CBC Project: Backpack Consumer Preferences

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### **Executive Summary**

**Overview**

Backpacks are essential for students, faculty, and staff on a university campus and serve diverse purposes from academic to recreational use. This report examines consumer preferences for backpack features on a university campus focusing on brand, material, color, and price. Using a choice-based conjoint analysis, we aim to identify which combinations are most valued by consumers. Our analysis will provide insights into the relative importance of these attributes and simulate market share estimates for various backpack configurations. This information will guide product development and marketing strategies to align with consumer preferences.

**Findings**

Our findings suggest that brand is the most significant attribute to respondents, accounting for 31.8% of the market share estimate, with North Face being the most preferred brand. Price is important to respondents, with respondents favoring lower-priced options. Based on market simulations, canvas or nylon backpacks from North Face priced at $50 are likely to perform best in the market. These findings will help Campus Pack Company distribute products that resonate with the preferences of the target audience.

### **2. Background and Problem Statement**

**Context**

Backpacks are ubiquitous to the university experience for everyone—students, faculty, and staff alike. Our company, Campus Pack Company, is a new backpack distributor seeking to break into the current market by offering a backpack with superior aesthetics and quality that can compete with current leaders in the industry. To ensure we create a product that appeals to a wide range of the campus community and provides the most value in functionality and design, we plan to investigate which features of a backpack are most important to consumers.

**Attributes Under Study**

There are four components of a backpack that are of key importance:

1. The **color** of the backpack
2. The **brand** of the backpack
3. The **material** of the backpack
4. The **price** of the backpack

**Study Objectives**

Each attribute has several available options. By conducting a conjoint analysis, we aim to understand how the campus community values these attributes and determine the optimal combination that maximizes value for our target market. Specifically, we want to learn what backpack configuration will appeal most to our customer base and how much they are willing to pay for different features. The insights gained from this study will guide our company in creating a product line that successfully competes with industry leaders while delivering superior value to our customers.

### **3. Design**

**Choice-Based Conjoint (CBC) Analysis**

We chose choice-based conjoint (CBC) analysis for this study because it closely replicates the decision-making processes of real-world consumers. Instead of ranking or rating backpack attributes individually, respondents were presented with a series of choice tasks where they selected their preferred backpack configurations. This approach captures the trade-offs consumers make between features, providing our team with realistic insights into which backpack designs to target.

**Experimental Design**

Our experimental design was determined using SAS commands. The choice-based conjoint design included 36 profiles, divided into four blocks of 9 tasks to ensure a manageable cognitive load for respondents. We confirmed that the factors were independent, with no significant multicollinearity, and the design demonstrated optimal D-efficiency at 100% and an average prediction standard error of 0.7265.

**Survey Administration**

The survey was randomized in Qualtrics to ensure data quality and minimize bias. Tasks were divided into four blocks of nine tasks to ensure a manageable cognitive load for respondents. Each block contained a randomized set of tasks, and respondents were randomly assigned to one of the four blocks. Each task included a “None” option, as well, allowing respondents to indicate if none of the options met their needs. Respondents were friends and colleagues who regularly use backpacks and could provide informed preferences. The four attributes we included in our study, along with their levels, were as follows:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Attributes | | | | |
| Levels | **Brand** | **Price** | **Color** | **Material** |
| 1 | North Face | $50 | Earth Tone | Nylon |
| 2 | Adidas | $80 | Pastel | Canvas |
| 3 | Jansport | $120 | Neutral | Leather |

**Sample Composition**

Our study targeted respondents from the university community, including students, faculty, and staff, as they represent the primary users of backpacks in this context. Our final respondent pool consisted mostly of friends and colleagues, primarily students within similar academic and social circles, which may limit generalizability.

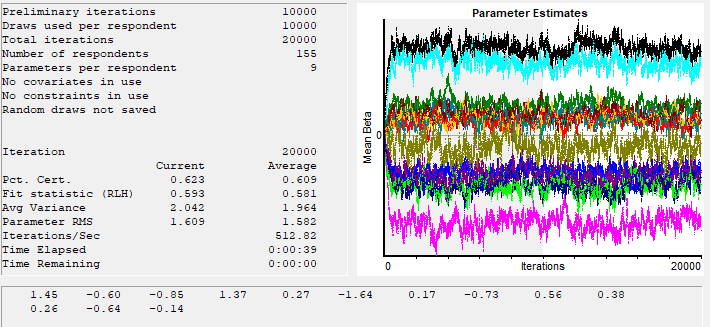
**Sample Size**  
We aimed to recruit 250 respondents but collected data from 158 respondents, representing a 62% response rate. Three incomplete responses were excluded, resulting in a final sample of 155 respondents. While this sample size is sufficient for reliable results, it further limits the generalizability of our results.

