USHSLA Data Analysis

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Overview

This document represents an analysis of data collected as part of a research project exploring the sustainability of supply chains for different leather products and how this relates to the needs, wants and perceptions of consumers. The research has been carried out by the University of Northampton's Institute for Social Innovation and Impact (ISII) supported by the University's Institute for Creative Leather Technologies (ICLT), and the research aims and tools were developed in partnership with the United States Hide, Skin and Leather Association (USHSLA).

Research Aims

Specifically, the research sought to explore consumer perceptions and attitudes towards sustainability in the leather supply-chain, so as to better understand the issues that were most important to consumers. In order to do so the research team developed the below four research questions:

1. What are the demographic variables that predict consumer behaviour in relation to leather products? Specifically, but not necessarily exclusively:
    a. Gender
    b. Age
    c. Household income
    d. Spending habits

e. Social media use

2. What factors affect decision-making in the purchasing of leather goods, notably:

        a. Durability

        b. Status

        c. Sustainability/environmental impact

3. How do consumers view synthetic and leather goods in comparison, in relation to:

        a. Quality

        b. Affordability

        c. Sustainability/environmental impact

4. How do consumers currently access information about the sustainability of the leather goods that they buy?

        a. Would they be interested in a sustainability 'kite mark' for leather products?

Methodology

Design:

The research adopted a quantitative methodology in which data was gathered from consumers across five countries (United Kingdom, France, Germany, Italy and Spain) through an online survey instrument developed for the task and hosted online through the Zoho Survey platform (www.zoho.com) (a copy of the survey in English is included in the appendices). The survey link was then administered by Innovate (www.innovatemr/com), a research organisation that can access consumer panels for survey completion to aid response-rates, and whom charge a fixed fee per completed survey. This approach enabled the research to target a high sample-size, with an indicative target of 500 responses per country. All data was analysed in SPSS v22.0[1] with the tests utilised including: descriptive statistics (mean, median, standard deviation, minimums and maximums), one-way ANOVAs and cross-tabulation (chi-squared tests).

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[1] This is IBM's Statistical Package for the Social Sciences, a common analysis tool within the Higher Education sector, and a well-used tool in academic research (see www.ibm.com/SPSS).

Sample:

Responses were received from a total of 4,388 participants across the five countries, and of these 2,566 had completed the full survey. For the 1,822 that had not completed the survey, 1,685 had answered 'No' to the question of whether they ever bought leather products (if participants answered 'No' to this question they did not complete the rest of the survey); whilst 137 had identified as a leather buyer, but had not gone on to finish the survey. In addition, 6 respondents had not identified their country of origin, and so were removed from the datasets as part of the data cleaning process, leaving a total sample-size of 2,560. Whilst some comparison between leather buyers and non-leather buyers is carried out below, the bulk of the data analysis will utilise only these 2,560 individuals who had both confirmed they were leather buyers and had completed the full survey.

Sample Analysis

When analysing potential differences between the demographic data provided by leather buyers and non-leather buyers, Pearson chi-squared cross-tabulation[2] tests highly statistically significant differences were identified in relation to: country of residence ($p < .001$; $\chi^2 = 80.6$); gender ($p < .001$; $\chi^2 = 15.0$); tendency to online shop (non-food items) ($p < .001$; $\chi^2 = 178.2$); and a tendency to buy organic food ($p < .001$; $\chi^2 = 173.0$)[3]. Key highlights from these trends are:

- **Country of Origin:** the data revealed that there was a greater proportion of non-leather buyers in Spain (28%) and Germany (22.4%), than in the UK (11.6%) and France (17.1%). Italy was the median country with 20.9% of non-leather buyers.

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[2] Pearson Chi-Square test is used to investigate whether among two variables there is a significant relationship. For the chi-square test, the null hypothesis assumes a lack of relationship between the two variables, whilst the alternative hypothesis assumes that there is a relationship between the two variables.

[3] Statistical significance (p) relates to the probability that a trend identified in the data is merely a chance occurrence and not actually a population-wide phenomenon. In this research the value set to for statistical significance is .05, which denotes that for us to report a finding as significant there is a less than 5% chance that the result is a random chance effect in the data. Values of $p < .01$ and $p < .001$ denote 1% and 0.1% chances respectively.

- **Gender:** the data revealed that females (55.4%) were more likely to be non-leather buyers than males (44%)[4] (the gender split amongst leather buyers was 49.5% female / 50% male)[5].

- **Online Shopping:** the data revealed that leather buyers were more likely to engage in online shopping (non-food purchases) than individuals who do not buy leather. Indeed, the proportion of non-leather buyers that never shopped online was 15.5%, compared with just 5.6% of leather buyers. Conversely, for those individuals who shopped online very frequently, leather buyers (48.6%) were much more likely to do most/all of their non-food shopping online, compared to non-leather buyers (33.2%).

- **Organic Food:** Leather buyers were more likely to purchase organic food (87.4%) than non-leather buyers (71.9%). Indeed, if the sample was simply dichotomised into Yes/No for purchasing organic food[6], then the contrast was starker, with only one-third (33.9%) of non-leather buyers purchasing organic food, compared to two-thirds (66.1%) of leather buyers ($p < .001$; $\chi^2 = 146.2$). If the odds ratio is calculated for this difference from the Chi-squared data, then it shows that leather buyers are 2.71x more likely to buy organic food than non-leather buyers.

In addition, one-way ANOVAs[7] were also conducted in order to explore differences between non-leather buyers and leather buyers in relation to age and household income. The data revealed a statistically significant difference ($p < .05$; F = 5.8) for age (albeit it not a large gap); and a non-statistically significant difference ($p = .11$; F = 2.5)[8] for household income (albeit the difference in income between leather buyers and non-leather buyers was still large). Specifically:

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[4] 9 individuals identified as transgender accounting for the 0.6% remaining sample.

[5] In this group, 13 individuals identified as transgender, accounting for 0.5% of the sample.

[6] Those participants that responded 'Yes if it is the same price' were excluded from the analysis during the dichotomisation, as this was considered a price issue rather than a values one.

[7] Analysis of Variance (ANOVA) is a statistical test that is used to compare average scores (means) across more than two conditions (Field, 2009: 348).

[8] This data is still reported here as it represents an interesting trend and there remains only an 11% chance that the result is random. Whilst below the academic threshold of 5%, this still represents a probability worth acknowledging in a commercial report.

- **Age:** The average age of non-leather buyers was 34 years and for leather buyers 35 years).
- **Income:** The average household income for non-leather buyers was €24,661 whilst for leather buyers it was €38,057.

