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Master's Thesis

The relationship between form as momentary experience and user characteristics in online shopping

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The relationship between form as momentary experience and user characteristics in online shopping

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Executive Summary

Today, the online market is showing an increasing growth. One of the characteristics of the online market is that it is so dependent on the visual aspect that, the appearance is more influential to the consumer. Another is that the same products are being sold across countries. Considering customers are not identical in terms of user characteristics, it may not be ideal to sell a product in one form. Therefore, the study attempted to find out how the form is differently perceived according to user characteristics such as culture, age, and gender.

In order to identify the cultural characteristic in form preference, three countries, the United States, South Korea, and Germany were selected, that represents North America, Asia, and Europe respectively and have distinctive characteristics according to, the Hofstede cultural dimension. An online survey was also conducted with 177 online shoppers whose 27 and 53 years old: 50 Americans(25 males and 25 females), 77 South Koreans (29 males and 48 females), and German(25 males and 25 females).

Three types of form were defined according to the relations between function and use context: stereotypical form, appearance metaphorical form, and context-driven metaphorical form.

Among, 20 consumer products having the three types of form and at the same time being sold in the online market, five product types (pencil sharpener, ladle, luggage tag, chopstick rest, and knife sharpener) were finally chosen by using four designer's intercoder reliability as stimuli for the survey. The products were further classified into two categories regarding culture: the culturally dependent product and culturally independent product.

A pair comparison method was adopted in which the 15 product images were pairwise compared to find out which form is preferred and in which way it is perceived in terms of user experience.

The overall finding indicates that context-driven metaphorical form was most preferred regardless of cultural background. The reason behind was that context-driven metaphorical form is perceived as aesthetically pleasing. However, perceived experiences varied between countries. Germany preferred more in functional form, South Korean was more in form delivering more personal value, and Americans preferred form related more to functional and personal value. However, Stereotypical product as a most functional product has no objection from three countries. Even with this result, the functional experience did not lead to the purchasing product in online shopping. Also, the overall preferred product seems to have aesthetic and value experience almost identical. Demographic variables such as age and gender have no influence in form preference.

From the findings are considered in design-driven marketing for a particular cultural group, it would help more competitive in the online market.

Keywords: form, functional form, appearance-metaphorical form, and context-driven metaphorical form, momentary experience, online shopping



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I. Introduction

Online shopping industry is one of the most rapidly expanding enterprises worldwide. (Statista, 2018) Statistical evidence shows an annual 20% increase in the industry's generated revenue from the year 2014 to 2017. (Statista, 2018) It is estimated that the market will continue to expand even further in the upcoming year.

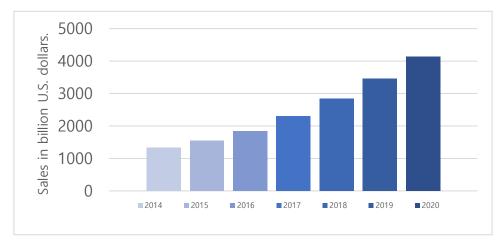


Figure 1 Retail. e-commerce sale worldwide from 2014 to 2020(Statista, 2018)

Unlike the conventional retail commerce, the online market consumers tend to rely on visual representation more heavily compared to regular shoppers. Due to limitations in examining the product prior to purchase, making the products visual appeal and representation essential to the industry. (Bloch, 1995) Therefore, the importance of the products visual attractiveness cannot be overstated. (Crilly, Moultrie, & Clarkson, 2004). Another advantage of online shopping is easy accessibility to foreign products. People from around the world can conveniently buy commodities globally thanks to advancements in technology. In fact, as the world is becoming more and more interconnected via social media and other online platforms, a new tendency to buy the same product can be seen across different nations. That is why online platforms are selling the exact same products without taking into account the buyer's unique characteristics. Therefore, the objective of this thesis is to identify how the preference of form is different depending on differences in user characteristics such as culture, age, and gender.

Previous research centered around the preferred design format and did not take into account the cultural influence of the buyer. Cultural influence plays a significant role in the buyer's decision-making process, yet not many studies show the correlation between the design form and cultural impact. In fact, culture has great influence in all aspects of human life (Wu, 2011). The basic definition of culture is "the way we do things around here" (Deal & Kennedy, 1982). A group of emotion has created culture. (Quernheim, 2017). The significance of cultural influence can be observed from the different interpretations of the same colors globally. For example, eastern and western countries view daily products like the fork and knife differently. Therefore, it is essential of understand the influence of culture and form on momentary experience. Another vital aspect to take into account is the design induced emotional response in the consumer. Research



shows that when people decide to buy the product, emotions play a central role in the decision-making process(Damasio, 2000). That is why, products that appear to be entertaining are used more regularly than products that do not (Jordan, 1998). Therefore, defining what part of the product affects the momentary experience and make purchasing decisions is essential for increasing the products expediency.

1.1. Purchasing process and momentary experience

The online purchasing process often starts with people searching for existing products online, using internet surfing platforms, social media sites and advertisements. In this step, the importance of visual representation is most evident. The last step is the purchasing process. It based on the evaluation of each product by checking other customer reviews. Or by the value of the brand name itself.

People tend to rationalize their emotional decisions before purchasing the product. (Damasio, 2005)(see figure 2.) evidence prove that emotional decision-making is 3000 times faster than the rational response (Adcock, 2015). So emotions have a significant impact on whether it is negative or positive, but after it tranquilized, negative emotions do not end up repurchases the product. On the contrary, positive emotions to provide a positive effect on the consumer. In this research are mainly focus on positive emotion such as pleasurable emotion. Since visual factors heavily influence emotions, product form is focused on perceiving visual elements. The visual information that people receive includes their preference, cultural influence, and form. Therefore, we can say that people buy according to their feelings towards a product and not because of the product value. (Robbin, 2016)



Figure 2. The emotion that drives customer shopping and buying decisions (Smith, 2014)



Figure 3. General Purchasing process



1.2. Shoppers characteristics

1.2.1. Age

The critical age groups of Internet shoppers range from 17-74. The generation that shows the highest purchase rate was given the term generation X (GenX). In the united states and Germany alone members of GenX account for 34% of the online shopping population. Regional statistics also indicate that age range of generation x differs from one nation to another.(Kasasa, 2018) As can be seen in the statistics, the purchasing rate of GenX in Europe, United States and Korea significantly contributed to the economic growth of this industry.

1.2.2. Gender

Gender difference regarding shopping preference and behavior differ on many levels (Nair & Rathor, 2012). Thus, differences among buying behaviors of the male and female consumers are to study in multiple contexts. Moreover, females are more tending to order without planning (Kraft & Weber, 2012). Some study proves that female consumers are more inclined to unplanned buying(Kollat & Willett, 1967). This research may show that there would be a difference in the preference of purchasing product.

1.2.3. Cultural Influence

Culture can be perceived as the manifestation of human feelings. (Quernheim, 2017) an infant can only distinguish pleasant and unpleasant feelings. Parental influence is what defines a child's perceptions and emotions. (Publications, 2017). Culture teaches people what is right and wrong and shapes how people think. A good cultural example would be how different countries interpret same colors. Chinese people for instance, think the color red represents joy and fortune; however, in some parts of Africa, red represents death. (Bortoli & Maroto, 2001) Therefore, color can have an entirely different meaning to the people depending on their country of origin. Similarly, in Korea, the aesthetical appeal is culturally more relevant. As can be pointed out in this Korean proverb "Other things being equal, choose the aesthetically better one." Therefore, an extensive cultural study about different perceptions is needed before introducing a certain product to that market. (Abdin, 2008).

2. Method

First glance matters! Upon first encounter, consumers are attracted to the outer form and overall design of the product. (Fishwick, 2004). Unorthodox products; products that are unfamiliar to the buyer, are bought less frequently. Similarly, products that are too familiar to the user tend to lose the interest of the buyer, resulting in similar loss of revenue. (Eyal, 2014). That is why, markets often seek products that have a familiar form to preexisting goods. (Bloch, 1995). Metaphor design is one of the methods to achieve that. Metaphor design stands for a collection of user interface visuals, actions, and procedures that utilize a distinct understanding that users already have of other domains. (Chung, 2015). Metaphor expression can be done in two forms. Context-driven metaphorical form, creating a product where the appearance and the function correlates, and



appearance driven metaphor, a purely form driven design with no regard to the functionality of the product. Product outer form affects the people's emotion in purchasing moment. In order to recognize the effect of products forms on the user's emotion. An extensive study should be done to identify people preferences. For that reason, form design has been categorized into three design categories that can appeal most to users which are stereotypical, pure metaphor, and context-driven metaphorical form.

2.1. Three types of form design

2.1.1. Stereotypical form

"Form follows function" is a famous quote from the architect Louis Sullivan in 1890. During the Industrial Revolution, function was the center of the design process. Designers and architects alike, first considered the functional requirements of a product and paid little regard to aesthetics. Products that were created during this period had high functionality and were produced in great quantities. Mass producing high functionality products became the standard design form that people acknowledged. As the products are intended for mass production, creating the most effective product with the least amount of money is the main priority of the markers.

2.12. Appearance metaphorical form

Means creating a desirable product for the customer. The outer shape has to have attractive qualities to beat other competitive products and appeal to the buyer. Products are designed nowadays to imitate currently popular trends, with no regard to the relation between the form and functionality. For example, hamburger pencil sharpener has combined of two-component which is hamburger and pencil sharpener. Hamburger form has no real relation to a pencil sharpener. There is no relation between the two components, but this form is utilized to attract the customer with its outer appeal.

2.13. Context-driven metaphorical form

Context-driven metaphorical form creates designs that enhance the functionality of the product with the structure. The function is actually taken into consideration while designing the outer form. Creating a strong resemblance between the outer form and the functionality of the product. The usage of such products come intuitively to the consumer, increasing the familiarity value of the product. for that reason, the outer form can be sufficient for the consumer to figure out how the product function, without further instructions provided.



Stereotypical Appearance-driven metaphorical form Context-driven metaphorical form

Figure 4. Example of pencil sharpener in terms of types of form in the study



2.2 Questionnaire

Utilizing the online platform 'usability hub' that specializes in pair and comparison analysis, in online questionnaires was conducted. In pair comparison method, all options are listed, and shown in pairs to all the other parties; This method helps each option to list compares to every other option in pairs; Item A is compared to item B, then to item C, and so on. This comparison forces the subject to make a choice between two options in a limited period of time. That is how the more attractive design was identified according to the subject's votes. A total of 60 questions were asked in this fashion, to accurately identify the functional, aesthetic, preference and value of the buyers. The questions asked are listed in Figure 5.



Figure 5. comparison diagram between the existing model's and redefined user experience attributes.

Among these types of user experiences, we wanted to exclude episodic and symbolic experience for the following reasons:

In the case of the episodic experience, there is the potential risk of lack of fairness, as deviations from everyone are the difference with preference. Also, symbolic, which includes brand, can be a clear example of people's preference.

The question that has been asked was:

- Which design do you think it works?
- Which design do you aesthetically attractive?
- When your friend comes to your home, which one do you want to show them?
- Which design do you want to purchase?