### **4. Analysis**

**Hierarchical Bayesian Estimation with Sawtooth**

After collecting our responses, we coded our data and utilized Sawtooth CBC/HB software to estimate part-worth utilities and share estimates. Sawtooth’s Hierarchical Bayesian (HB) estimation process was used to calculate part-worth utilities for each respondent. The model ran 20,000 iterations, using the first 10,000 as a burn-in period for stability.

**Model Fit**

Our fit statistics (RLH: 0.593) confirm the model's accuracy in capturing respondent choices.

The RLH score of 0.593 indicates that the model predicts respondents' actual choices with a 59.3% probability, outperforming random guessing, which would yield an RLH of 0.25 for choice tasks. This score demonstrates that the model effectively captures meaningful patterns in the data and generates reliable estimates of consumer preferences.

### **5. Results**

**Share Estimates**

Our analysis determined that brand and price are the most influential attributes for backpack selection, together accounting for over 60% of respondents’ decision-making process. Brand emerged as the top priority with an average share estimate of 31.8%, followed by price at 28.8%. Material and color were less significant but still relevant, with share estimates of 21.4% and 17.9%, respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Segment | Attribute | Share Estimate | Standard Error | Lower 95% CI | Upper 95% CI |
| All Respondents | brand | 31.82% | 1.58% | 28.72% | 34.93% |
| N = 155 | price | 28.82% | 1.25% | 26.36% | 31.27% |
|  | color | 17.95% | 1.02% | 15.95% | 19.96% |
|  | mat | 21.40% | 1.16% | 19.13% | 23.67% |

**Share Estimation Results: Segmentation by Gender**

The analysis of gender segments (Appendix 2) showed distinct differences in attribute preferences between male and female respondents. Male respondents prioritized brand, with a share estimate of 35.22%, making it the most significant factor for this group. Price followed at 29.59%, indicating a strong focus on affordability as well. Color was the least influential attribute for male respondents (15.68%), while material held moderate importance at 19.51%. In contrast, female respondents showed a more balanced preference among attributes with a lower share estimate of 24.97% for brand. Price (28.23%) and material (25.42%) were similarly important, with material being slightly more significant than price. Color (21.37%) was also a more influential attribute for female respondents compared to males, indicating a greater interest in aesthetics. Respondents who did not specify their gender had a much higher emphasis on brand (50.82%), although this finding comes with substantial variability due to the small sample size. These insights suggest that while brand and price are crucial for both male and female respondents, females tend to weigh other factors, like material and color, more evenly, underscoring the need for diverse product offerings that consider both aesthetic appeal and functionality.

**Share Estimation Results: Segmentation by Race and Ethnicity**

The analysis across different races and ethnicities suggested consistent preferences for brand and price across all groups, with brand being slightly more influential overall. Respondents who did not provide specific demographic information showed a much higher emphasis on brand (50.82%), but the variability was significant, as indicated by the large confidence interval. Respondents who identify as White also prioritized brand (29.88%) and price (29.12%), suggesting a balance between these two factors. Black or African American-identifying respondents showed a stronger preference for brand (37.31%) and price (33.11%), emphasizing these two attributes more than color or material. Asian-identifying respondents had similar priorities, with brand at 38.54% and price at 28.89%, while backpack color was less important. Respondents identifying as "Other" prioritized brand (33.66%) and material (23.74%) more heavily, while price was somewhat less important (20.03%). The smaller sample sizes in the non-White demographic groups led to larger confidence intervals, suggesting the need for re-sampling across a larger and more diverse group to more accurately assess consumer preferences for the campus community at large.

