of an application with Richmond as an activity, it would have one of the highest conversion rates of any source
  – We are spending money on these students; they, presumably, are spending money on us
CAO Starter Survey

• The goal of the survey was to learn more about why prospective students added Richmond to their CAO college list, as well as to learn more about why these same students did not end up applying
• The survey was confidential, not anonymous, and the results were aggregated
• Two reminder emails were sent to those who hadn’t responded to the initial survey invitation / Opt out options
• Prize ($250 gift card in 2015 & $300 in 2016)
CAO Starter Survey

**General Administration Data**

- **Survey invitations**
  - 3,294 unique students received survey invitation in 2015
  - 3,473 unique students received survey invitation in 2016
- **Open rates are very high considering the population**
  - 1,351 unique emails opened in 2015 (41% open rate)
  - 1,389 unique emails opened in 2016 (40% open rate)
- **Response rates are high, too**
  - 533 surveys finished in 2015 (completion rate of 16%)
  - 571 surveys finished in 2016 (completion rate of 16%)
- **Confidence levels = 95% in 2015 and 99% in 2016**
- **Confidence intervals (margin of error) = 4% in 2015 and 5% in 2016**
Background on University of Richmond

• No. 32 ranked National Liberal Arts College (U.S. News and World Report, 2016)
• 3,000 students from 47 states, D.C., Puerto Rico, the Virgin Islands, and 69 countries
• $2.4 billion endowment, top 15 endowment per student in the U.S.
• The most beautiful liberal arts college campus in the U.S. by Examiner.com (2014)
Background on Student Body

- Demographic profile of student body
  - Gender: 46.5% Male
  - Domestic Students of Color: 25.5%
  - International Citizens: 11%
  - First Generation College Students: 13%
  - UR Recalculated GPA: A-minus average
  - SAT profile: 1315 (1600) for 2015 enrolled cohort
  - ACT profile: 30 (36) for 2015 enrolled cohort
Application Trends

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Applications</th>
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<tbody>
<tr>
<td>Fall 2007</td>
<td>6,652</td>
</tr>
<tr>
<td>Fall 2008</td>
<td>7,971</td>
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<tr>
<td>Fall 2009</td>
<td>7,880</td>
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<td>Fall 2010</td>
<td>8,661</td>
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<tr>
<td>Fall 2011</td>
<td>9,431</td>
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<tr>
<td>Fall 2012</td>
<td>10,232</td>
</tr>
<tr>
<td>Fall 2013</td>
<td>9,825</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>9,921</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>9,977</td>
</tr>
<tr>
<td>Fall 2016*</td>
<td>10,422</td>
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</tbody>
</table>
## CAO Starter Survey: Demographics

<table>
<thead>
<tr>
<th>Attribute</th>
<th>CAO Survey 2015</th>
<th>2015 Applicants</th>
<th>CAO Survey 2016</th>
<th>2016 Applicants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender: Male</td>
<td>48%</td>
<td>42%</td>
<td>39%</td>
<td>42%</td>
</tr>
<tr>
<td>Domestic SOCs</td>
<td>33%</td>
<td>23%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>International</td>
<td>12%</td>
<td>14%</td>
<td>20%*</td>
<td>14%</td>
</tr>
<tr>
<td>First Generation</td>
<td>17%</td>
<td>16%</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>VA</td>
<td>26%</td>
<td>18%</td>
<td>23%</td>
<td>19%</td>
</tr>
<tr>
<td>NY, NJ, PA, MA, CT</td>
<td>33%</td>
<td>37%</td>
<td>31%</td>
<td>35%</td>
</tr>
<tr>
<td>Public High School</td>
<td>63%</td>
<td>62%</td>
<td>52%*</td>
<td>62%</td>
</tr>
</tbody>
</table>

N = 533 & 571
CAO Starter Survey: Demographics

Survey Responders by State
CAO Starter Survey

- Seven Questions in 2015 (Eighth Question Added in 2016):
  - Why did you add Richmond to your college list?
  - Why did you not apply to Richmond?
  - Where did you apply?
  - Did you visit campus?
  - Which best describes your academic performance in high school?
  - Which best describes your highest composite standardized test score (SAT or ACT)?
  - Any additional comments?
  - Was there a particular order in which you submitted your admission applications?
Why did you add Richmond to your college list?