'Which design do you want to purchase?' represent the overall preference of what people are getting attracted to among the three different design types mentioned. When the result came out, the purchasing question is giving overall data of what people prefer, and the reason for why they chose will come from other three question's ranking. Preference is a comparative valuation of a set of objects (Druckman & Lupia, 2016).



	А	В	С
А		АВ	AC
В			ВС
С			

Figure 6. The principle of paired comparison method

2.3 Product selection



Figure 7. three categorization of product

Two hundred photos have been collected from a variety of major online markets, such as Amazon, Ali express, Alibaba, Naver market, Rakuten,e-bay etc. The breakdown of product image was categorized into stereotypical, appearance metaphorical form, and context-driven metaphorical form. A total of 28 products have been identified to fit into all three categories and to ensure fairness all pictures were given the same size (200x200mm). An Interceded reliability test was then conducted to increase the credibility of each category by four designers.

Four designers were asked to look at approximately 81 photos, choosing which design would go into which category. Before the selection of these products began, detail explanation about three categories were provided.



All of the colors have been changed to black and white for the designer to eliminate bias towards a certain color or a brand. The reason why color and brand has been disregarded is that they have a massive influence in purchasing the product. Color has 85% of purchasing power when they are choosing from the same product. A brand also has about 80% of influence when they are picking up the product. After fully understanding what products would go and they take a look at photos and decide which category would go into which category.

The top five products that were most qualified to the research has been selected. The products were ladle, pencil sharpener, knife sharpener, luggage tag, and chopstick rest. From this product, two more categories were created in order to define the cultural relation: culturally bound and culturally free products. Chopstick rest and a knife sharpener were identified as culturally bound products. Ladle, luggage tag, and pencil sharpener is a culturally independent product.

2.31. Culturally-independent product

Free from the culture means, the product is widely used regardless of the environment. Most of the culturally independent product's function is deeply related to the people's lifestyle. In the case of bottle openers, the reason why we use the same product all over the world is that they use the same sealing method. Bottle openers will not disappear as long as there is a bottle with a bottle-stopping product to prevent carbonation.

2.3.2 Culturally-dependent product

Cultural products are products that developed to fit certain nations customs. As time pass, cultural bound products seems to crossover to other nations as the world is moving towards globalization. However, the frequency in which the product is used heavily depends on the country of origin.

An increasing number of Asian restaurants in U.S. and Germany seem to give the opportunity for users to experience the chopstick rest, familiarizing westerners to this culturally bound product. Over 4000-chopstick rest are listed in online markets such as amazon.de and Otto. Major market in united states is also selling over 1000 chopstick rest.

A difference can be found between eastern and western knives according to Germany Knife Company Henckels online shopping market. For example, a Santoku knife is a form of an Asian knife, while chef knives are typically regarded as a western style knife.

Western-style knife grinding or sharpening can be traced back to the northern region of Italy, where it originated and later on gradually spread to the world. Eastern knife tends to be more sharp to slice more soft ingredients such as fish, and vegetable. Western knife on the other hands is more commonly used to chop the meat. These lead to make grinding the knife more often.



That shows the impact of culture on the development of knives around the world. Due to the difference in the end usage, the need for a knife sharpener is different across the world. Such differences can be observed in the online market Because the production method is different and the method of management is different.



Figure 8. Product used in the online survey

2.4 Participants

One hundred seventy-seven online shoppers have participated in this research from three different nations. All participants were living in their home countries. From these countries, 77 were Korean, 50 were German, and 50 were Americans. The age group being: 20 - 65, age 30 - 76, and over 40 - 36. For the gender, difference rate is males were 79, and females were 98.

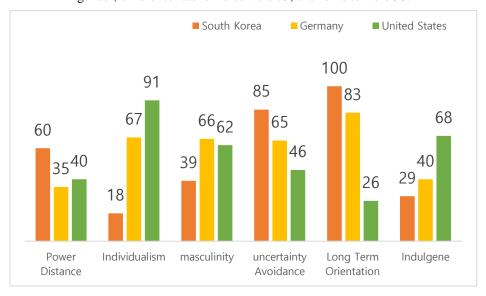


Figure 9. Hofstede insight country comparison between three countries



Table 2. Hofstede cultural 6-D model

Power distance	- highest score means hierarchical society. It indicates the lowest level of equality among individuals.
Individualism	- The words of 'us' will be strong word than in individuals, when the score is lower.
Masculinity	- Competition, achievement, and success, with success being defined by the winner will be driving the society in high score of masculinity.
Uncertainty avoidance	- high score of uncertainty avoidance make a cautious and gradual attitude in social change using plans and norms, laws and regulations. Lower score is adapted to uncertain changes and make less rule.
Long-Term Orientation	- The high score in long-term orientation implies more importance to the future rather than the present. Sustainability, and ability to adapt to the economy is valuable aspects in this society.
Indulgence	- Societies with low scores on this dimension tend to be cynical and pessimistic.

From those result, people can distinguish the difference between eastern and western nations easily, and there is a cultural difference that can show from Germany and the United States.

From this graph shows shown that there is a difference in each country. From example as South Korea is a hierarchical society with less individualism than U.S. and Germany. Those difference may show there would be a cultural difference.

South Korea had the highest percentages in power distance, uncertainty avoidance, and long-term orientation. This is due to the country having a strictly hierarchical society where the person in power is a benevolent autocrat. Uncertainty is not viewed kindly in Korea. People avoid change and uncertain situation. Financial stability and overall security are essential to keep individuals motivated.

Germany had the highest percentage of long-term orientation, and masculinity. Those findings support the notion that Germany is a male-dominated, achievement-oriented society. With particular emphasis placed upon competition, heroism and material rewards. For that reason, there is a slight spilled in the work of male and female. USA had the highest percentage in individualism, and indulgence. Americans have an open business relationship with their partners. They willingly collaborate and work in teams. They both work hard and play hard in order to achieve their own dreams



3. Results

3.1 Overall Preference and perceived experience

Discarding the user characteristics, the preference graph indicates that people are mostly drawn to context-driven metaphorical form with 56% of the responders. People also showed interest in stereotypical designs as well with 23%. The reason why they chose this product may be found from the other three graphs. For example, sensory experience and the value experience shows context-driven metaphorical form as the most preferred design. What that indicates is that a product that is both aesthetically pleasing and valuable could result in an increase in the products demand. On the other hand, instrumental graph points out that, people tend to pick the stereotypical design as a most functional product. In conclusion, the context-driven metaphorical form is most preferred due to the appearance of aesthetic and value the form delivered.

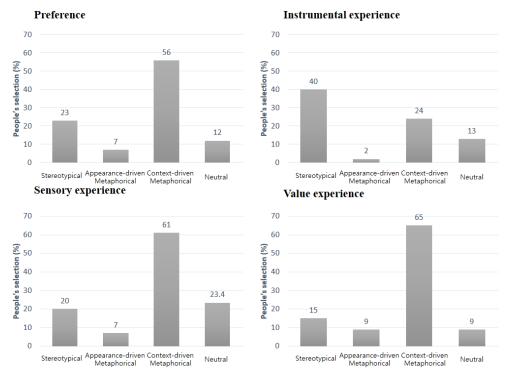


Figure 10. Overall form preference



3.2 Culturally independent product result graph

Similar preferences can be found across all three nations as shown in the culturally independent product preference graphs. In a nutshell, all three countries opted for context-driven design. Possible explanations to their choice can be seen in the instrumental, and sensory graph provided. People chose aesthetic and valuable products that have high context-driven metaphorical form value. This finding is consistent with previously observed data.

All in all, the context-driven metaphorical form was the 1st preferred design. Variations between different nations can be seen in the stereotypical bar in preference graph. The 2nd preferred design for South Korea was neutral, for united states, and Germany preferred was stereotypical design. This may show that united states and Germany consider the functionality more than South Korea. In the instrumental experience graph also tell people to think the most functional product is the stereotypical design.

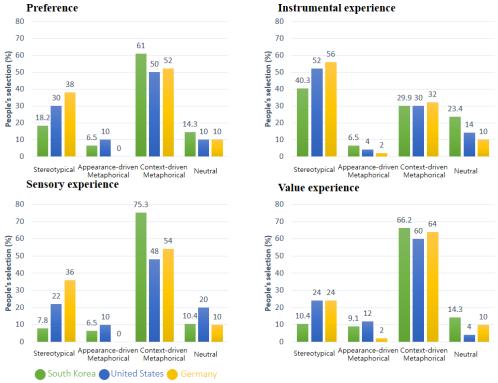


Figure 11. cultural independent form graph



Table 2. Table of cultural independent product

				Cultural ind	ependent product		
			Neutral	Stereotypical	Appearance	Context-	χ^2
					metaphorical	driven	
					form	metaphorical	
						form	
Preference	South Korea	N	11	14	5	47	10.684**
		%	14.3	18.2	6.5	61.0	
	United States	N	5	15	5	25	
		%	10.0	30.0	10.0	50.0	
	Germany	N	5	19	0	26	
	•	%	10.0	38.0	0.0	52.0	
	total	N	21	48	10	98	177
		%	11.9	27.1	5.6	55.4	100
Instrumental	South Korea	N	18	31	5	23	6.798
		%	23.4	40.3	6.5	29.9	
	United States	N	7	26	2	15	
		%	14.0	52.0	4.0	30.0	
	Germany	N	5	28	1	16	
		%	10.0	56.0	2.0	32.0	
	Total	N	30	85	8	54	177
		%	16.9	48.0	4.5	30.5	100
Sensory	South Korea	N	8	6	5	25	23;931***
·		%	10.4	7.8	6.5	75.3	
	United States	N	10	11	5	24	
		%	20.0	22.0	10.0	48.0	
	Germany	N	5	18	0	27	
		%	10.0	36.0	0.0	54.0	
	Total	N	23	35	10	109	177
		%	13.0	19.8	5.6	61.6	100
Value	South Korea	N	11	8	7(9.1)	51	11.199**
		%	14.3	10.4	9.1	66.2	
	United States	N	2	12	6	30	
		%	4.0	24.0	12.0	60.0	
ļ	Germany	N	5	12	1	32	
	•	%	10.0	24.0	2.0	64.0	
	total	N	18	32	14	113	177
		%	10.2	18.1	7.9	63.8	100

P* <.1, p** < .05, p*** <.01



3.3. Culturally-dependent product (chopstick rest) preference

In the culturally dependent product graph shows the significant difference from each country in the supportive in the preference of the design. The United States and Germany preferred the context-driven metaphorical form. Other three graph shows that context-driven metaphorical form is functional, aesthetic, and valuable design: the neutral result in functionality and overall preference. In the sensory and value graph point out that S However, South Korea showed South Korea preferred the context-driven metaphor which they know what is aesthetic and valuable, it does not lead to the significant preference of design.