**Utilities**

Utility scores highlighted specific levels within each attribute that consumers prefer. Lower price points had the highest utility, with $50 being the most preferred. North Face emerged as the most favored brand, followed by Adidas, with Jansport ranking lowest. Neutral colors were the top choice for aesthetics, followed by earth tones, with pastels being the least appealing. For material, canvas was the most preferred, followed by nylon, with leather being the least favored. The large negative score for Leather (-24.25) suggests a significant aversion to this material compared to Nylon and Canvas, while the small difference between Nylon (11.76) and Canvas (12.49) indicates that the preference between these two is marginal.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  | N | 155 |  |  |
| Attribute | **Level** | **Utility** | **Standard Error** | **Lower 95% CI** | **Upper 95% CI** |
| brand | North Face | 56.74 | 5.01 | 46.90 | 66.57 |
|  | Adidas | -22.00 | 3.25 | -28.39 | -15.61 |
|  | Jansport | -34.74 | 3.94 | -42.47 | -27.00 |
| price | 50 | 44.97 | 3.30 | 38.49 | 51.46 |
|  | 80 | 10.05 | 1.40 | 7.30 | 12.80 |
|  | 120 | -55.02 | 3.42 | -61.74 | -48.30 |
| color | Earth | 13.16 | 2.05 | 9.13 | 17.19 |
|  | Pastel | -33.96 | 3.17 | -40.18 | -27.74 |
|  | Neutral | 20.80 | 1.81 | 17.24 | 24.35 |
| mat | Nylon | 11.76 | 3.16 | 5.57 | 17.96 |
|  | Canvas | 12.49 | 2.27 | 8.03 | 16.95 |
|  | Leather | -24.25 | 4.13 | -32.36 | -16.14 |
| None Option | None Option | -16.61 | 6.71 | -29.78 | -3.43 |

These results provide clear guidance for Campus Pack Co. to develop a product strategy. Backpacks that feature recognized brands (e.g., North Face), affordable prices (around $50), practical materials like canvas and nylon, and neutral color options are likely to maximize consumer appeal.

### **6. Limitations**

While this study offers valuable insights, several limitations must be acknowledged. First, the respondent pool, consisting primarily of friends and colleagues, may introduce bias and limit the generalizability of the findings. This small and potentially homogenous group likely does not fully capture the broader and more diverse preferences of the campus community. Additionally, respondents frequently noted the absence of images or visual representations of the backpack options and attribute levels. For example, varying interpretations of what qualifies as an "earth tone" versus a "neutral" color could have influenced the results. The study also had a low response rate; despite targeting a pool of 250 respondents, only 158 completed the survey by the deadline. These factors highlight the need for caution when interpreting the results and suggest opportunities for refinement in future studies.

### **7. Summary, Conclusions, and Recommendations**

**Summary**

This study provides a thorough initial understanding of consumer preferences for backpacks based on four key attributes: Brand, Material, Color, and Price. Using a choice-based conjoint (CBC) methodology with Sawtooth CBC/HB software, we estimated part-worth utilities and attribute importance scores, identifying brand and price as the most influential factors driving consumer choices. Among the levels tested, North Face, Canvas, Neutral colors, and a $50 price point emerged as the most preferred combinations. While the study offers actionable insights, limitations such as a potentially biased respondent pool, low response rate, and the absence of visual representations highlight areas for improvement in future research.

**Conclusions**

Our study strongly indicates that campus consumers prioritize brand recognition, affordability, and functionality in their backpack preferences. The strong preference for North Face reflects its perceived value and quality. The $50 price point was the most preferred price point, demonstrating that cost-effectiveness is a crucial factor in decision-making for campus consumers. This is not a surprising conclusion given that most respondents were students. Material preferences were also significant, with canvas and nylon favored far more strongly than leather. This could be perceived as a preference for practicality and durability rather than luxury or fashion. Color preference is more subtle, with respondents favoring neutral colors slightly more than earth tones and pastels, suggesting a preference for versatile and functional designs.