The data reported above therefore reveals that there are significant differences between non-leather buyers and leather buyers, with the latter being on average older, wealthier and more likely to buy organic food and shop online. Furthermore, for this sample they are more likely to reside in the UK and France, and also to be male (although the differences here are not so glaring). The analysis will now explore relationship and demography in the dataset for those individuals who identified as leather buyers and completed the full survey (n=2,560).

Leather Buyers

Overview:

For leather buyers, the sample was evenly split cross the five countries (this was by design, as Innovate were asked to secure 500 responses per country). The sample in each country equated to the below numbers and the final breakdown of country responses is presented below in Figure 1.
- UK = 520 respondents
- France = 504 respondents
- Germany = 508 respondents
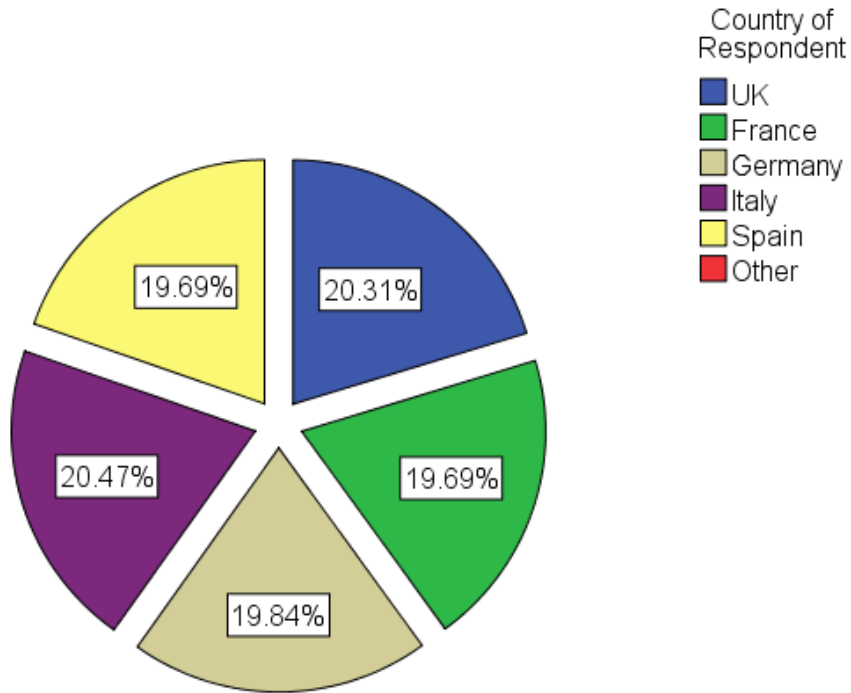- Italy = 524 respondents
- Spain = 504 respondents

Figure 1 – Breakdown by Country

In addition, the gender split was also (as was reported above) very even, with 1,265 females, 1,282 males, and 13 transgender individuals. Figure 2 outlines these results.
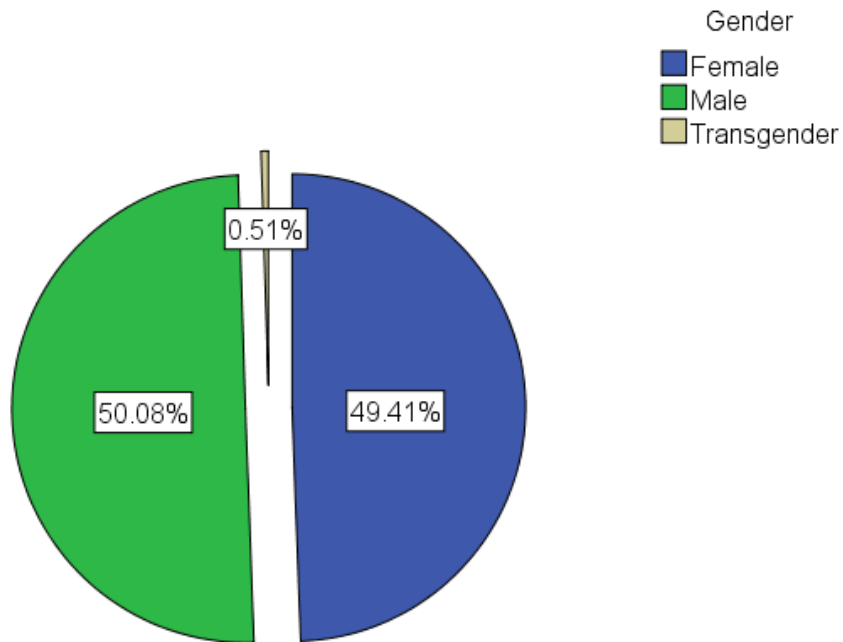
Gender
- ■ Female
- ■ Male
- ■ Transgender

0.51%

50.08%   49.41%

Figure 2 – Breakdown by Gender

Purchasing Factors:

Respondents were asked to 'rank the factors that affect your buying decisions for leather products' in relation to 11 key areas. The ranking was completed on a 5-point Likert scale that ranged from 1 = Least important, to 5 = Extremely important. The data reveals that the three most significant factors in consumer purchases of leather were: price ($\bar{x}$ = 3.75); durability ($\bar{x}$ = 3.70) and design ($\bar{x}$ = 3.61). The least important three factors were: brand ($\bar{x}$ = 2.88); leather as a symbol of luxury ($\bar{x}$ = 2.95), and the country that the leather originated ($\bar{x}$ = 3.01). Figure 3 below illustrates the findings for all 11 factors.
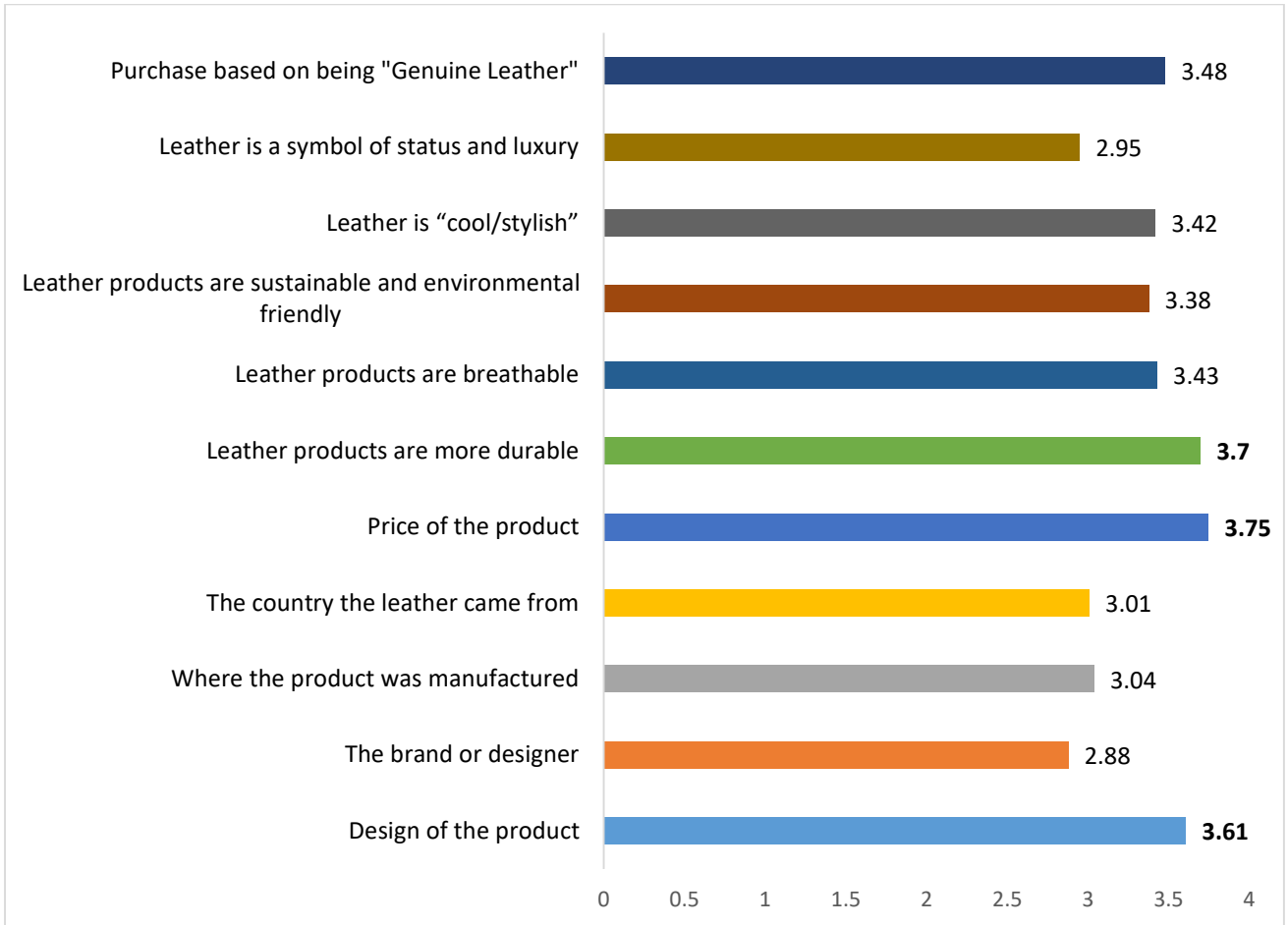
Figure 3 – Purchasing Factors for Leather

These factors were also explored in relation to the demographic variables, so as to identify key relationships within the data. Statistically significant relationships were found between country of origin and *all* of the factors outlined above. Indeed, Southern European countries (France, Spain and Italy) tended to rank certain factors higher than their Northern counterparts (UK and Germany). The sample was dichotomised into Northern and Southern geographies and the data revealed large statistically significant differences in relation to (also see Figure 4):

- **Status Symbols:** Southern European respondents were more likely to see leather items as status symbols in relation to perceived: status/luxury (+.33; $p < .001$; F = 47.2); 'cool/stylish' (+.44; $p < .001$; F = 108.0); and brand value (+.44; $p < .001$; F = 101.0) as important factors.

- **Origin:** Southern European respondents were also more likely to rank where the leather originated (+.46; $p < .001$; F = 113.5) and where the leather product was manufactured (+.43; $p < .001$; F = 103.5) as important factors.

- **Durability:** Southern European respondents were also more likely to rank the factor that leather is a durable product than their Northern European counterparts (+.32; $p < .001$; F = 75.8).
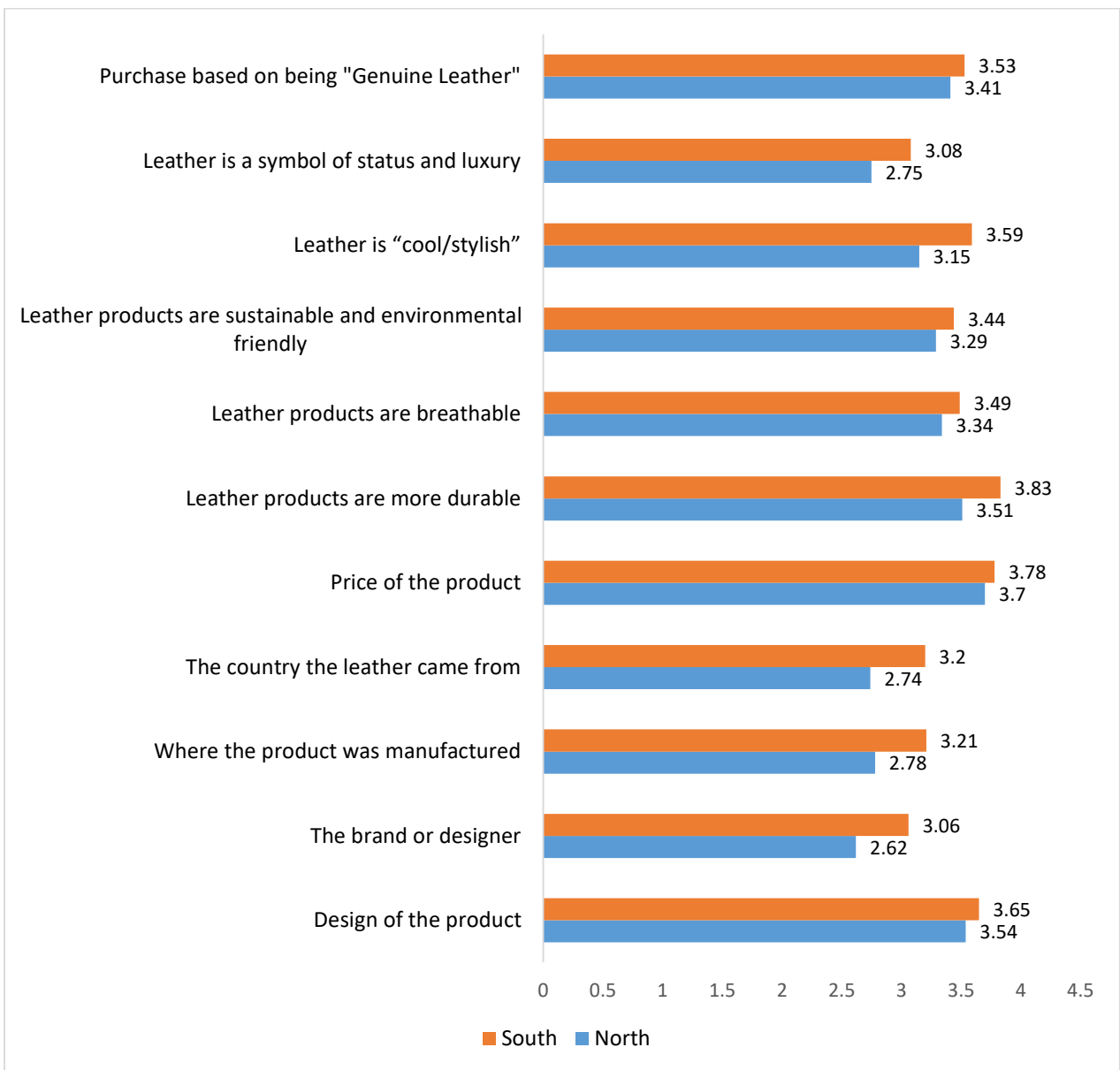