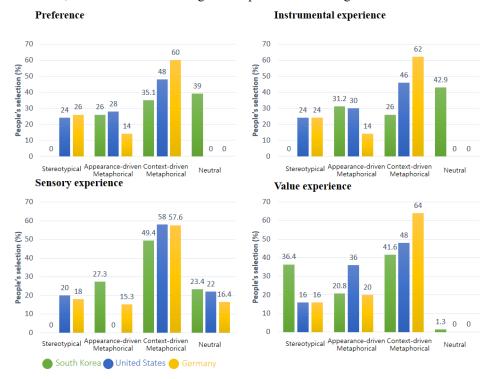


Figure 12. Graph of Chopstick rest form preference in three countries



Table 3. Table of chopstick rest form preference in three countries

				Chor	stick rest		
			Neutral	Stereotypical	Appearance	Context-	χ^2
					metaphorical	driven	
					form	metaphorical	
						form	
Preference	South	N	30	0	20	27	65.057***
	Korea	%	39.0	0.0	26.0	35.1	
	United	N	0	12	14	24	
	States	%	0.0	24.0	28.0	48.0	
	Germany	N	0	13	7	30	
	•	%	0.0	26.0	14.0	60.0	
	total	N	30	25	41	81	177
		%	16.9	14.1	23.2	45.8	100
Instrumental	South	N	33	0	24	20	74.911***
	Korea	%	42.9	0.0	31.2	26.0	
	United	N	0	12	15	23	
	States	%	0.0	24.0	30.0	46.0	
	Germany	N	0	12	7	31	
	•	%	0.0	24.0	14.0	62.0	
	Total	N	33	24	46	74	177
		%	18.6	13.6	26.0	41.8	100
Sensory	South	N	18	0	21	38	43.686***
•	Korea	%	23.4	0.0	27.3	49.4	
	United	N	11	10	0	29	
	States	%	22.0	20.0	0.0	58.0	
	Germany	N	0	9	6	35	
	•	%	0.0	18.0	12.0	70.0	
	Total	N	29	19	27	102	177
		%	16.4	10.7	15.3	57.6	100
Value	South	N	1	28	16	32	15.155**
	Korea	%	1.3	36.4	20.8	41.6	
	United	N		8	18	24	
	States	%	0.0	16.0	36.0	48.0	
	Germany	N	0	8	10	32	
	•	%	0.0	16.	20.0	64.0	
	total	N	1	44	44	88	177
		%	0.6	24.9	24.9	49.7	100

P* <.1, p** < .05, p*** <.01



3.4. Culturally dependent product (knife sharpener) preference

The culturally dependent product graph shows the difference in preferred choices between South Korea, united states, and Germany. South Korea favors the appearance metaphorical form. The United States and Germany on the other hand, lean towards stereotypical designs. Analysis of the aesthetic and value graphs points out that Koreans preferences rely heavily on the aesthetic and overall value of the product. As for the United States, both instrumental and value experience graph are comparable with the observed preference graph. Functional experience is of the highest value for German consumers as seen in the graph. Although aesthetics value is of significance, German buyers put a higher importance on the functionality of the product. In conclusion, South Korea prefer the appearance metaphorical form with aesthetic and valuable reason. The United States favors the stereotypical design with functional, and valuable experience while Germans prefer the stereotypical design with functional experience.

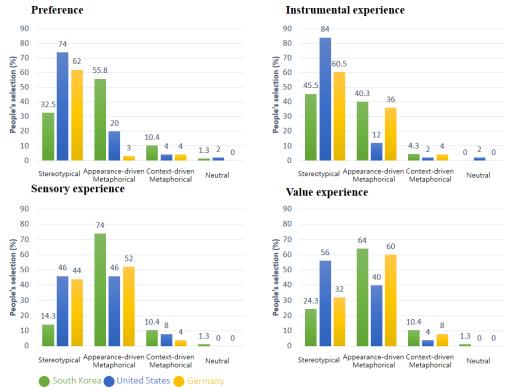


Figure 13. Graph of knife sharpener form preference in three countires



Table 4. Table of knife sharpener form preference in three countries

				Knife sh	arpener		
			Neutral	Stereotypical	Appearance metaphorical form	Context- driven metaphorical form	χ^2
Preference	South	N	1	25	43	8	25.069***
	Korea	%	1.3	32.5	55.8	10.4	
	United	N	1	37	10	2	
	States	%	2.0	74.0	20.0	4.0	
	Germany	N	0	31	17	2	
	_	%	0.0	62.0	3.0	4.0	
	total	N	2	93	70	12	177
		%	1.1	52.5	39.5	6.8	100
Instrumental	South	N	0	35	31	11	
	Korea	%	0.0	45.5	40.3	14.3	
	United	N	1	42	6	1	25.460**
	States	%	2.0	84.0	12.0	2.0	
	Germany	N	0	30	18	2	
		%	0.0	60.5 36.0	4.0		
	Total	N	1	107	55	14	177
		%	0.6	60.5	31.1	7.9	100
Sensory	South	N	1	11	57	8	20.567***
	Korea	%	1.3	14.3	74.0	10.4	
	United	N	0	23	23	4	
	States	%	0.0	46.0	46.0	8.0	
	Germany	N	0	22	26	2	
		%	0.0	44.0	52.0	4.0	
	Total	N	1	56	106	14	177
		%	0.6	31.66	59.9	7.99	100
Value	South	N	1	18	50	8	15.745**
	Korea	%	1.3	23.4	64.9	10.4	
	United	N	0	28	20	2	
	States	%	0.0	56.0	40.0	4.0	
	Germany	N	0	16	30	4	
		%	0.0	32.0	60.0	8.0	
	total	N	1	62	100	14	177
		%	0.6	35.0	56.5	7.9	100

P* <.1, p** < .05, p*** <.01



3.5. Product preference dived between male and female

The graph shows there looks a similar pattern, but there is a difference in stereotypical design selection. However, there is no vast difference between male and female choice.

Psychologically, men are generally concerned with things, and women are generally concerned with people(Jordan, 1998) So when people were young, girls play well with dolls, and boys play with things like cars. There is a difference between men and women when we look at it, but if we think about it in the same human being, we can say that there is no significant difference there. It also appears in monkey babies, and as a result of an experiment in BBC Science, it can show that the younger the monkeys, the more likely they are to have a biologically relevant relationship, given that males are more interested in toy cars than females. End to end of the male and female graph shows there is the difference in the design preference which male preferred a stereotypical design which is a more functionally visual product(Xue & Yen, 2007). In general, there is no significant difference between male and female. It finds it irrelevant to sort consumers considering gender difference (Odaba, 2004).

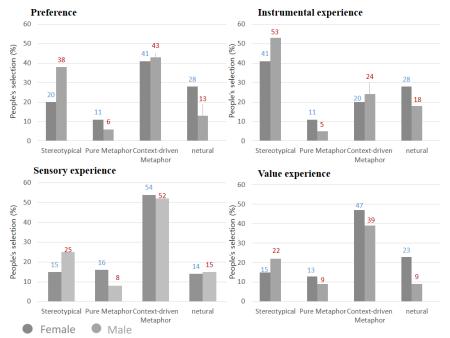


Figure 14. Product preference dived by gender graph



Table 5. Table of form preference in gender

				g	ender		χ^2
			Neutral	Stereotypical	Appearance metaphorical	Context- driven	
					form	metaphorical form	
Preference	Female	N	27	20	11	40	10.630
		%	27.6	20.4	11.2	440.8	
	Male	N	10	30	5	34	
		%	12.7	38.0	6.3	43.0	
	Total	N	37	50	16	74	177
		%	20.9	28.2	9.0	41.8	100
Instrumental	Female	N	27	40	11	20	5.487
		%	27.6	40.8	11.2	20.4	
	Male	N	14	42	4	19	
		%	17.7	53.22	5.1	24.1	
	Total	N	41	82	15	39	177
		%	23.2	46.3	8.5	22	100
Sensroy	Female	N	14	15	16	54	4.9.63
		%	14.3	15.3	16.3	54.1	
	Male	N	12	20	6	41	
		%	15.2	25.3	7.6	51.9	
	Total	N	26	35	22	94	177
		%	14.7	19.8	12.4	53.1	100
value	Female	N	23	15	13	47	6.961
		%	23.5	15.3	13.3	48.0	
	Male	N	9	22	9	39	
		%	11.4	27.8	11.4	49.4	
	Total	N	32	37	22	86	177
		%	18.1	20.9	12.4	48.6	100

P* <.1, p** < .05, p*** <.01



3.6. product preference and age

Similarly, the graph of visual comparison between all three age groups shows that there are no distinct differences in the age regarding preference, functional, and value point. Except there is a slight difference in the preferred rate. Compared to the old days, people share data on the Internet and see many materials regardless of their age. Therefore, the lack of distinctions across ages can be a byproduct of globalization as people are continually viewing similar information across the internet resulting in similar thoughts and actions. Evidence of that can be found in some trends going viral across the world via the internet. For example, people from all ages participated in the viral ice bucket challenge to raise awareness for ALS disease. (Trejos, 2017) As we share much information and understand each other more and more, globally acceptable visual design have emerged.

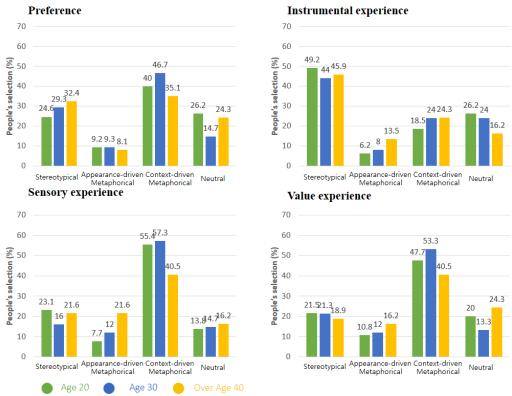


Figure 15. product preference drive by age



Table 6. Table of form preference in ages

				a	ige		χ^2
			Neutral	Stereotypical	Appearance metaphorical form	Context- driven metaphorical form	~
Preference	20	N	17	16	6	26	3.938
	20	%	26.2	24.6	9.2	40.0	
	30	N %	11 14.7	22 29.3	7 9.3	35 46.7	
	40 over	N	9	12	3	13	
	40 0001	%	24.3	32.4	8.1	35.1	
	Total	N	37	50	16	74	177
		%	20.9	28.2	9.0	41.8	100
Functional	20	N	17	32	4	12	3.389
		%	26.2	49.2	6.2	18.5	-
	30	N	18	33	6	18	
		%	24.0	44.0	8.0	24.0	
		N %	6	17	5	9	
		%0	16.2	45.9	13.5	24.3	
	Total	N %	41	82	15	39	177
			23.2	46.3	8.5	22.0	100
Aesthetic	20	N %	9	15	5	36	6.169
			13.8	23.1	7.7	55.4	
	30	N	11	12	9	43	
		%	14.7	16.0	12.0	57.3	
	40 over	N %	6	8	8	15	
			16.2	21.6	21.6	40.5	
	Total	N %	26	35	22	94	177
			14.7	19.8	12.4	53.1	100
value	20	N %	13	14	7	31	3.388
			20.0	21.5	10.8	47.7	
	30	N %	10	16	9	40	
			13.3	21.3	12.0	53.3]
	40 over	N %	9	7	6	15	
			24.3	18.9	16.2	40.5	<u> </u>
	Total	N	32	37	22	86	177
		%	18.1	20.9	12.4	48.6	100

P* <.1, p** < .05, p*** <.01



4. Discussion and conclusion

The study attempt to discover the relationship between form as momentary experience and user characteristics such as culture age and gender in online shopping. The overall findings indicate that Consumer conducted to focus mainly on a product's explicit information, which mainly Aesthetic forms has gotten more in common sense. In the past, the vast difference by each country is now connected by online. From this small place, International design conferences have been held to collect and evaluated to create a representative aesthetic form which becomes commons sense to people. So, a common point of aesthetic or valuable is becoming increasingly similar by each country. That would show why value experience has a connection to sensory experience. Extension of personal style can be displayed from consumer's chosen lifestyle, and collected object (Arnould, Price, & Zinkhan, 2002) and products encourage a consumer to consider more like whom they believe or whom they would like to be (Albrecht, Lupton, & Skov, 2000). However, cultural influences still remain during this globalization because how to do it may be different from each country. For example, in the case of Asian knife sharpener, the stone is not moved when rubbing a knife on a sharpening stone. However, in the case of Western knife sharpener, we take the form to change knife by rotating stone. That is why the product can look at from another perspective. So, for those who use it often, research could confirm that the functional perspective of the experience they use is more extensive than aesthetics and value and that products that work in other formats are more focused on aesthetics and value. In conclusion, four conclusions have drawn from this research.