**Recommendations**

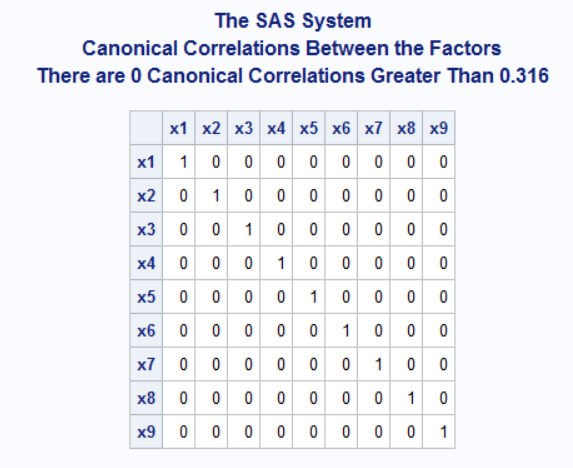
To align with consumer preferences, Campus Pack Company should distribute backpacks featuring North Face branding, Canvas material, Neutral colors, and a $50 price point. Including these features is likely to maximize consumer appeal and capture significant market share. Additionally, we recommend incorporating images or mockups of backpacks into the survey to ensure consistent interpretation of attribute levels and improve respondent engagement. Expanding recruitment efforts to include a more diverse cross-section of the campus community will help ensure that the results better reflect the preferences of the target market. Increasing response rates through incentives or allowing a longer data collection period would further improve the robustness of the findings. Finally, segmenting preferences by demographics, such as academic role (student, faculty, staff), could help identify niche opportunities within the campus market.

### **8. Appendix**

**1. SAS Experimental Design Output**

A screenshot of a computer

Description automatically generated



**2. Share Estimate Results: Segmentation by Gender**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Segment | Attribute | Share Estimate | Standard Error | Lower 95% CI | Upper 95% CI |
| All Respondents | brand | 31.82% | 1.58% | 28.72% | 34.93% |
| N = 155 | price | 28.82% | 1.25% | 26.36% | 31.27% |
|  | color | 17.95% | 1.02% | 15.95% | 19.96% |
|  | mat | 21.40% | 1.16% | 19.13% | 23.67% |
|  | | | | | |
| No Response | brand | 50.82% | 9.28% | 28.87% | 72.77% |
| N = 7 | price | 24.52% | 4.85% | 13.05% | 35.98% |
|  | color | 15.64% | 4.58% | 4.80% | 26.47% |
|  | mat | 9.02% | 2.03% | 4.23% | 13.82% |
|  | | | | | |
| Male | brand | 35.22% | 2.18% | 30.88% | 39.55% |
| N = 86 | price | 29.59% | 1.61% | 26.40% | 32.79% |
|  | color | 15.68% | 1.25% | 13.20% | 18.16% |
|  | mat | 19.51% | 1.60% | 16.33% | 22.70% |
|  |  |  |  |  |  |
| Female | brand | 24.97% | 1.98% | 21.03% | 28.92% |
| N = 62 | price | 28.23% | 2.13% | 23.99% | 32.48% |
|  | color | 21.37% | 1.74% | 17.90% | 24.84% |
|  | mat | 25.42% | 1.67% | 22.09% | 28.75% |

**3. Share Estimate Results: Segmentation by Race and Ethnicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Segment | Attribute | Share estimate | | Standard Error | Lower 95% CI | Upper 95% CI |
| All Respondents | brand | 31.82% | 1.58% | | 28.72% | 34.93% |
| N = 155 | price | 28.82% | 1.25% | | 26.36% | 31.27% |
|  | color | 17.95% | 1.02% | | 15.95% | 19.96% |
|  | mat | 21.40% | 1.16% | | 19.13% | 23.67% |
|  | | | | | | |
| No Response | brand | 50.82% | 9.28% | | 28.87% | 72.77% |
| N = 7 | price | 24.52% | 4.85% | | 13.05% | 35.98% |
|  | color | 15.64% | 4.58% | | 4.80% | 26.47% |
|  | mat | 9.02% | 2.03% | | 4.23% | 13.82% |
|  | | | | | | |
| White | brand | 29.88% | 1.64% | | 26.65% | 33.10% |
| N = 127 | price | 29.12% | 1.39% | | 26.39% | 31.86% |
|  | color | 18.49% | 1.15% | | 16.22% | 20.75% |
|  | mat | 22.51% | 1.30% | | 19.96% | 25.07% |
|  | | | | | | |
| Black or African American | brand | 37.31% | 8.84% | | 15.68% | 58.94% |
| N = 6 | price | 33.11% | 8.37% | | 12.63% | 53.60% |
|  | color | 15.47% | 5.17% | | 2.83% | 28.12% |
|  | mat | 14.11% | 3.10% | | 6.52% | 21.69% |
|  | | | | | |  |
| Asian | brand | 38.54% | 6.44% | | 24.36% | 52.71% |
| N = 11 | price | 28.89% | 4.53% | | 18.93% | 38.86% |
|  | color | 12.96% | 3.08% | | 6.19% | 19.74% |
|  | mat | 19.61% | 4.53% | | 9.63% | 29.58% |
|  | | | | | | |
| Other | brand | 33.66% | 13.54% | | -3.94% | 71.26% |
| N = 4 | price | 20.03% | 4.80% | | 6.72% | 33.34% |
|  | color | 22.58% | 5.86% | | 6.30% | 38.85% |
|  | mat | 23.74% | 6.39% | | 5.99% | 41.48% |