Figure 4 – North versus South Purchasing Factors for Leather

In relation to gender differences, there was little difference in the factor rankings of males and females, albeit males were more likely to see brand/designer (+.21; $p < .001$; F = 16.3); leather as cool/stylish (+.15; $p < .001$; F = 7.09); and leather as a symbol of status and luxury (+.27; $p < .001$; F = 17.6), as more important than females. No relationships were identified between age and household income, and the above 11 factors[9].

Finally, respondents were also asked to state the number of leather products that they would purchase over the next 12 months. The data reveals that on average participants will buy 4.69 leather products over the next year (median value of 3 items). This data was explored in relation to age; gender; household income and country of origin. One-way ANOVAs did identify a significant relationship between country of origin and the purchasing of leather items, with German (5.2), Italian (5.5) and Spanish (5.2) respondents seeking to purchase significantly more leather goods than UK (3.8) and French (3.8) participants ($p < .001$; F = 8.5). One-way ANOVAs revealed no significant relationships in relation to: gender or European location (North versus South); whilst bivariate correlations revealed statistically significant, but nevertheless negligible (i.e. weak) correlations between age ($R^2 = -.06$; $p < .01$) and household income ($R^2 = -.09$; $p < .01$)[10].

Synthetic Products:

Respondents were also asked to state what motivates them to buy synthetic goods. Respondents were provided four statements to choose from and they could select as many as they felt applied. The data reveals that price (41% of responses) is the largest factor in the decision to purchase synthetic goods, whilst there is a relatively even split between the other three factors (versatility; sustainability; and maintenance). Figure 5 below illustrates the findings:

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[9] Bivariate correlations were used to explore these scale factor relationships [Pearson's Correlation Coefficient (R^2)].

[10] Cohen (1988) states that an effect size of less than $R^2 = 0.2$ is negligible. Therefore, whilst the analysis produces statistically significant results, the correlation is considered extremely weak and so no significant relationship is reported.
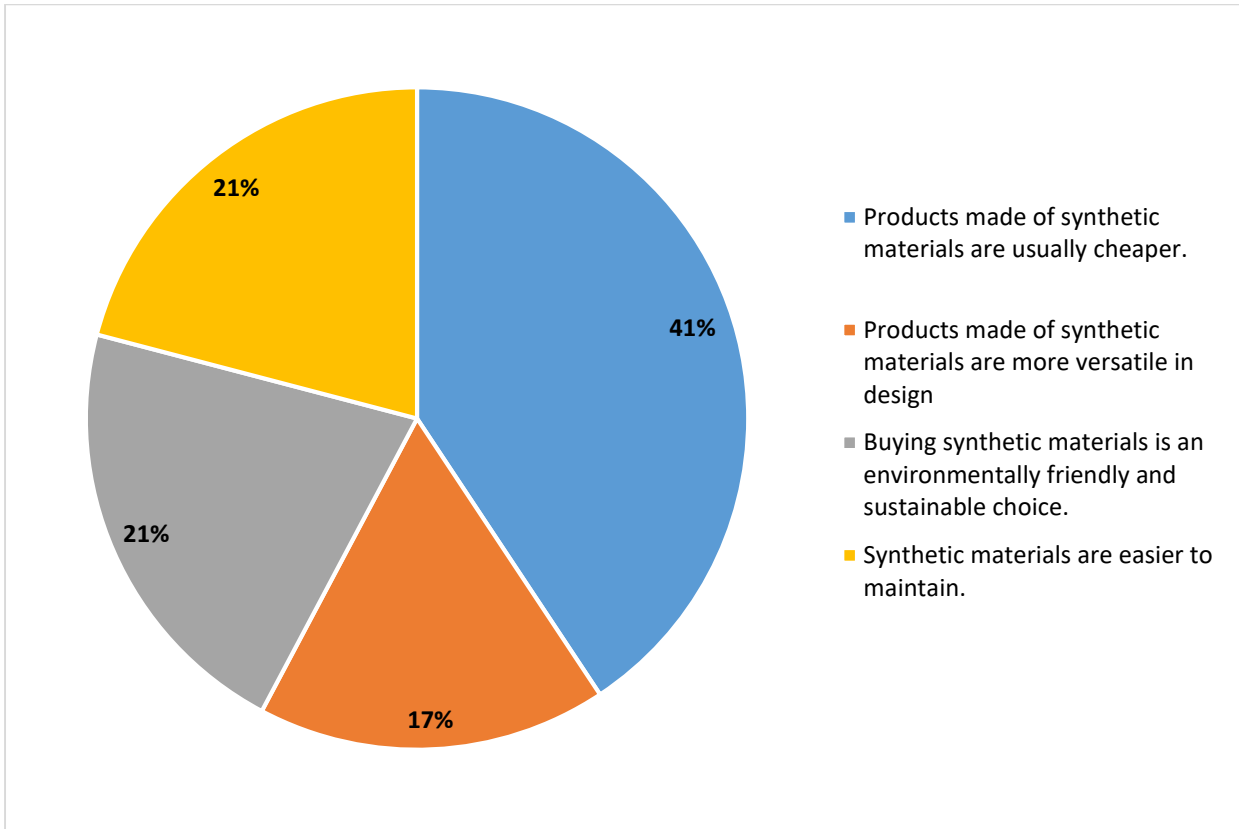
Figure 5 – Motivations for Purchasing Synthetic Products

Legend:
- Products made of synthetic materials are usually cheaper.
- Products made of synthetic materials are more versatile in design
- Buying synthetic materials is an environmentally friendly and sustainable choice.
- Synthetic materials are easier to maintain.