First, the overall favored design is the context-driven metaphorical form. People leaned towards this form of design because the aesthetic and overall value supports its function. This conclusion can be observed in the overall preference graph, the culturally independent product graph, product preference in age, and gender graph. This finding supports that consumer who get high on the hedonic measure likely taken in products that include components which explain aspects of a product's form. (Creusen, Snelders, Green, & Jordan, 2002). Second, the most functional design in the test subject's opinion was stereotypical design according to the graphs. Despite being regarded as the highest functional design form; it was not the 1st choice of preference. That could indicate that function is not the most critical factor for consumers when buying a product. Third, for products that often used in particular countries, we can see those unfamiliar countries are more concerned with aesthetics and value, rather than functional experience. So if the product is not familiar with the country, marketer need to aim for aesthetic or valuable products to sell. Conversely, if the product is familiar with it, the marketer will be more interested in the functional aspects of the product. Fourth, the user characteristics that we examined were age and gender. Our result indicates that neither category has a massive role in the overall preference of a product. That is because buyers from all over the world are sharing the same information via the internet. Resulting in global trends of people, choosing the same product forms or designs.

In this result, the marketer should consider the aesthetic and high-value product to the countries that are not familiar with the product that marketer is trying to sell. The tastes and preferences of consumers in different nations are beginning to converge on some global norm. (Holt, 2002). Therefore, for products that are unfamiliar with the culture, marketers should be concerned with the aesthetics first. More research is required



to confirm and including more consideration factors, such as color and various forms (bio, cultural, futuristic, etc.) and various products rather than household items. In addition, the overall age concentrated in the millennium and gen x, and it seems necessary to study research ages such as concentrated ages (housewife, or student) for more definite identification. In addition, various form an emotional response in the online market would be valuable for understanding user's preference in form, and such as approach is suggested as a direction for future studies of product form in the online market.



Figure 16. simplified conclusion



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Executive summary in Korean

온라인 쇼핑에서의 형태와 사용자 특성과 경험의 관계

오늘날 온라인 시장은 날로 성장하고 있다. 온라인 시장의 특성상 시각적인 요소에 영향을 크게 받기에, 외관이 큰 영향을 미친다. 또한 온라인 시장의 또 다른 점은, 동일한 제품이 여러 국가에서 판매되고 있다는 것이다. 하지만 사람들의 특성(나이, 성별, 문화)이 동일하지 않다는 것을 고려할 때 한 가지 형태로 제품을 판매하는 것이 이상적이지 않을 수 있다. 따라서 본 연구는 문화, 연령, 성별과 같은 사용자의 특성에 따라 형태에 대한 선호도가 어떻게 다르게 인식되는지 알아 내고자 한다.

문화적 특성에 따른 형태 선호도를 확인하기 위해 Hofstede 문화 차원에 따라 북미, 아시아 및 유럽을 대표하는 미국, 한국, 독일의 3 개국이 선정하였고, 문화 차원적으로 각국마다 다르다는 것을 확인했다. 미국인 50 명 (남성 25 명, 여성 25 명), 한국인 77 명 (남성 29 명, 여성 48 명), 독일인 25 명 (남성 25 명, 여성 25 명) 등 온라인 쇼핑객 177 명을 대상으로 설문 조사를 실시했다.

제품의 사용 맥락과 형태의 관계에 맞춰서, 세 가지 형태의 디자인을 정의되었다: 스테레오 (stereotypical) 형태, 외형 위주 메타포 형태(appearance-driven metaphor form), 맥락적 위주 메타포 형태(context-driven metaphor form)로 정의를 내리고 분류할 수 있었다.

온라인 시장에서 판매되고 있는 제품들 중에서 3가지 형태가 있는 20가지의 제품을 선택하여 디자이너들과 신뢰도(intercoder reliability)를 측정하여, 5가지 제품 유형(연필깍기, 국자, 여행 태그, 젓가락 받침대, 칼갈이)를 최종적으로 선택하였다. 또한 5가지 제품들을 다시 문화적인 특성을 고려하여 문화 의존적인 형태, 문화 독립적인 형태로 나누었다.

이 연구에서는 교차분석을 통하여, 3개의 형태를 가진 5가지 제품들을, 같은 제품의 2가지 형태를 비교분석하는 것으로, 제품들끼리에서의 제품 형태 선호도를 알아보고자 하였다 그리고 발견된 특징들은 맥락중심 메타포 형태를 문화적 배경에 관계없이 가장 선호되고 있음을 알 수있었다. 그 이유는 맥락중심 메파토 형태가 가장 가치 있고, 아름답다고 인식되기 때문이다. 그러나 선호하는 사용자 경험에서는 국가 조금씩 차이를 보였다. 독일은 기능적인 측면에서 더많은 것을 선호했으며, 한국인은 더 많은 개인적 가치를 제공하는 형태로 더 많이, 미국인은 기능적 및 개인적 가치와 관련된 형태를 더 선호했다. 그러나 가장 기능적인 형태로는 스테레오 형태인 것을 3 개국 참가자들이 동의하였다. 이러한 발견에서 보았을때, 기능적 경험은 온라인 쇼핑에서 구매로 이어지지 않는다. 또한 전반적으로 선호되는 제품은 미학적, 가치적 사용자 경험에 영향을 받는다. 나이와 성별과 같은 인구 통계 변수는 양식 선호도에 영향을 미치지 않는다.

이 연구 결과는 특정 문화 그룹을 대상으로 한 디자인 중심의 마케팅으로 간주되며 온라인 시장에서의 경쟁력 강화에 도움이 될 것이다.

핵심어: 기능적인 형태, 외형중심 메타포 형태, 사용맥락 중심 메타포 형태, 사용자 경험, 온라인 쇼핑



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I started to study design for two years. It was a challenging time for me because I was not accustomed to studying systematically. I learned a lot with the help of many people, and now I am able to come to this place. I want to thank them as much as possible.

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I. Appendix I.

1. Online survey for three different countries

All the survey's introduction and question has been proof read and checked by 3 professional translator or local people of countries by each countries. In online survey, introduction of survey, 4 questions and appreciative words has been set

1.1. South Korea

1.1.1. Introduction of survey in Korean

이 실험은 일상적인 제품의 디자인 기능을 발견하기 위해 사용자 경험을 조사하는 것을 목표로 합니다.

귀하는 질문에 더 잘 어울리는 두 가지 제품 이미지 중 하나를 선택해야 합니다이 연구는 학술 연구만을 위한 것이며 성실한 참여를 부탁드립니다.

1.1.2. 4 questions in Korean

도와 주셔서 다시 한 번 감사드립니다!

- II. 어떤 디자인의 사용성이 더 좋아보입니까?
- III. 어떤 제품이 더 심미적으로 매력적이라고 생각하십니까?
- IV. 가격이 중요하지 않은 경우, 어떤 것을 구입 하시겠습니까?
- V. 친구가 집에 방문하면, 어떤 디자인을 보여주고 싶습니까?

1.1.2. Appreciative words in Korean

우리는 귀하의 참여에 많은 감사를 드립니다. 대단히 감사합니다.



1.2. United states

1.2.1. Introduction of survey in English

This experiment aims to explore user experiences to discover design features of our everyday products.

You will be asked to choose one between two product images that would better suit to each question from your point of view.

This research will be only for academic research and your sincere participation would be appreciated.

Thanks again for your help!

1.2.2. 4 questions in English

- i. Which design do you think would work better?
- ii. Which product do you think would be more aesthetically attractive?
 - iii. If price doesn't matter, which one would you like to purchase?
- iv. Which one would you like to show if your friend visits your home?

1.2.3. Appreciative words in english

We much appreciate your participation

Thank you very much



1.3. Germany

1.3.1. Introduction of survey in German

Dieses Experiment zielt darauf ab, Benutzererfahrungen zu erforschen, um Gestaltungsmerkmale unserer alltäglichen Produkte zu entdecken.

Sie werden aufgefordert, eine von zwei Produktabbildungen zu wählen, die aus Ihrer Sicht besser zu jeder Frage passen würde.

Diese Forschung wird nur für akademische Zwecke durchgeführt und über Ihre aufrichtige Teilnahme würden wir uns freuen.

Danke schön für Ihren Beitrag!

1.3.2. 4 question in German

- i. Welche Gestaltung würde Ihrer Meinung nach besser funktionieren?
- ii. Welches Produkt wäre aus Ihrer Sicht ästhetisch ansprechender?
- iii. Wenn der Preis keine Rolle spielt, welches Produkt möchten Sie kaufen?
- iv. Welches Produkt würden Sie gerne zeigen, wenn Ihr Freund zu Ihnen zu Besuch kommt?

1.3.3. Appreciative words in German

Ihre großzügige Teilnahme schätzen wir sehr.

Vielen Dank!

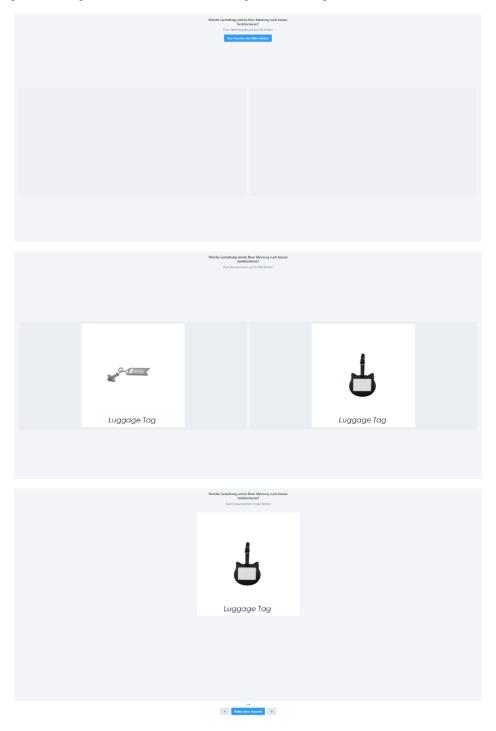


II. Appendix II

process of pair comparison method

All the online survey has been scripted to show pair comparison method and process of the survey.