**4. Utility Results: Segmentation by Gender**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Segment | Attribute | Level | Utility | Standard Error | Lower 95% CI | Upper 95% CI |
| All Respondents | brand | North Face | 56.74 | 5.01 | 46.90 | 66.57 |
| N = 155 |  | Adidas | -22.00 | 3.25 | -28.39 | -15.61 |
|  |  | Jansport | -34.74 | 3.94 | -42.47 | -27.00 |
|  | price | 50 | 44.97 | 3.30 | 38.49 | 51.46 |
|  |  | 80 | 10.05 | 1.40 | 7.30 | 12.80 |
|  |  | 120 | -55.02 | 3.42 | -61.74 | -48.30 |
|  | color | Earth | 13.16 | 2.05 | 9.13 | 17.19 |
|  |  | Pastel | -33.96 | 3.17 | -40.18 | -27.74 |
|  |  | Neutral | 20.80 | 1.81 | 17.24 | 24.35 |
|  | mat | Nylon | 11.76 | 3.16 | 5.57 | 17.96 |
|  |  | Canvas | 12.49 | 2.27 | 8.03 | 16.95 |
|  |  | Leather | -24.25 | 4.13 | -32.36 | -16.14 |
|  | None Option | None Option | -16.61 | 6.71 | -29.78 | -3.43 |
|  | | | | | | |
| NO RESPONSE | brand | North Face | 84.12 | 43.40 | -18.53 | 186.77 |
| N = 7 |  | Adidas | -37.33 | 16.83 | -77.14 | 2.48 |
|  |  | Jansport | -46.79 | 30.16 | -118.12 | 24.54 |
|  | price | 50 | 11.05 | 14.22 | -22.57 | 44.68 |
|  |  | 80 | -5.81 | 13.89 | -38.65 | 27.03 |
|  |  | 120 | -5.24 | 25.92 | -66.54 | 56.06 |
|  | color | Earth | 14.72 | 8.14 | -4.53 | 33.98 |
|  |  | Pastel | -25.48 | 7.60 | -43.46 | -7.51 |
|  |  | Neutral | 10.76 | 15.33 | -25.51 | 47.02 |
|  | mat | Nylon | -0.13 | 7.40 | -17.63 | 17.38 |
|  |  | Canvas | 10.29 | 7.07 | -6.43 | 27.02 |
|  |  | Leather | -10.17 | 4.59 | -21.03 | 0.70 |
|  | None Option | None Option | ##### | 39.04 | -205.52 | -20.86 |
|  | | | | | | |
| male | brand | North Face | 68.83 | 6.72 | 55.48 | 82.17 |
| N = 86 |  | Adidas | -27.01 | 3.91 | -34.77 | -19.25 |
|  |  | Jansport | -41.82 | 5.48 | -52.71 | -30.93 |
|  | price | 50 | 45.71 | 4.45 | 36.87 | 54.55 |
|  |  | 80 | 11.72 | 1.66 | 8.43 | 15.01 |
|  |  | 120 | -57.43 | 4.48 | -66.33 | -48.53 |
|  | color | Earth | 14.11 | 2.10 | 9.94 | 18.28 |
|  |  | Pastel | -32.30 | 3.46 | -39.17 | -25.44 |
|  |  | Neutral | 18.20 | 2.32 | 13.58 | 22.81 |
|  | mat | Nylon | 8.50 | 3.80 | 0.96 | 16.03 |
|  |  | Canvas | 11.67 | 3.29 | 5.13 | 18.20 |
|  |  | Leather | -20.16 | 5.51 | -31.10 | -9.22 |
|  | None Option | None Option | -31.19 | 7.72 | -46.52 | -15.86 |
|  | | | | | | |
| Female | brand | North Face | 36.87 | 6.25 | 24.44 | 49.31 |
| N = 62 |  | Adidas | -13.32 | 5.65 | -24.57 | -2.06 |
|  |  | Jansport | -23.56 | 5.13 | -33.76 | -13.35 |
|  | price | 50 | 47.78 | 5.10 | 37.62 | 57.94 |
|  |  | 80 | 9.51 | 2.10 | 5.33 | 13.70 |
|  |  | 120 | -57.30 | 4.79 | -66.83 | -47.76 |
|  | color | Earth | 11.67 | 4.16 | 3.39 | 19.96 |
|  |  | Pastel | -37.21 | 6.26 | -49.68 | -24.74 |
|  |  | Neutral | 25.54 | 2.64 | 20.29 | 30.79 |
|  | mat | Nylon | 17.64 | 5.78 | 6.14 | 29.15 |
|  |  | Canvas | 13.87 | 3.32 | 7.26 | 20.49 |
|  |  | Leather | -31.52 | 6.87 | -45.19 | -17.84 |
|  | None Option | None Option | 14.53 | 10.69 | -6.74 | 35.80 |

