Millennials and Critical Issues of Today

Erin Pinkus, SurveyMonkey
May 16, 2019
"The 'Boys' Club' Mentality is Still Alive": How Millennial Women Are Combatting the Gender-Pay Gap

Millennial Takeover 2018

How Much Do Millennials Really Care About L.G.B.T.Q. Rights?
A yearlong collaboration between the Hive, theSkimm, and SurveyMonkey focuses on female millennials as they prepare to vote in 2018. For Pride Month, we took a look at their views on L.G.B.T.Q. issues.

Millennial Takeover 2018

Can Millennial Women Decide the Next Election?
A new collaboration between the Hive, theSkimm, and SurveyMonkey traces the interest, and likely impact, of female millennial voters in advance of the consequential 2018 midterms.

Millennial Takeover 2018

The Supreme Court Is in Danger of Losing a Generation of Voters

Millennial Takeover 2018

"Immigrants Are the Backbone of This Country": Why Female Millennials' Views on Immigration Could Doom the G.O.P. in November
2018 Data

- 55k+ responses collected between Jan. and Nov. 2018
  - Female Millennials (18-34)~ 11%

- Topics include:
  - Politics
  - Activism
  - SCOTUS
  - Gender equality
  - LGBTQ rights
  - Immigration
POLITICS
Majorities Think it’s Harder for a Woman to get Elected

- Greater shares of women believe it’s harder for their gender to get elected than men.

- Many say Trump’s election will influence their future voting behavior.

- However, Trump’s election made greater shares of men consider running for office than women.

SOURCE: This SurveyMonkey/theSkimm/Hive online poll was conducted January 21-24, 2018 among a national sample of 5,075 adults, including 988 Millennials (18-34 year-olds).
ACTIVISM
Young Women Support Progressive Social Movements

• BLM, #MeToo, and Pro-choice top 3 cited movements supported

• Believe the inaugural (2017) Women’s March improved things for women in the U.S.

• Twice the shares of men, 12% of young women marched in 2018

SOURCE: This SurveyMonkey/theSkimm/Hive online poll was conducted January 21-24, 2018 among a national sample of 5,075 adults, including 988 Millennials (18-34 year-olds).
Similar Views on an Ideal SCOTUS and Nomination Process by Gender

- Greater shares of young women want a moderate to very liberal nominee to court.

- Majorities want nominees to be required to answer questions.

- Young adults most closely aligned on making term limits for justices.

SOURCE: This SurveyMonkey/theSkimm/Hive online poll was conducted August 17-23, 2018 among a total sample of 8,822 adults, including 788 female millennials living in the United States.
GENDER EQUALITY
Greater Shares Young Women See Systemic Obstacles to Equality

- Far more young women point to hurdles for gender equality at work.

- Far fewer young men willing to acknowledge that, on average in the U.S., men earn more money than woman for doing similar work.
LGBTQ RIGHTS
Young Adults See A Long Road to LGBTQ Equality, Bias Persists

- Many see discrimination against LGBTQ community alive today and see a long way to go to equality.

- Hurdles include some bias within this group.

This SurveyMonkey/theSkimm/Hive online poll was conducted May 31 - June 9, 2018 among a total sample of 10,354 adults, including 1,157 female millennials.
IMMIGRATION
Most Young Adults Hold Pro-Immigration Views

- Identical shares see immigration as helpful to U.S.

- Young women, more so than men, support DACA and application for legal status for undocumented immigrants.

- Approval of Trump’s policy much lower among young women.

<table>
<thead>
<tr>
<th></th>
<th>Female Millennials</th>
<th>Male Millennials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immigration Helps more than hurts U.S.</td>
<td>69%</td>
<td>83%</td>
</tr>
<tr>
<td>Chance apply for legal status</td>
<td>72%</td>
<td>75%</td>
</tr>
<tr>
<td>Support DACA</td>
<td>67%</td>
<td>40%</td>
</tr>
</tbody>
</table>

This SurveyMonkey/theSkimm/Hive online poll was conducted July 6-13, 2018 among a total sample of 8,189 adults, including 832 female millennials living in the United States.
Key Takeaways

When compared to men of their age group, greater shares of young women...

- Acknowledge inequities and disadvantages in society (e.g. gender pay gap, LGBTQ discrimination)
- Support social movements (e.g. BLM, #MeToo)
- Hold socially progressive viewpoints (e.g. support DACA)
- Feel motivated to take specific actions (e.g. participate in Women’s March)
Most Important Issue for Women Today…

Q: “Which one of the following issues matters MOST to you right now?”