Possible Options:
• Strong program in my field of study (e.g. major)
• Attractive campus
• Strong business program
• Rigorous academics
• Experiential opportunities (e.g., study abroad, internships, research)
• Division I athletics
• Good reputation
• Generous financial aid and/or merit scholarships
• Location / near city of Richmond
• Student life / fun campus
• Diversity
• Other (comment box available)
<table>
<thead>
<tr>
<th>Reason</th>
<th>Fall 2015 (N=533)</th>
<th>Fall 2016 (N=571)</th>
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<tbody>
<tr>
<td>Strong program in my field of study (e.g. major)</td>
<td>33%</td>
<td>41%</td>
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<tr>
<td>Attractive campus</td>
<td>19%</td>
<td>45%</td>
</tr>
<tr>
<td>Strong business program</td>
<td>23%</td>
<td>32%</td>
</tr>
<tr>
<td>Rigorous academics</td>
<td>27%</td>
<td>31%</td>
</tr>
<tr>
<td>Experiential opportunities</td>
<td>8%</td>
<td>29%</td>
</tr>
<tr>
<td>Division 1 athletics</td>
<td>10%</td>
<td>29%</td>
</tr>
<tr>
<td>Good reputation</td>
<td>13%</td>
<td>43%</td>
</tr>
<tr>
<td>Generous financial aid and/or merit scholarships</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Location / near city of Richmond</td>
<td>18%</td>
<td>17%</td>
</tr>
<tr>
<td>Student life / fun campus</td>
<td>16%</td>
<td>17%</td>
</tr>
<tr>
<td>Diversity</td>
<td>5%</td>
<td>6%</td>
</tr>
</tbody>
</table>
CAO Starter Survey

Why did you not apply to Richmond?

Possible Options:
• I didn’t think I would be admitted
• I was already admitted to my top choice Early Action or Early Decision school
• I had already applied to too many schools
• Size of student body didn’t match my college needs
• Programs (e.g. majors) didn’t match my college needs
• Campus location
• Lack of diversity
• Lack of school spirit
• I didn’t like the Richmond Question essay options
• Too expensive
• Insufficient financial aid or merit scholarship opportunities
• Other (comment box available)

Why did you not apply to Richmond?

- I didn't think I would be admitted: 26% (2015), 25% (2016)
- I was already admitted to my top choice: 43% (2015), 47% (2016)
- I had already applied to too many schools: 10% (2015), 10% (2016)
- The size of Richmond didn't match my needs: 7% (2015), 8% (2016)
- Richmond's list of academic programs didn't match needs: 5% (2015), 5% (2016)
- I wanted a more urban campus: 5% (2015), 4% (2016)
- Lack of diversity: 5% (2015), 4% (2016)
- Lack of school spirit: 10% (2015), 15% (2016)
- I didn't like the Richmond Question essay options: 26% (2015), 23% (2016)
- Too expensive: 24% (2015), 23% (2016)
- Insufficient financial aid or merit scholarship opportunities: 7% (2015), 9% (2016)

Fall 2015 (N=533)
Fall 2016 (N=571)
CAO Starter Survey

Accepted to Top EA/ED School by U.S. State
CAO Starter Survey

Accepted to Top EA/ED School by U.S. State

By our top feeder states (excluding VA)

--- | --- | --- | --- | ---
2015 | 2016

0 10 20 30 40 50 60 70 80 90 100

[Graph showing acceptance rates by state for 2015 and 2016]
CAO Starter Survey: Cross-Tabbed Data

Accepted to Top EA/ED School by U.S. State by Test Score Band

Sheet 1

I was already admitted to my top choice Early Action or Early Decision school

Number of Records

Arizona
California
Colorado
Connecticut
Delaware
Florida
Georgia
Hawaii
Illinois
Indiana
Louisiana
Maryland
Massachusetts
Michigan
Minnesota
Missouri
New Hampshire
New Jersey
New York
North Carolina
Ohio
Pennsylvania
South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
Wisconsin
Wyoming

Which best describes your highest standardized test score? Note: Lower than 1600 SAT / ACT lower than 25 1800-2090 SAT / ACT 28-31 2100-2400 SAT / ACT 32-36 Lower than 1600 SAT / ACT lower than 25
CAO Starter Survey

Too Expensive by U.S. State
CAO Starter Survey: New Question for 2016

Was there a particular order in which you submitted your admission applications?

- Yes, based on the application deadlines: 31%
- Yes, based on level of interest: 22%
- Yes, a combo of interest and deadlines: 32%
- Yes, based on the ease of applications: 12%
- Yes, based on likelihood of being admitted: 7%
- Yes, based on application fee: 4%
- No, I submitted in random order: 8%
- Don't remember: 4%

Fall 2016 (N=571)
CAO Starter Survey: Takeaways

• Virginians perceptions / biases about Richmond’s total cost of attendance (i.e., published price v. net price)
• The importance of major areas of interest to Students of Color and First Generation students
• The importance of experiential learning to Students of Color and First Generation students
• The Richmond Essay options can affect behavior
CAO Starter Survey: Takeaways, cont’d

• SOCs and FGs cited not being admissible and too expensive as their top two reasons for not applying – different from other populations
• Most of the prospective students we lose to other institutions (ED/ EA) are from our primary markets and have SAT score ranges between 1800-2090 and 2100-2400 (ACT between 28-31 and 32-36)
• Timeline of deadlines is very important to prospective students – and it should be important to you if you are not one of their top choices
• Collecting data on student behavior in new and innovative ways
Thank you!

Questions / Final Thoughts

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