Values: 41%, 17%, 21%, 21%

Perceptions of Leather:

Respondents were also asked to rank their perceptions of leather in relation to style, sustainability and environmental factors, and quality. The answers were coded on a 5-point Likert scale ranging from 1 = Strongly disagree to 5 = Strongly agree. The analysis reveals that the participants 'somewhat agreed' (median = 4) with the statements identifying leather as sustainable and durable, as well believing that innovations can reduce the environmental footprint of leather production. In addition, participants also felt that leather quality was determined by the location it was sourced. Participants had no opinion in relation to leather portraying both status and style, or being biodegradable. Figure 6 below outlines these findings.
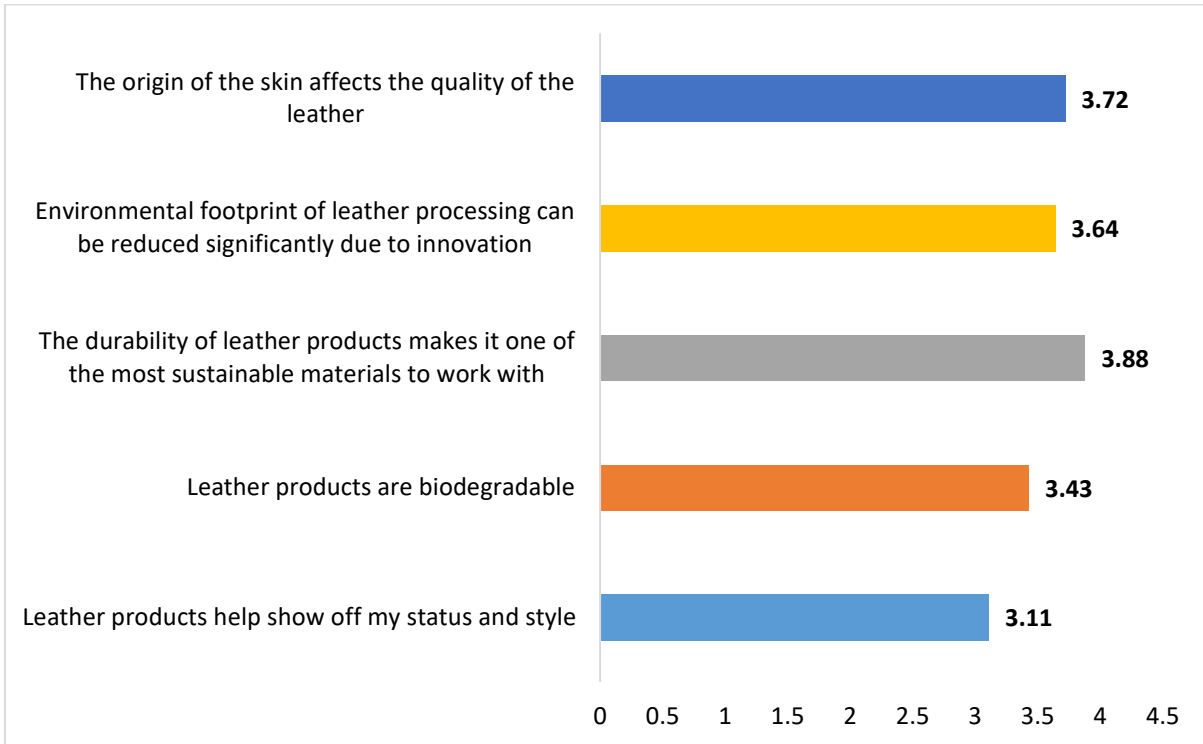
Figure 6 – Respondent Perceptions of Leather

Analysis was also undertaken to explore differences between the responses to these statements, and demographic variables such as age, gender, household income and country of origin. One-way ANOVAs revealed no large statistically significant results in relation to: country of origin (either across the five countries or dichotomised into North and South Europe); or gender. Bivariate correlations also revealed no relationship between household income and the above statements; whilst in relation to age and the above statements statistically weak correlations were identified in relation: the biodegradability of leather ($R^2 = -.08$; $p < .01$); durability of leather and sustainability ($R^2 = -.08$; $p < .01$); innovations' role in the environmental footprint of leather ($R^2 = -.05$; $p < .01$); and the quality of the hide being related to its origin ($R^2 = -.10$; $p < .01$) [11].

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[11] As noted earlier, Cohen (1988) states that an effect size of less than $R^2 = 0.2$ is negligible. Therefore, whilst the analysis produces statistically significant results, the correlation is considered extremely weak and so no significant relationship is reported.

Environmental Sustainability:

The respondents were also asked to rank what they considered to make a product environmentally friendly, in relation to five key factors: recyclable materials; minimum use of chemicals/toxins; reduced pollution in production; use of natural materials and biodegradability; and reusability. They could not rank variables the same, and so they had to decide which statement they believed to be the most important (and which statement they believed to be the least important. The data analysis reveals that the most important factor was minimal use of chemicals and toxins (2.27), whilst the least important factor was recyclability (3.85)[12]. Figure 7 below outlines these findings:
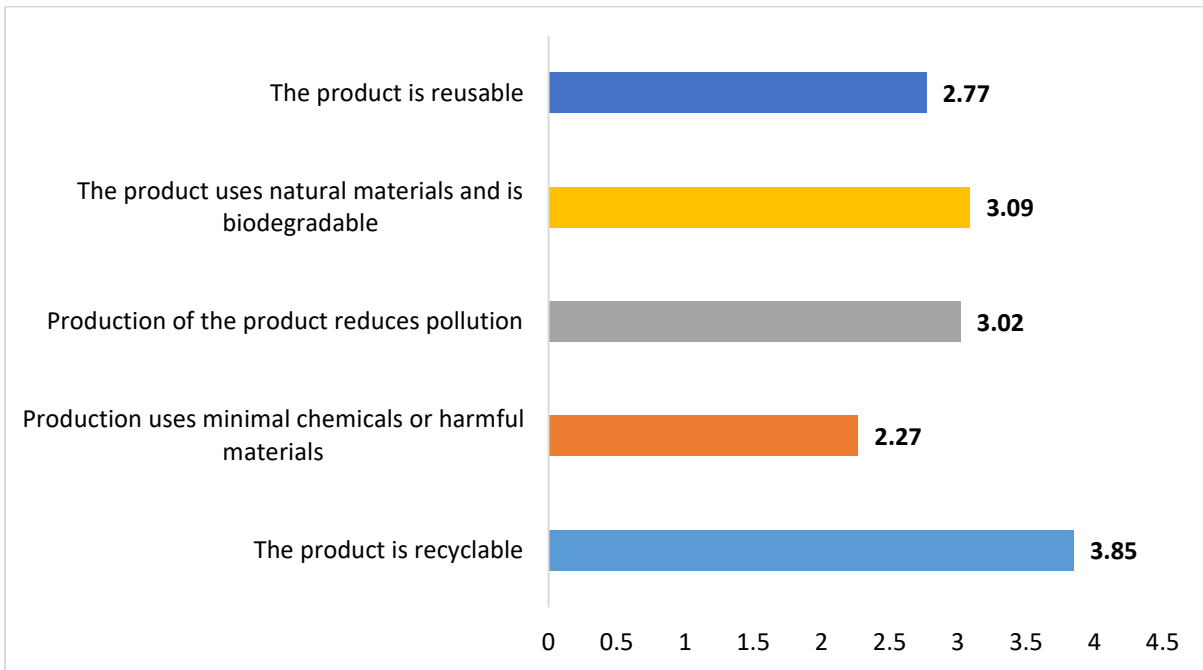