- The Environment: 26%
- Jobs & Economy/Health Care: 25%
- Health Care: 28%+

Gen Z

Millennials

Gen X+

SOURCE: This SurveyMonkey online poll was conducted April 18- May 14, 2019 among a national sample of 10,504 adults, including 874 Gen Z (13-22), 1945 Millennials (23-28), 2846 Gen X (39-54), 4029 Boomers (55-73), 801 Silent/Greatest (74+).
Thank you

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Adaptive Head-to-Head Ranking: A New Method to Reduce Sample Size while Improving Data Quality

Gilad Amitai, Reuben McCreanor, Jack Chen
May 19, 2019
Ranking Surveys
Data Intensive and Burdensome to Respondents

From Buzzfeed
Rank these Marvel characters from "If They Die, I Die" (highest) to "Not Worth Saving" (lowest):

<table>
<thead>
<tr>
<th>Rank</th>
<th>Character</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Thor</td>
</tr>
<tr>
<td>2</td>
<td>Groot</td>
</tr>
<tr>
<td>4</td>
<td>Black Panther</td>
</tr>
<tr>
<td></td>
<td>Ironman</td>
</tr>
<tr>
<td></td>
<td>Shuri</td>
</tr>
<tr>
<td></td>
<td>Loki</td>
</tr>
<tr>
<td></td>
<td>Spider-Man</td>
</tr>
<tr>
<td></td>
<td>Black Widow</td>
</tr>
</tbody>
</table>
Ranking Surveys
Data Intensive and Burdensome to Respondents

Thinking about the United States Presidents we have had since World War II, which one would you consider the best president?

- Harry Truman
- Dwight Eisenhower
- John Kennedy
- Lyndon Johnson
- Richard Nixon
- Gerald Ford
- Jimmy Carter
- Ronald Reagan
- George Bush Senior
- Bill Clinton
- George W. Bush
- Barack Obama
- Donald Trump
- Don't Know

Results in Percentages

<table>
<thead>
<tr>
<th>President</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harry Truman</td>
<td>3</td>
</tr>
<tr>
<td>Dwight Eisenhower</td>
<td>4</td>
</tr>
<tr>
<td>John Kennedy</td>
<td>10</td>
</tr>
<tr>
<td>Lyndon Johnson</td>
<td>2</td>
</tr>
<tr>
<td>Richard Nixon</td>
<td>1</td>
</tr>
<tr>
<td>Gerald Ford</td>
<td>-</td>
</tr>
<tr>
<td>Jimmy Carter</td>
<td>3</td>
</tr>
<tr>
<td>Ronald Reagan</td>
<td>28</td>
</tr>
<tr>
<td>George Bush Senior</td>
<td>1</td>
</tr>
<tr>
<td>Bill Clinton</td>
<td>10</td>
</tr>
<tr>
<td>George W. Bush</td>
<td>1</td>
</tr>
<tr>
<td>Barack Obama</td>
<td>24</td>
</tr>
<tr>
<td>Donald Trump</td>
<td>7</td>
</tr>
<tr>
<td>DK/NA</td>
<td>6</td>
</tr>
</tbody>
</table>

Mar 07 2018
Adaptive Methods
A solution

Quicksort Algorithm
Breakdown the ranking into head-to-head matches

Bayesian Adaptive Methods
Decide winner of head-to-head match, reduce sample size

Example
Which of these candies do you prefer?
- Coffee Crisp
- Wunderbar
Quicksort Algorithm
An efficient, comparison sorting algorithm

1. Pick a pivot from an unsorted array.
2. Compare each element in the unsorted array to the pivot to create a larger-than and less-than array.
   • The pivot is now in its final position.
   • An array of size one or zero does not need to be sorted.
3. Recursively apply the above steps to the larger-than array and less-than array until all the elements are in their final position.
Stopping Rule

How do you know when to stop a head-to-head comparison?

