Analysis Report

This report is structured as follows.

Contents

Cross-Tabulations

The relationships between brand preference and the categorical variables of the dataset were tested using chi-square tests. This test is used when one wishes to explore the relationship between two categorical variables. Each of these variables can have two or more categories. This test compares the observed frequencies or proportions of cases that occur in each of the categories, with the values that would be expected if there was no association between the two variables being measured. It is based on a cross-tabulation table, with cases classified according to the categories in each variable (e.g. male/female; smoker/non-smoker) (Pallant, 2010).

In cross-tabulated data, each cell contains the values for a specific row–column combination (e.g., gender distribution across different preferences of brand). Thus, the chi-square value is a measure of association between the row and column categories. Higher levels of association, just like higher levels of similarity, should be represented as closer together in the perceptual map than those with lower levels of association (Hair et al., 2014).

The table below display the results of the cross-tabulations. In the table, the '%' column represents the percentage of respondents of the specific group (e.g. those who prefer Nike) that answered a specific category (e.g. being a female). The chi-square test evaluates if the differences in these proportions of responses are significantly different for each group under analysis (column χ^2). If the corresponding p-value (column p) is less than 0.05, this means that the corresponding question under analysis is significantly related to pertaining to different age groups. Thus, the differences on the proportions for each age group are statistically significant.

The different proportions were also compared using SPSS's Z-test, which evaluates each answer category separately, while the Chi-Square only evaluates the distribution of answers across all categories of a single question. The result of the Z-test is shown as a subscript letter next to each count column. If the letters diverge within a unique line, that means that the corresponding categories of that particular question present significantly different proportions of that particular answer (either the 'Yes' or 'No' answers, for example). Each section below shows the results for a given category.

		What is your favorite athletic apparel brand?						χ^2	p
		Lululemon		Nike		Other			
		N	%	N	%	N	%		
Where do you generally purchase your clothing?	Local Thrifts or Second Hand Stores	4_a	14.81%	6_a	12.24%	3_a	30.00%	4.051	0.399
	Online	14_a	51.85%	22_a	44.90%	2_a	20.00%		
	Retail Stores	9_a	33.33%	21_a	42.86%	5_a	50.00%		
If I found the same style product at a store that was more affordable, but a generic brand, I would purchase the cheaper alternative.	False	3_a	11.54%	3_a	6.12%	1_a	10.00%	0.000	0.841
	It Depends/Maybe	14_a	53.85%	25_a	51.02%	4_a	40.00%		
	True	9_a	34.62%	21_a	42.86%	5_a	50.00%		
Would you intentionally purchase ethical clothing if it was widely available and easily accessible?	No or Unsure	5_a	18.52%	12_a	24.49%	1_a	10.00%	0.000	0.551
	Yes	22_a	81.48%	37_a	75.51%	9_a	90.00%		
Do you consider yourself an ethical shopper?	No	6_a	22.22%	16_a	32.65%	2_a	20.00%	2.310	0.679
	Sometimes	12_a	44.44%	22_a	44.90%	4_a	40.00%		
	Yes	9_a	33.33%	11_a	22.45%	4_a	40.00%		
If the former CEO of a company you support made racist remarks in public interviews, as well as offensive comments about women, would you still support this company	No	19_a	70.37%	35_a	71.43%	8_a	80.00%	0.361	0.835
	Yes or Maybe	8_a	29.63%	14_a	28.57%	2_a	20.00%		
Do the beliefs and values of a CEO affect your outlook and loyalty to a brand?	Maybe	7_a	25.93%	10_a	20.41%	2_a	20.00%	1.167	0.884
	No	3_a	11.11%	9_a	18.37%	1_a	10.00%		
	Yes	17_a	62.96%	30_a	61.22%	7_a	70.00%		
Gender	Female	17_a	62.96%	17_b	34.69%	$5_{a,b}$	50.00%	5.712	0.058
	Male	10_a	37.04%	32_b	65.31%	$5_{a,b}$	50.00%		
Age Range	18-24	7_a	25.93%	12_a	25.00%	0^1	0.00%	3.271	0.195
	25+	20_a	74.07%	36_a	75.00%	10^1	100.00%		
What is your household income?	$50,000-$74,000	6_a	22.22%	14_a	28.57%	2_a	20.00%	4.711	0.318
	$75,000+	17_a	62.96%	20_a	40.82%	4_a	40.00%		
	Under $49,000	4_a	14.81%	15_a	30.61%	4_a	40.00%		

Note: Values in the same row and subtable not sharing the same subscript are significantly different at p< 0,10 in the two-sided test of equality for column proportions. Cells with no subscript are not included in the test. Tests assume equal variances.[2]

1. This category is not used in comparisons because its column proportion is equal to zero or one.

2. Tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction.

In the case that a particular level of a category had 5 responses or less, it was merged with other levels of the same category. For example, in the question 'Would you intentionally purchase ethical clothing if it was widely available and easily accessible?', only 5 people (N = 5) answered 'No'. Thus, they were merged with the 'Unsure' responses to create a new category level called 'No or Unsure'. People who preferred Adidas (N =7) were merged with those preferring Under Armor (N = 3) and categorized as 'Other'.