Figure 7 – What Constitutes Product Environmental Sustainability

Participants were also asked to rank their main sustainability concerns in relation to seven key areas: animal welfare; labour rights; use of unapproved chemicals; general environmental contamination; air quality; water pollution; and soil contamination[13]. The data reveals that

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[12] As respondents were asked to rank their most important factor as 1, here the lower scores represent higher priority.
[13] As respondents were asked to rank their most important factor as 1, here the lower scores represent higher priority.

respondents placed environmental concerns above human and animal concerns, with air and water quality being their main concerns. Figure 8 below outlines these results:
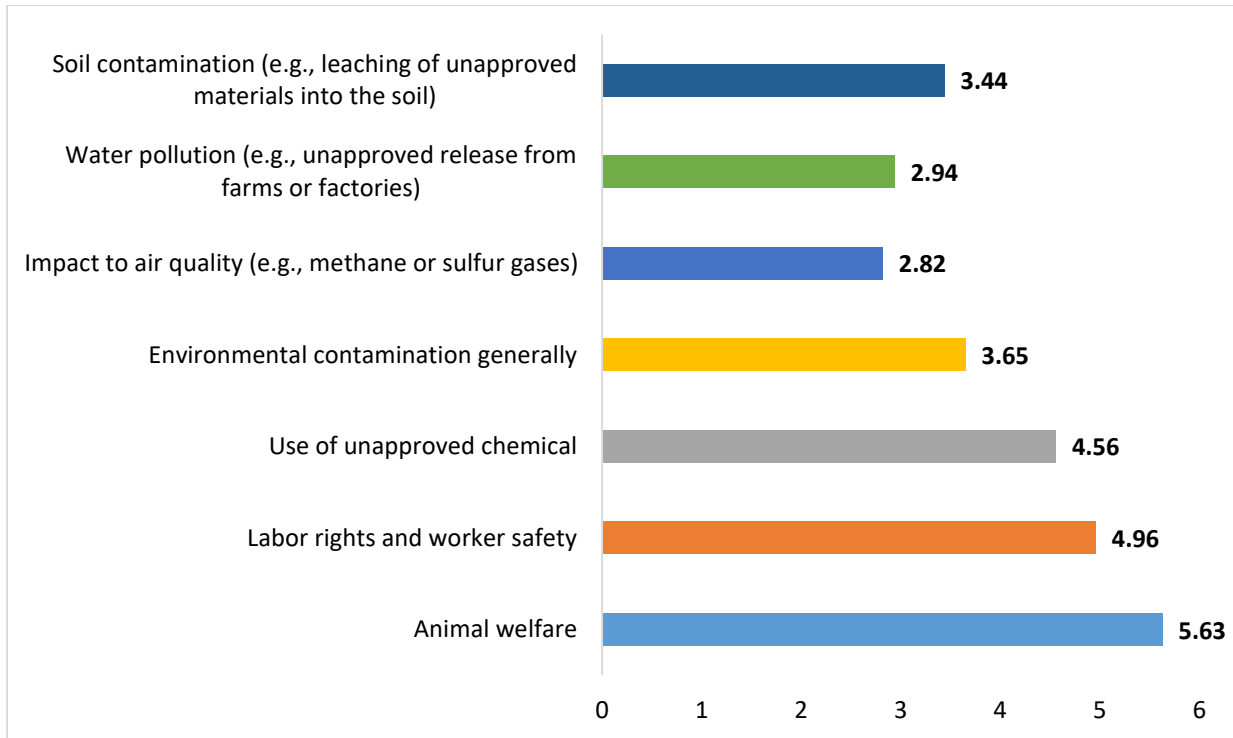

Figure 8 – Ranking of Sustainability Concerns

The above data was also analysed using one-way ANOVAs to explore any potential differences in relation to demographic variables. In respect of gender, females were more concerned about air quality (Females = 2.78; Males = 2.84), whilst males were more concerned with water quality (Females = 3.09; Males = 2.80), albeit only the latter difference was statistically significant ($p < .001$). In relation to geographic location there was a greater priority apportioned to animal welfare in the UK (4.89) than in the other European countries, most notably Germany (6.02) and France (5.91) ($p < .001$). There were no large significant differences in the rankings between Northern and Southern Europe. Correlational analysis also demonstrated that there was no relationship between sustainability concerns and household income.

Participants were asked if they would be prepared to pay more for sustainable leather products as a percentage of a standard leather product equivalent (ranging from 0-100%). The data gathered reveals that on average consumers would be prepared to pay 22% more (median value of 15% more), with a standard deviation of 20% suggesting that approximately two-thirds of respondents are willing to pay between 2-42% more for sustainably produced products. One-way ANOVAs revealed no relationships between a willingness to pay more and variables including gender, country of origin, or Northern/Southern Europe. Additionally, correlational analysis demonstrated that there was no relationship between age, household income and willingness to pay more.