- Let $Y$ be the choice of the pivot as the higher ranked. Let $\theta$ be the preference for the pivot over the unsorted array element. Model each head-to-head comparison such that:

$$\begin{align*}
\left\{ \begin{array}{l}
\theta \sim \text{Beta}(a, b) \\
Y \sim \text{Binomial}(n, \theta)
\end{array} \right\}, \quad \text{then} \quad \{\theta|Y = y\} \sim \text{Beta}(a + y, b + n - y)
\end{align*}$$

- Example: 52 people have chosen Coffee Crisp, 31 people have chosen Wunderbar

<table>
<thead>
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<th>Example</th>
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<tbody>
<tr>
<td>Which of these candies do you prefer?</td>
</tr>
<tr>
<td>☐ Coffee Crisp</td>
</tr>
<tr>
<td>☐ Wunderbar</td>
</tr>
</tbody>
</table>

$$\left\{ \begin{array}{l}
\theta \sim \text{Beta}(1, 1) \\
Y \sim \text{Binomial}(83, \theta)
\end{array} \right\}, \quad \text{then} \quad \{\theta|Y = 52\} \sim \text{Beta}(53, 32)$$
Stopping Rule

How do you know when to stop a head-to-head comparison?

- Decide based on the posterior distribution of $\theta$:
  
  \[
  \text{if } \operatorname{Prob}(\{\theta | Y = y\} \leq .5) \leq \alpha/2 \text{ then pivot > array element}
  \]
  
  \[
  \text{if } \operatorname{Prob}(\{\theta | Y = y\} \leq .5) \geq \alpha/2 \text{ then array element > pivot}
  \]

- Example: 52 people have chosen Coffee Crisp, 31 people have chosen Wunderbar

\[
\begin{align*}
\left\{ \begin{array}{c}
\theta \sim \text{Beta}(1, 1) \\
Y \sim \text{Binomial}(83, \theta)
\end{array} \right\}, \quad \text{then } \{\theta | Y = 52\} \sim \text{Beta}(53, 32)
\end{align*}
\]

\[
\operatorname{Prob}(\{\theta | Y = 52\}) = I.5(53, 32) = 0.011 \leq .05/2, \quad \text{then Coffee Crisp > Wunderbar}
\]
Stopping Rule

Considerations

- A $\theta$ close to .5 will lead to too many respondents needed to decide winner of head-to-head match.
  - Create a lower and upper limit to cap response requirement. Measure significance of sorted list with:

$$\text{effective confidence} = 1 - \frac{2}{n_c} \sum_{i=1}^{n_c} \min \left\{ I.5(a + y_i, b + n_i - y_i), 1 - I.5(a + y_i, b + n_i - y_i) \right\}$$

- Example:
  - \( I.5(34, 48) = 0.94 \)
  - \( I.5(45, 21) = 0.001 \)
  - \( I.5(201, 200) = 0.52 \)

then effective confidence = \( \frac{0.94 + (1 - 0.001) + 0.52}{3} = 0.80 \)
Stopping Rule

Considerations

• Decrease sample size.
  • Use a presorted list to choose optimal pivot that will reduce number of iterations:
    • From a presorted list, keep the elements that are in the unsorted array that needs to be sorted, choose the median value from the trimmed presorted list to be the pivot.
  • Ask the same respondent to judge multiple comparisons.
In a seven-game series, which NBA team would most likely win?

Results

1. Golden State Warriors
2. Boston Celtics
3. Houston Rockets
4. San Antonio Spurs
5. L.A. Clippers
6. Philadelphia 76ers
7. Portland Trailblazers
8. Milwaukee Bucks
9. Indiana Pacers
10. Orlando Magic
11. Detroit Pistons
12. Utah Jazz
13. Toronto Raptors
14. Brooklyn Nets

- 70% Effective Confidence.
- Resolved in 4039 responses.
- Presorted list: playoff seeding.

<table>
<thead>
<tr>
<th>How would you rate your knowledge of the NBA?</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Very good</td>
<td>11%</td>
</tr>
<tr>
<td>Good</td>
<td>15%</td>
</tr>
<tr>
<td>Fair</td>
<td>27%</td>
</tr>
<tr>
<td>Poor</td>
<td>20%</td>
</tr>
<tr>
<td>Very Poor</td>
<td>27%</td>
</tr>
</tbody>
</table>
### Results

Of the two options, which make of car would you prefer to lease or own?

<table>
<thead>
<tr>
<th>1.</th>
<th>Toyota</th>
<th>10.</th>
<th>BMW</th>
<th>19.</th>
<th>Chrysler</th>
</tr>
</thead>
</table>

- 80% Effective Confidence.
- Resolved in 1066 responses.
- Presorted list: previous survey.
Thank you

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