The only significant test considering a 10% significance level ($p < .10$) was observed in gender. The proportion of male who prefer Nike (65.31%) is significantly higher than women (37.04%), $\chi^2 = 5.713$, $p = .058$.

One-way ANOVA

One-way ANOVAs are appropriate tests when scores are compared among between-subjects factors with three or more levels (e.g. three or more groups).

Analysis of variance is so called because it compares the variance (variability in scores) between the different groups (believed to be due to the independent variable) with the variability within each of the groups (believed to be due to chance). An F ratio is calculated, which represents the variance between the groups divided by the variance within the groups. A large F ratio indicates that there is more variability between the groups (caused by the independent variable) than there is within each group (referred to as the error term). A significant F test indicates that we can reject the null hypothesis, which states that the population means are equal. It does not, however, tell us which of the groups differ. For this we need to conduct post-hoc tests (Pallant, 2010).

One of the assumptions that ANOVA models have is that variables' scores follow a normal distribution. It should be noted, however, that ANOVA has been shown to be quite robust for when the assumption of normality is violated (Hair et al., 2014). Nevertheless, significant departs from normality should be taken with care. One of the methods to examine normality is to look at values of skewness and kurtosis. Both values should remain between -1 and 1 to indicate normality. As can be seen in the table below, no values surpass this threshold, which indicates no substantial departs from normality.

Descriptive Statistics

	N	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic
I'm willing to purchase an item of clothing I like, regardless of the price.	87	3.138	1.069	-0.223	-0.425
When shopping for clothes, I look for quality before looking at the price.	87	3.391	1.135	-0.090	-0.928
I prefer affordability over quality.	87	2.609	1.049	0.353	-0.387
I care to know who makes my clothes and where it comes from.	87	2.816	1.234	0.094	-0.991
Valid N (listwise)	87				

The table below shows the results of the ANOVA test comparing Nike, Lululemon and Other brands. Tukey's post-hoc test was used when variances were equal and Tamhane's test was used for unequal variances. Equality of variances was tested using Levene's test prior to the analysis. Variances were unequal among groups for 'I prefer affordability over quality', $F = 5.445$, $p = .006$. Thus, Tamhane's test was used on this case. The coding scheme of all variables were inverted do then the value of 5 represents 'strongly agree' while 1 represents 'strongly disagree'.

	What is your favorite athletic apparel brand?				F	p
	Lululemon	Nike	Other	Total		
	Mean	Mean	Mean	Mean		
I'm willing to purchase an item of clothing I like, regardless of the price.	3.444_a	2.959_a	3.300_a	3.151	1.948	0.149
When shopping for clothes, I look for quality before looking at the price.	3.852_a	3.082_b	$3.700_{a.b}$	3.395	4.761	0.011
I prefer affordability over quality.	2.111_a	2.816_b	$2.900_{a.b}$	2.605	4.714	0.012
I care to know who makes my clothes and where it comes from.	3.074_a	2.571_a	3.300_a	2.814	2.368	0.100

Note: Values in the same row and subtable not sharing the same subscript are significantly different at p< 0,05 in the two-sided test of equality for column means. Cells with no subscript are not included in the test. Tests assume equal variances.[1]

1. Tests are adjusted for all pairwise comparisons within a row of each innermost subtable using the Bonferroni correction.

There was a significant impact of brand preference on the agreement with 'When shopping for clothes, I look for quality before looking at the price', $F(2, 87) = 4.761$, $p = .011$. Post-hoc tests indicate that the difference lies between those who prefer Nike, who have a lower agreement with this statement ($M = 3.082$), compared to those who prefer Lululemon ($M = 3.852$) ($p < .05$).

There was a significant impact of brand preference on the agreement with 'I prefer affordability over quality', $F(2, 87) = 4.714$, $p = .012$. Again, the significant difference is

between Lululemon (M = 2.111) and Nike (M = 2.816). There are no significant differences for the agreement with the other two statements.

References

Hair, J. F., Black, W., Babin, B., & Anderson, R. (2014). *Multivariate data analysis* (Seventh). Pearson Education, Inc.

Pallant, J. (2010). *SPSS Survival Manual* (4th ed.). McGraw-Hill.