Leather Knowledge and Kite-marks:

The survey respondents were also asked to state their preferred methods for receiving knowledge about the leather sector and were given six options (of which they could select as many as applied – the average number selected by respondents was 1.7). Figure 9 below illustrates the results:
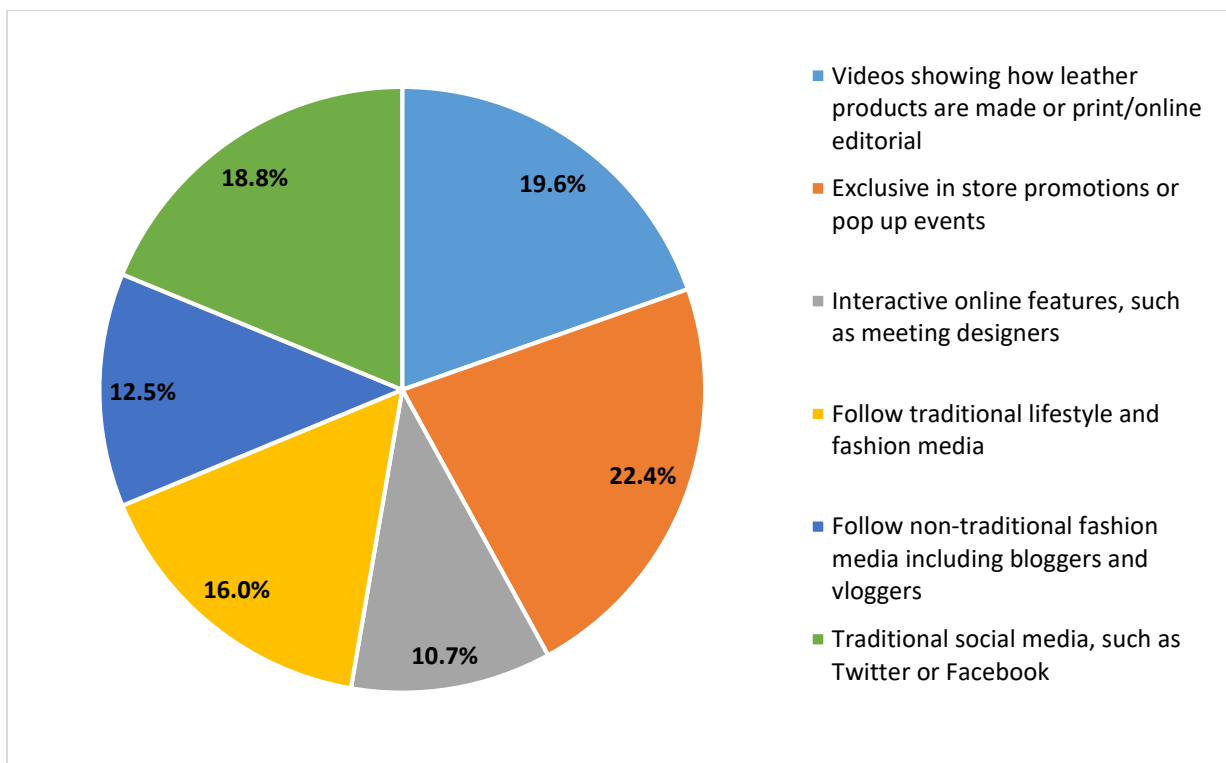

Figure 9 – Participants Preferred Sources of Leather Knowledge

The data reveals that there was a very even split in opinion across the different factors, with in-store promotions being the most popular choice (N = 966; 22.4%), with the least popular method of dissemination being online interactive features (N = 462; 10.7%). Participants were also asked whether they were aware of the USHSLA leather kite-mark and whether they felt that sustainability kite-marks were useful. Figures 10 and 11 illustrate these results below:
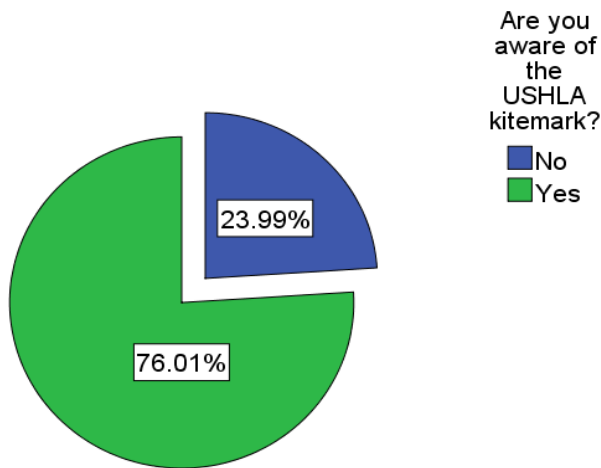

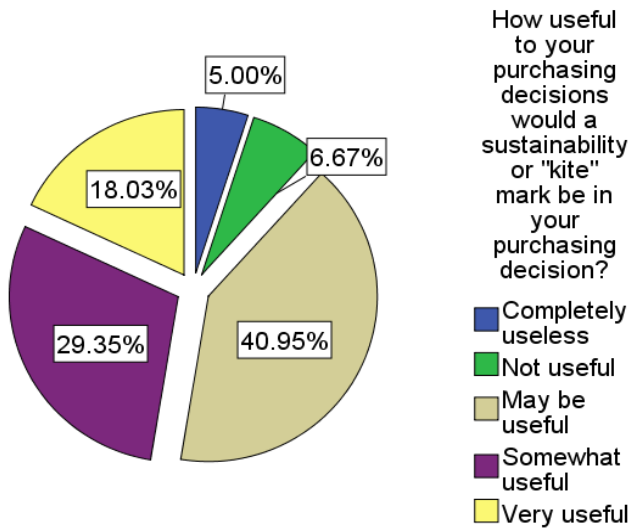*Figure 10 – Awareness of USHSLA Kite-mark*