In the process of an online survey, the first, the above question can be seen, and there are two blanks box below. Second, press the blue button below the question to show two pictures, make a comparison. Select one of the two pictures and press the blue button below to go to the next question.

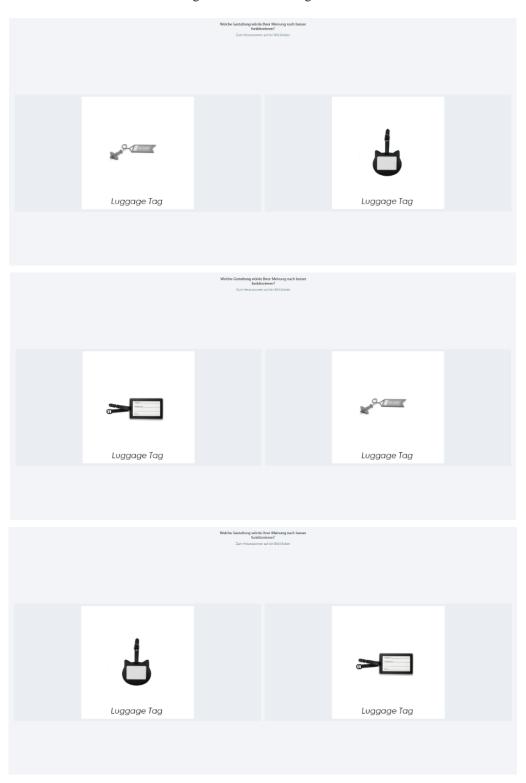




III. Appendix III

Process of all the survey

1.1. Online survey of Germany



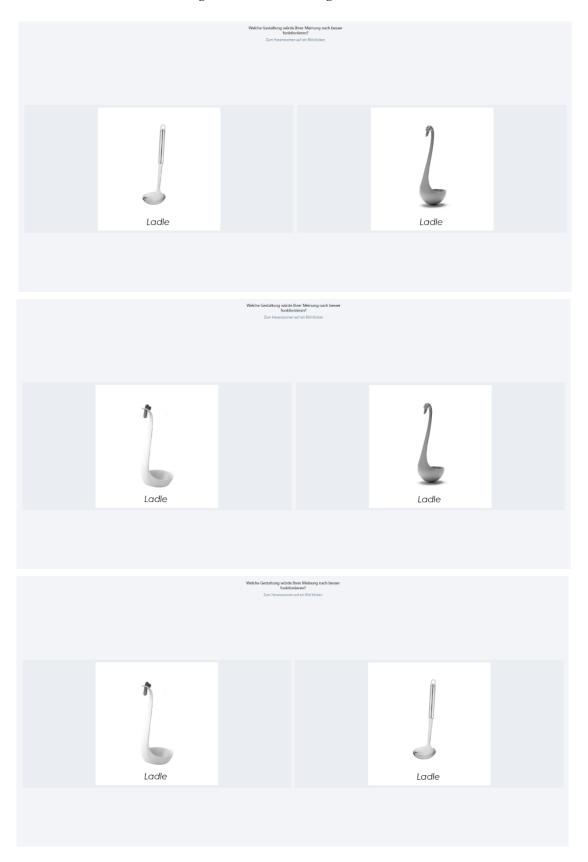




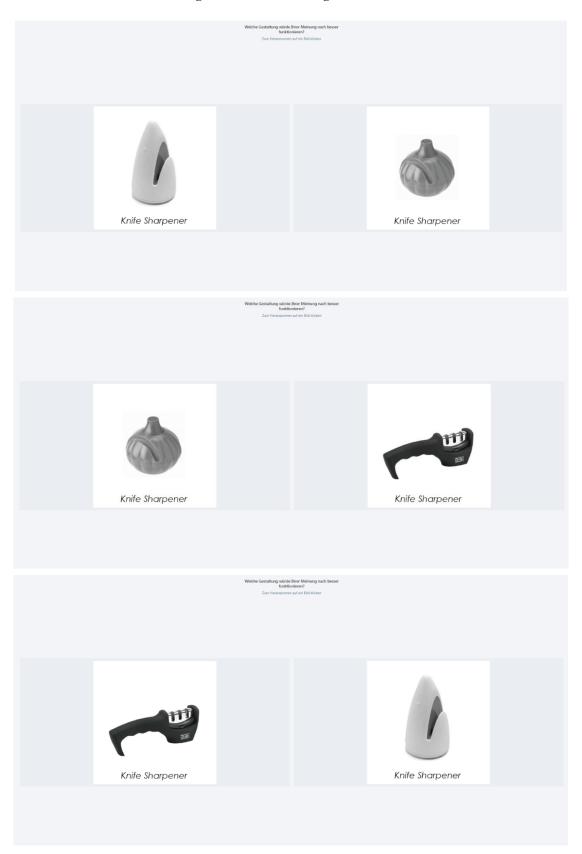












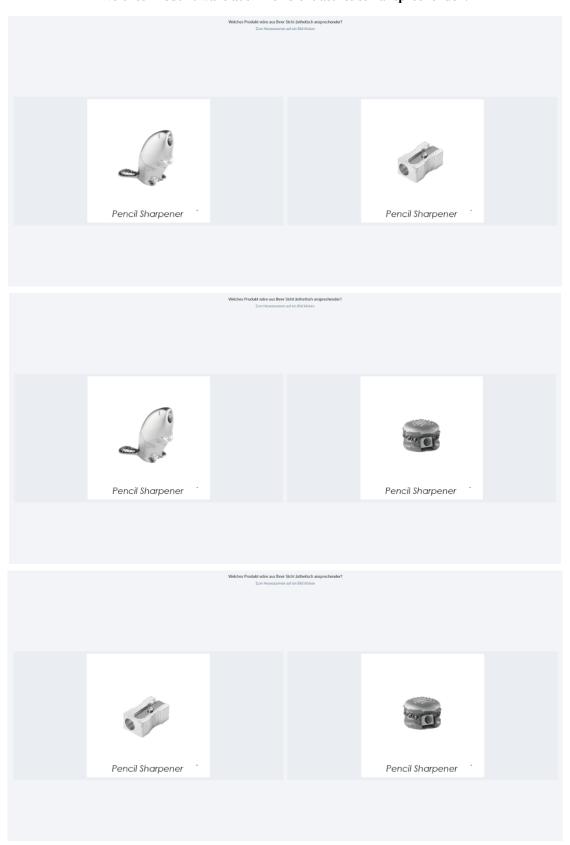




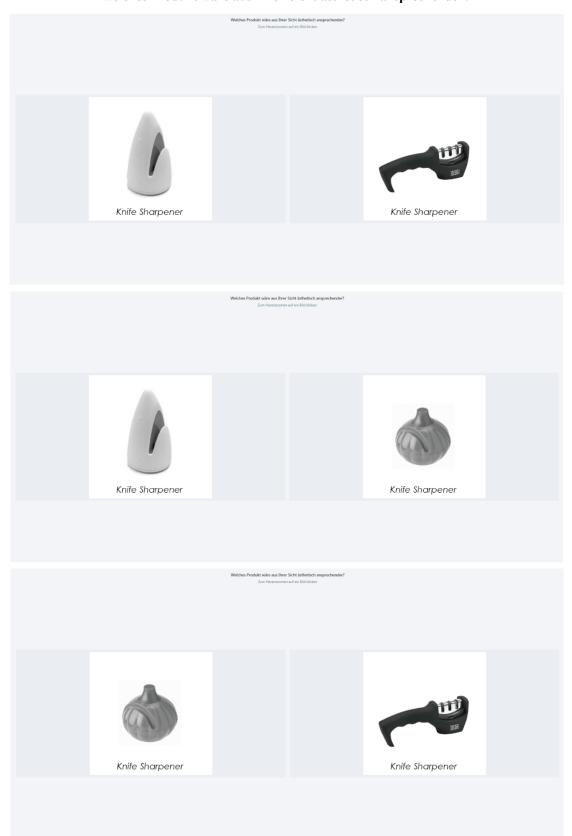




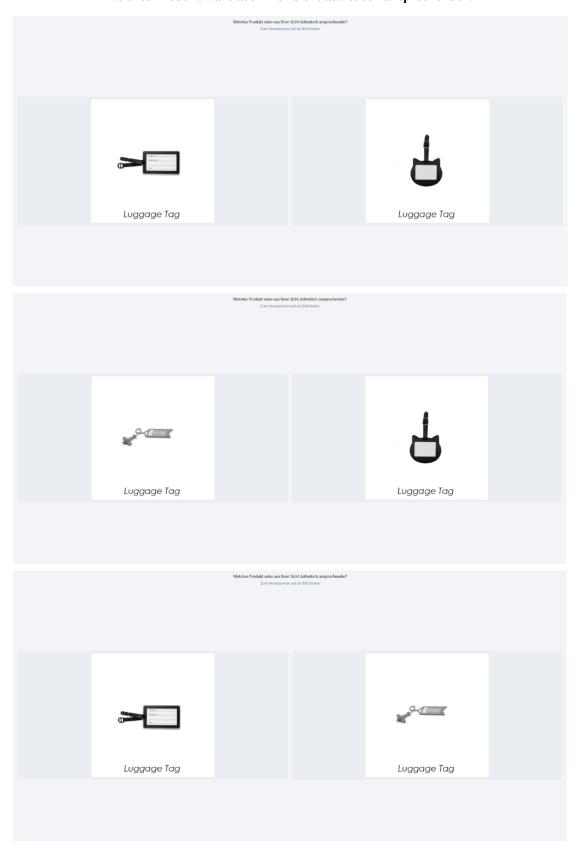








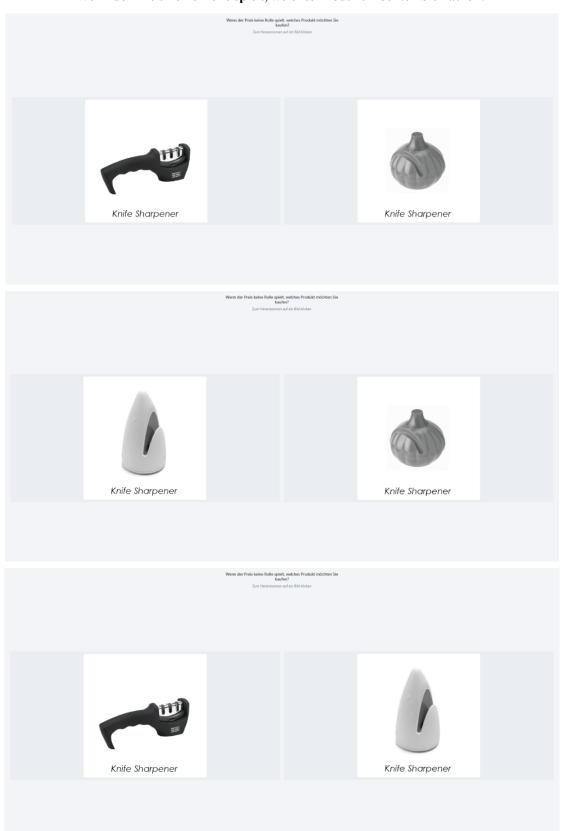




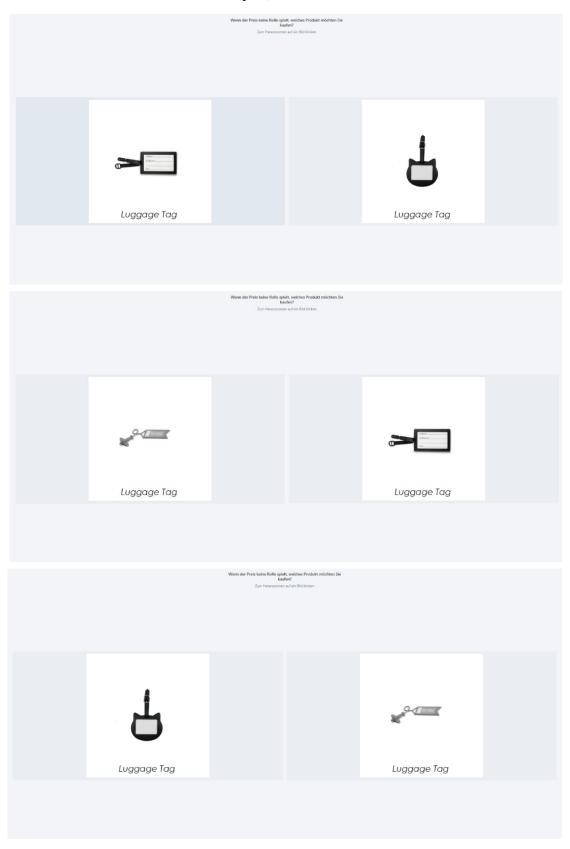