**5. Utility Results: Segmentation by Race and Ethnicity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Segment | Attribute | Level | Utility | Standard Error | Lower 95% CI | Upper 95% CI |
| All Respondents | brand | North Face | 56.74 | 5.01 | 46.90 | 66.57 |
| N = 155 |  | Adidas | -22.00 | 3.25 | -28.39 | -15.61 |
|  |  | Jansport | -34.74 | 3.94 | -42.47 | -27.00 |
|  | price | 50 | 44.97 | 3.30 | 38.49 | 51.46 |
|  |  | 80 | 10.05 | 1.40 | 7.30 | 12.80 |
|  |  | 120 | -55.02 | 3.42 | -61.74 | -48.30 |
|  | color | Earth | 13.16 | 2.05 | 9.13 | 17.19 |
|  |  | Pastel | -33.96 | 3.17 | -40.18 | -27.74 |
|  |  | Neutral | 20.80 | 1.81 | 17.24 | 24.35 |
|  | mat | Nylon | 11.76 | 3.16 | 5.57 | 17.96 |
|  |  | Canvas | 12.49 | 2.27 | 8.03 | 16.95 |
|  |  | Leather | -24.25 | 4.13 | -32.36 | -16.14 |
|  | None Option | None Option | -16.61 | 6.71 | -29.78 | -3.43 |
|  | | | | | | |
| No Response | brand | North Face | 84.12 | 43.40 | -18.53 | 186.77 |
| N = 7 |  | Adidas | -37.33 | 16.83 | -77.14 | 2.48 |
|  |  | Jansport | -46.79 | 30.16 | -118.12 | 24.54 |
|  | price | 50 | 11.05 | 14.22 | -22.57 | 44.68 |
|  |  | 80 | -5.81 | 13.89 | -38.65 | 27.03 |
|  |  | 120 | -5.24 | 25.92 | -66.54 | 56.06 |
|  | color | Earth | 14.72 | 8.14 | -4.53 | 33.98 |
|  |  | Pastel | -25.48 | 7.60 | -43.46 | -7.51 |
|  |  | Neutral | 10.76 | 15.33 | -25.51 | 47.02 |
|  | mat | Nylon | -0.13 | 7.40 | -17.63 | 17.38 |
|  |  | Canvas | 10.29 | 7.07 | -6.43 | 27.02 |
|  |  | Leather | -10.17 | 4.59 | -21.03 | 0.70 |
|  | None Option | None Option | -113.19 | 39.04 | -205.52 | -20.86 |
|  | | | | | | |
| White | brand | North Face | 53.58 | 5.09 | 43.59 | 63.57 |
| N = 127 |  | Adidas | -22.80 | 3.40 | -29.47 | -16.14 |
|  |  | Jansport | -30.77 | 4.18 | -38.98 | -22.57 |
|  | price | 50 | 46.73 | 3.58 | 39.70 | 53.76 |
|  |  | 80 | 10.82 | 1.45 | 7.99 | 13.66 |
|  |  | 120 | -57.56 | 3.59 | -64.60 | -50.52 |
|  | color | Earth | 15.13 | 2.17 | 10.86 | 19.40 |
|  |  | Pastel | -38.18 | 3.45 | -44.95 | -31.42 |
|  |  | Neutral | 23.05 | 1.87 | 19.39 | 26.71 |
|  | mat | Nylon | 11.37 | 3.66 | 4.19 | 18.55 |
|  |  | Canvas | 12.83 | 2.60 | 7.73 | 17.94 |
|  |  | Leather | -24.21 | 4.81 | -33.65 | -14.77 |