Figure 11 – Usefulness of the Sustainability Kite-mark

The data reveals that there was a high degree of awareness amongst the consumers in relation to the USHSLA's kite-mark. Participants were also generally supportive about the usefulness of a sustainability kite-mark, with only 11.68% feeling that such a mark of sustainability would not be useful. Nearly one-fifth of the respondents felt that a kite-mark would be very useful, whilst over two-thirds felt that it may be useful or was somewhat useful. The data for both key sustainability concern and perceived kite-mark usefulness was recoded, with the former being turned into a per-participant variable that only highlighted their number one concern, whilst the latter was recoded into those that felt a kite-mark would not be useful (those who responded 'completely useless' or 'useless') and those who felt it would be useful (those who responded 'somewhat useful' or 'very useful'). Respondents who responded 'may be useful' were excluded from this analysis as being undecided. The data reveals that participants who states that animal welfare was their primary sustainability concern, were more positive towards a sustainability kite-mark (94% of this group thought a kite-mark would be useful). The least positive towards the sustainability kite-mark were those for whom water pollution was the key concern (72% of this group thought a kite-mark would be useful). Figure 12 below outlines this data:
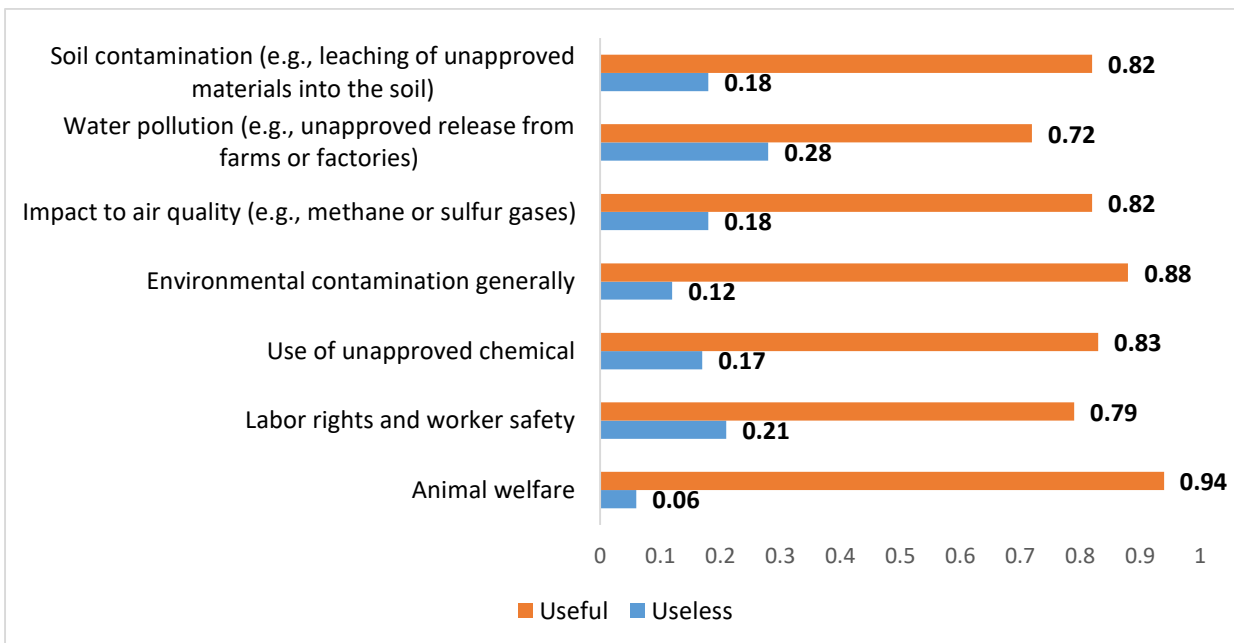

Figure 12 – Key Sustainability Concerns versus Perceived Usefulness of Sustainability Kitemark

Finally, relationships between some of the dependent variables gathered through the survey were explored using correlational analysis; notably between the following variables: factors affecting leather goods buying decisions; factors affecting decisions to purchase synthetic products; perceptions of leather goods; and key sustainability concerns; willingness to spend more for sustainable leather goods; the number of leather goods to be purchased in the future; and the perception of the usefulness of a sustainability kite-mark in the leather sector. However, no statistically significant correlations were identified in the data[14].

Summary

The data presented within this analysis section has demonstrated some interesting trends in relation to the perceptions, decision-making and attitudes of leather goods consumers. The significant sample-size gained from the online survey (N = 2,560) alongside the demographic spread (nationality; age; household income; frequency of leather purchases) means that significant confidence can be had in relation to the generalisability of the sample (albeit in research one always wishes for larger sample-sizes). In summary, the data identifies the following key trends:

- **Purchasing:** A number of interesting trends were identified here in relation to factors behind purchasing decisions and purchasing habits, notably:
  - *Decisions:* The three most significant factors in consumer purchases of leather were price, durability (this was even more important in France, Italy and Spain), and design.
  - *Geography:* Southern European consumers (France, Italy and Spain) were more likely to see the origin of the leather and leather as a status symbol as important purchasing factors.

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[14] Only those relationships that were identified as being statistically significant ($p < .05$) and with at least a small effect size ($R^2 > 0.3$) would have been reported here. However, there were no correlations that met these criteria.

- **Gender:** Males are more likely to factor in <u>brand</u> and <u>leather as a status symbol</u> when purchasing goods than females.
- **Purchasing Habits:** Respondents are seeking on average to <u>purchase nearly 5 leather items</u> in the next 12 months, albeit Germans, Italians and Spanish (5 leather items) are looking to purchase more than their British and French counterparts (4 leather goods).

- **Synthetic Motivations:** In relation to the motivations to purchase synthetic goods as opposed to genuine leather goods, the <u>main motivating factor for consumers was price</u>.

- **Perceptions of Leather:** Consumers felt that <u>leather's durability</u> made it a sustainable product, whilst the sustainability was also affected by both the <u>origin of the leather hide</u> and the level of <u>innovation in the production process</u>.

- **Sustainability:** A number of key trends were identified in relation to consumer perceptions of sustainability in general, notably:
  - **Product Sustainability:** <u>Minimal use of chemicals</u> was seen as the most important factor in production sustainability; whilst the least important was <u>recyclability</u>.
  - **Key Sustainability Factors:** Consumers believed that <u>air and water quality</u> were the most important sustainability factors, with <u>human (rights and worker safety)</u> and <u>animal welfare</u> viewed as the least important.
  - **Price Points:** Respondents stated that on average they would be prepared to pay <u>15%</u>[15] more for sustainably produced leather goods.

- **Leather Knowledge:** Participants had no significantly preferred route for obtaining information about the leather industry, albeit <u>in-store promotions and information</u> scored the highest.

- **Kite-marks:** There was a generally <u>positive attitude to kite-marks</u> in the leather industry, and knowledge of existing kite-marks, notably:
  - **USHSLA Kite-mark:** There was a high level of awareness of this kite-mark with <u>three-quarters of consumers</u> being aware of it.

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[15] The median value is used here, as it is less skewed by outliers in the data.

- o *Kite-mark Usefulness:* Nearly <u>half of consumers</u> felt that kite-marks were useful, whilst only 12% stated that they were not (41% were undecided).
- o *Sustainability Concerns:* Consumers for whom <u>animal welfare</u> was their primary concern were more likely to view a kite-mark positively (94% positive), with consumers whose primary concern was <u>water pollution</u> being the least likely (72% positive).

The data presented in this report has provided some interesting insights into consumer perceptions of the leather supply-chain. Indeed, the data reveals that the leather consumer sector is in many ways heterogeneous, with a variety of different trends, values and perceptions emerging amongst the consumer group. Further research, preferably of a qualitative nature, with a sub-group of consumers would be helpful in seeking to tease out these reasons behind some of the trends to emerge from this data. In addition, research amongst consumers in different geographical markets around the world (i.e. non-European) would also provide further insights. Nevertheless, the data here presents some interesting findings, and raises further questions, as to the role that sustainability can play in the leather supply-chain.

References

1. Cohen, J., (1988), Statistical power analysis for the behavioral sciences (2nd ed.), Hillsdale, NJ: Lawrence Earlbaum Associates.
2. Field, A., (2009), *Discovering Statistics using SPSS*, 3rd Edition, Sage Publications, London.