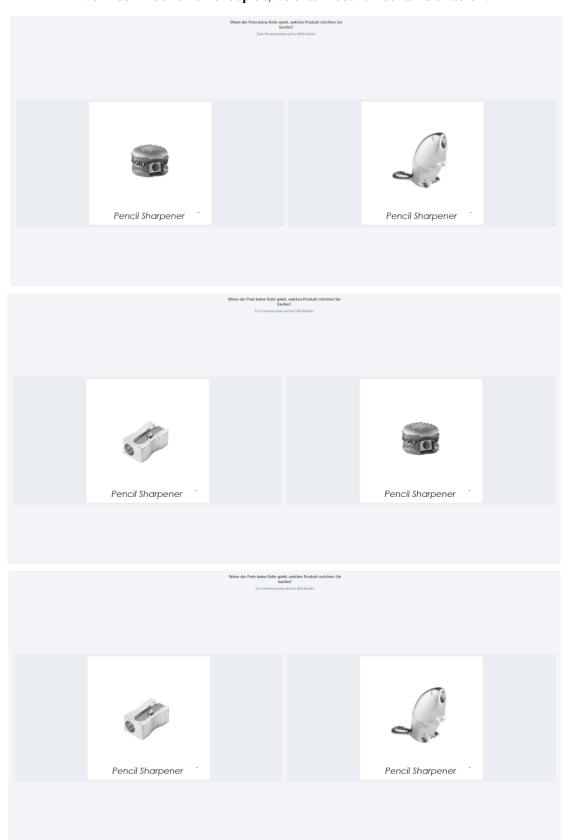








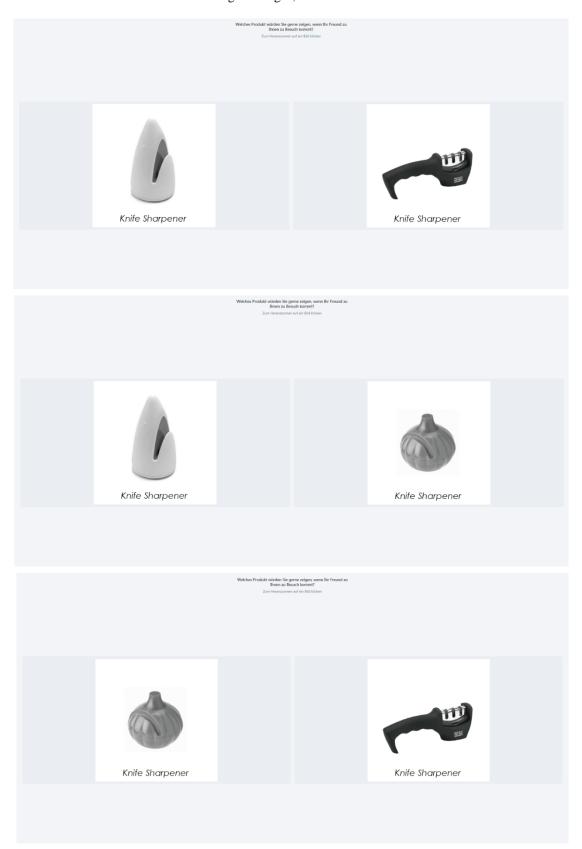




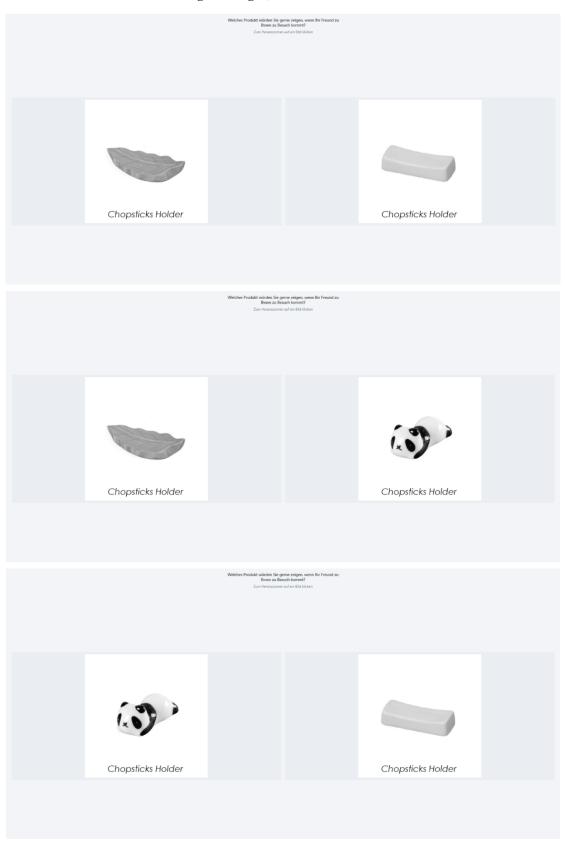








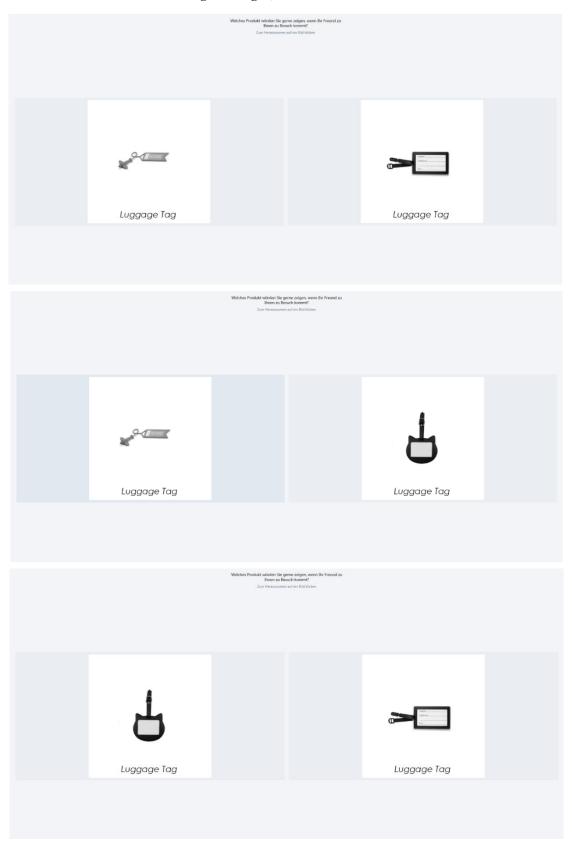


















Thanks for the help

Found that fun? Join our panel of dedicated take tests and surveys like this one.

Choose your hours of availability

Get notified instantly for new tests

Give feedback on designs and interfaces

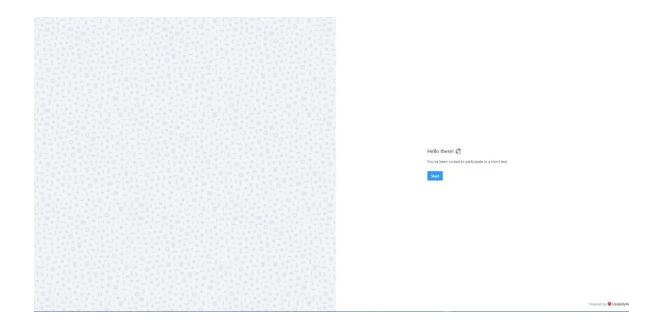
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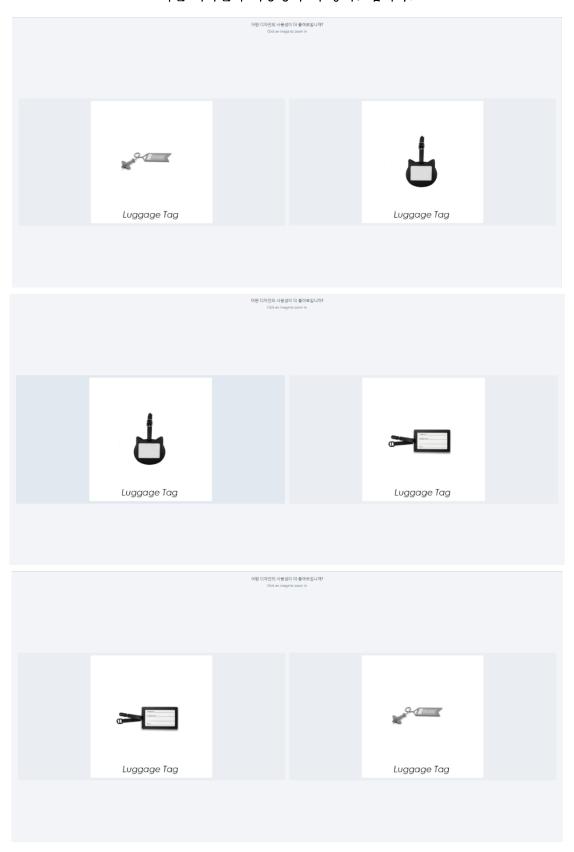


1.2. Online survey of South Korea

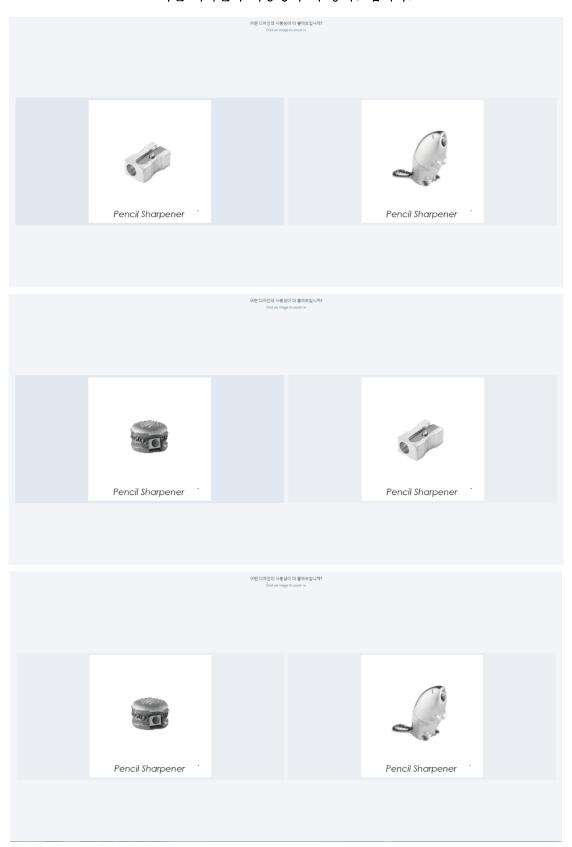


상원을 실상하는 개념의 디디와 기능을 발견하기 위에 사용자 경찰 출시하는 것을 목표를 합니다. 위하는 물론 이 달 어떻게는 두 가지 제품 이미가 중 하나를 선택하는 되니다. 문자 이 달 어떻게 하는 것이 때문을 받아를 부탁되었니다. 도와 무서서 다시 한 번 참사도됩니다!