|  | None Option | None Option | -7.79 | 7.01 | -21.56 | 5.97 |
|  | | | | | | |
| Black or African American | brand | North Face | 28.64 | 31.46 | -48.34 | 105.62 |
| N = 6 |  | Adidas | 29.90 | 26.02 | -33.78 | 93.58 |
|  |  | Jansport | -58.54 | 20.14 | -107.83 | -9.26 |
|  | price | 50 | 42.16 | 29.73 | -30.58 | 114.91 |
|  |  | 80 | 7.01 | 8.86 | -14.66 | 28.69 |
|  |  | 120 | -49.18 | 23.08 | -105.65 | 7.30 |
|  | color | Earth | -3.29 | 16.51 | -43.68 | 37.10 |
|  |  | Pastel | 1.63 | 17.59 | -41.41 | 44.66 |
|  |  | Neutral | 1.66 | 6.04 | -13.12 | 16.43 |
|  | mat | Nylon | 10.92 | 10.21 | -14.07 | 35.92 |
|  |  | Canvas | -7.80 | 11.25 | -35.33 | 19.73 |
|  |  | Leather | -3.13 | 12.14 | -32.83 | 26.58 |
|  | None Option | None Option | -101.75 | 24.89 | -162.65 | -40.84 |
|  | | | | | | |
| Asian | brand | North Face | 87.39 | 17.72 | 48.39 | 126.38 |
| N = 11 |  | Adidas | -32.54 | 10.61 | -55.89 | -9.19 |
|  |  | Jansport | -54.85 | 13.21 | -83.92 | -25.77 |
|  | price | 50 | 51.52 | 9.43 | 30.76 | 72.28 |
|  |  | 80 | 12.54 | 2.86 | 6.24 | 18.83 |
|  |  | 120 | -64.05 | 8.90 | -83.64 | -44.47 |
|  | color | Earth | 2.98 | 6.74 | -11.85 | 17.82 |
|  |  | Pastel | -19.85 | 9.84 | -41.50 | 1.80 |
|  |  | Neutral | 16.87 | 5.71 | 4.31 | 29.43 |
|  | mat | Nylon | 24.02 | 9.12 | 3.95 | 44.10 |
|  |  | Canvas | 16.99 | 6.58 | 2.51 | 31.47 |
|  |  | Leather | -41.01 | 10.91 | -65.01 | -17.00 |
|  | None Option | None Option | -23.99 | 17.99 | -63.58 | 15.61 |
|  | | | | | | |
| Other | brand | North Face | 66.97 | 39.75 | -43.39 | 177.32 |
| N = 4 |  | Adidas | -18.45 | 19.00 | -71.21 | 34.30 |
|  |  | Jansport | -48.51 | 28.49 | -127.62 | 30.59 |
|  | price | 50 | 34.63 | 8.22 | 11.83 | 57.44 |
|  |  | 80 | 10.85 | 3.53 | 1.06 | 20.65 |
|  |  | 120 | -45.49 | 11.08 | -76.25 | -14.73 |
|  | color | Earth | 0.56 | 20.76 | -57.06 | 58.18 |
|  |  | Pastel | -6.88 | 31.15 | -93.36 | 79.61 |
|  |  | Neutral | 6.32 | 17.00 | -40.88 | 53.52 |
|  | mat | Nylon | 12.61 | 23.09 | -51.50 | 76.72 |
|  |  | Canvas | 23.34 | 9.59 | -3.27 | 49.95 |
|  |  | Leather | -35.95 | 30.58 | -120.84 | 48.94 |
|  | None Option | None Option | 20.66 | 61.45 | -149.93 | 191.24 |