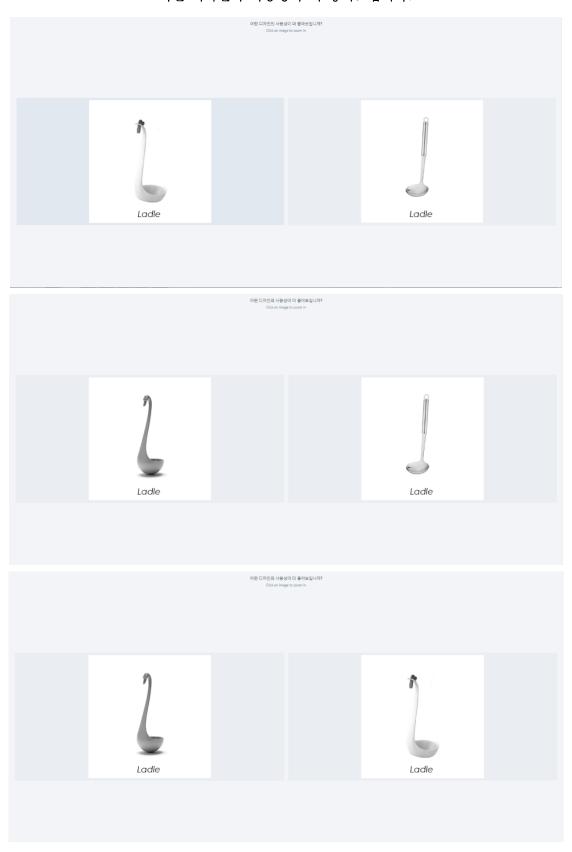




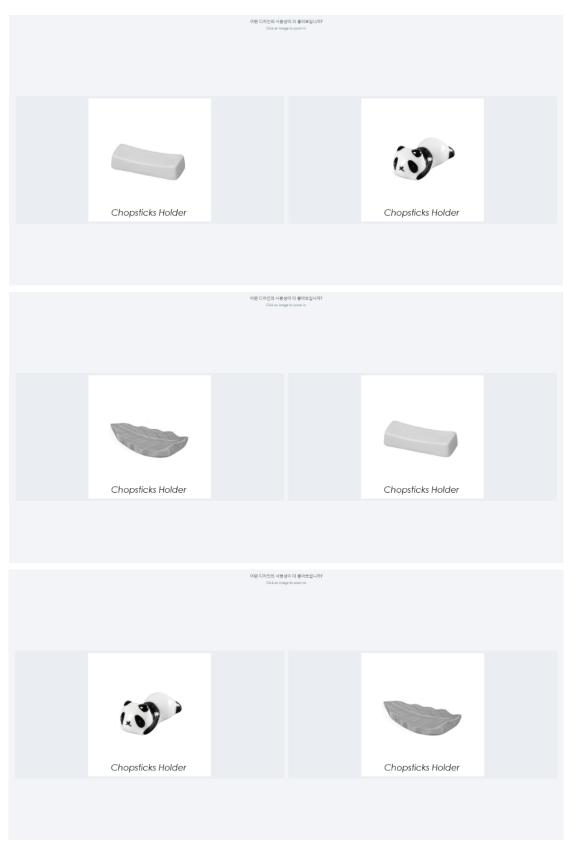




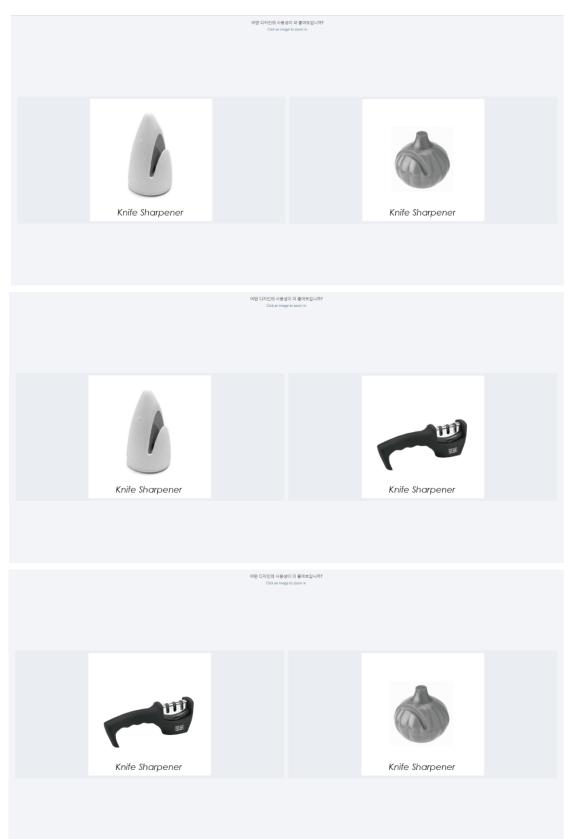




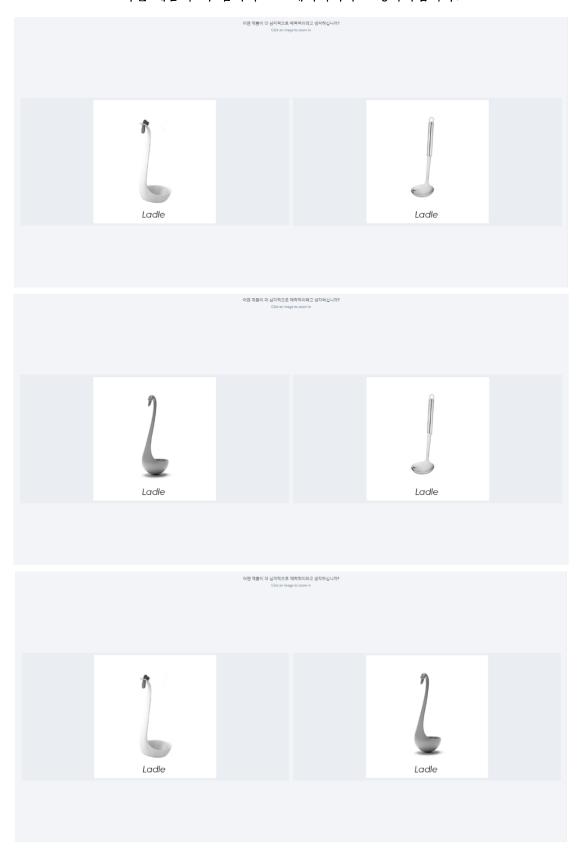




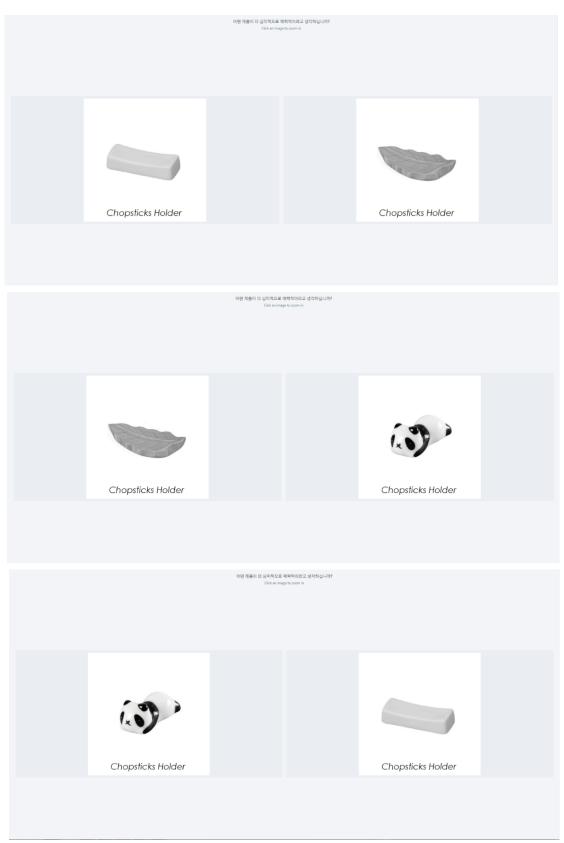




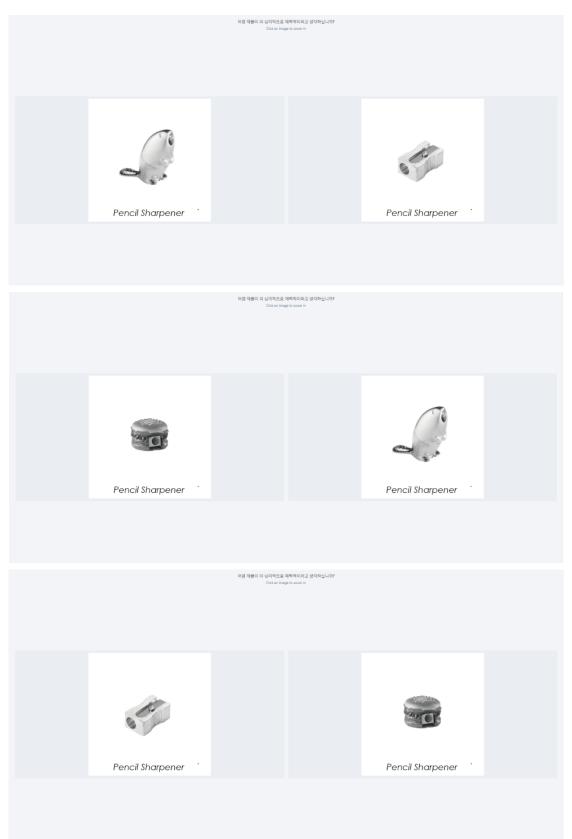




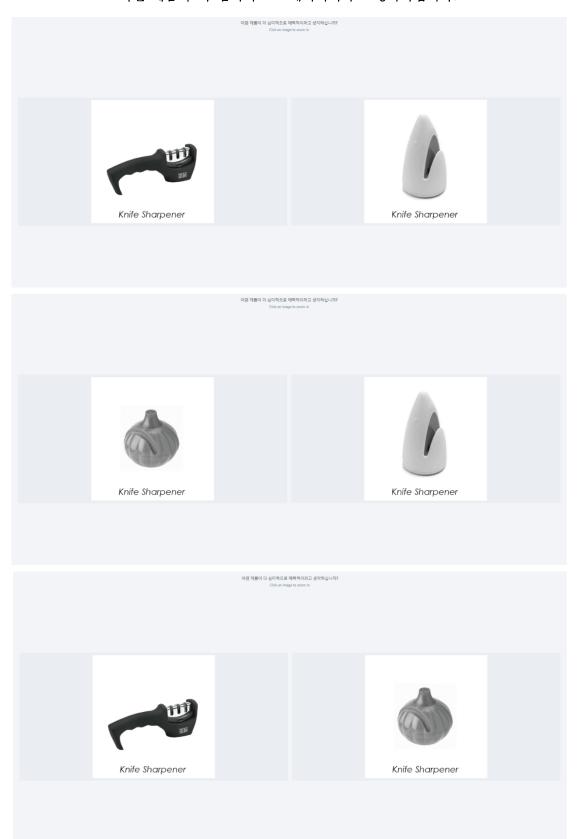






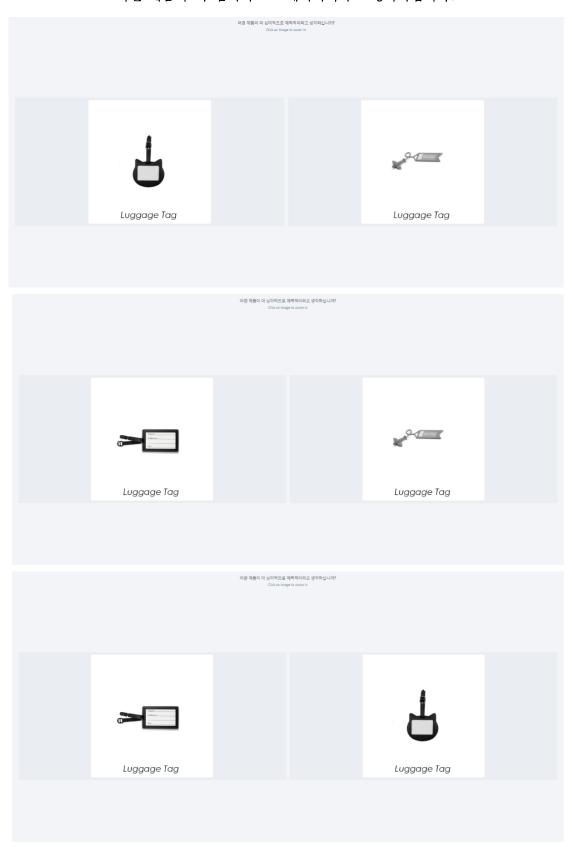




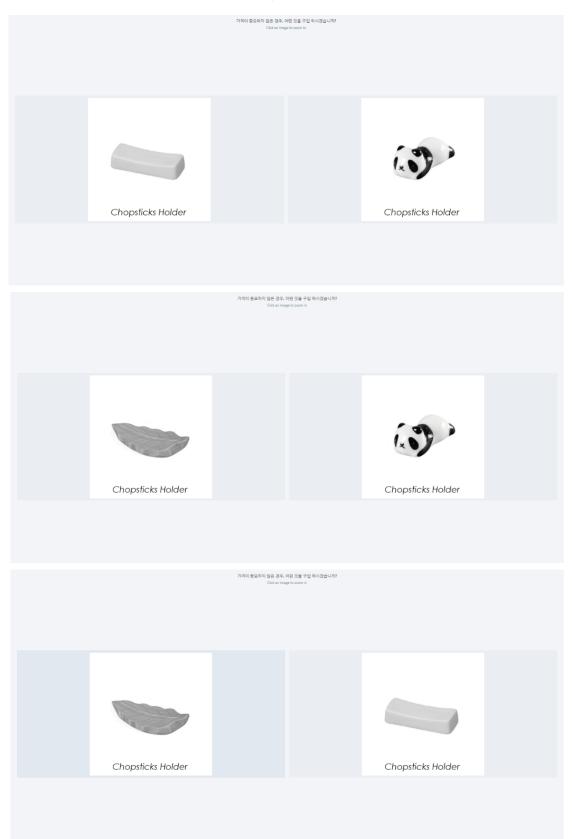




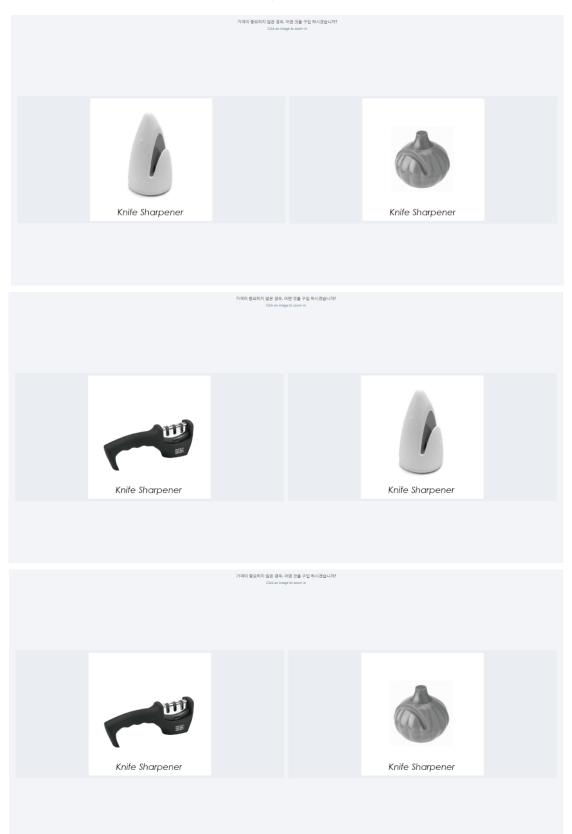
어떤 제품이 더 심미적으로 매력적이라고 생각하십니까?



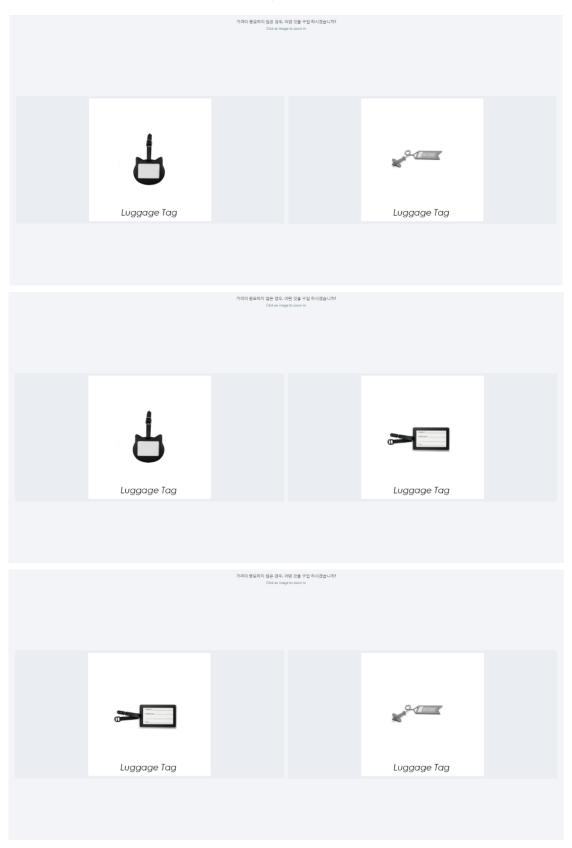




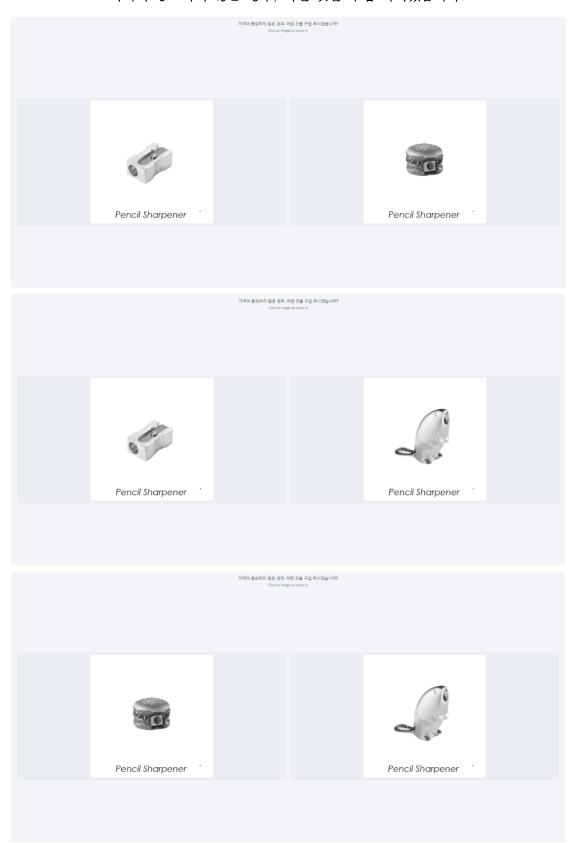








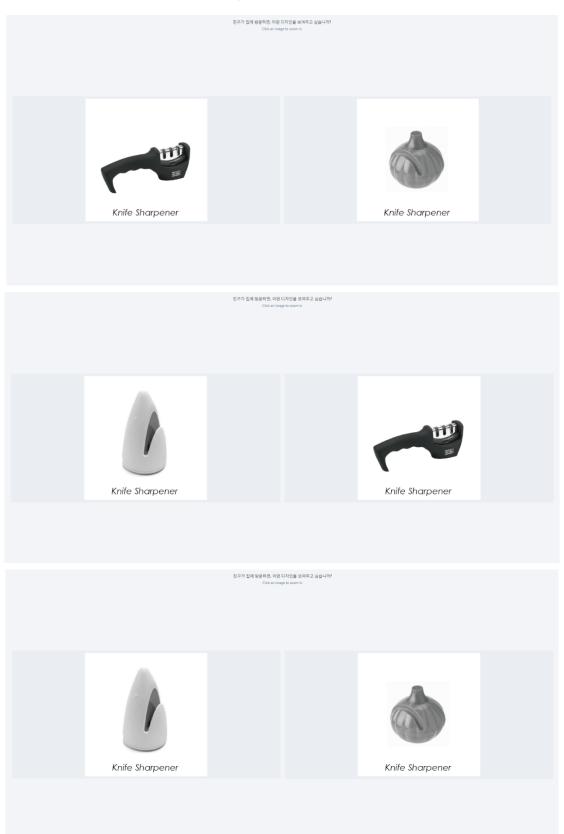




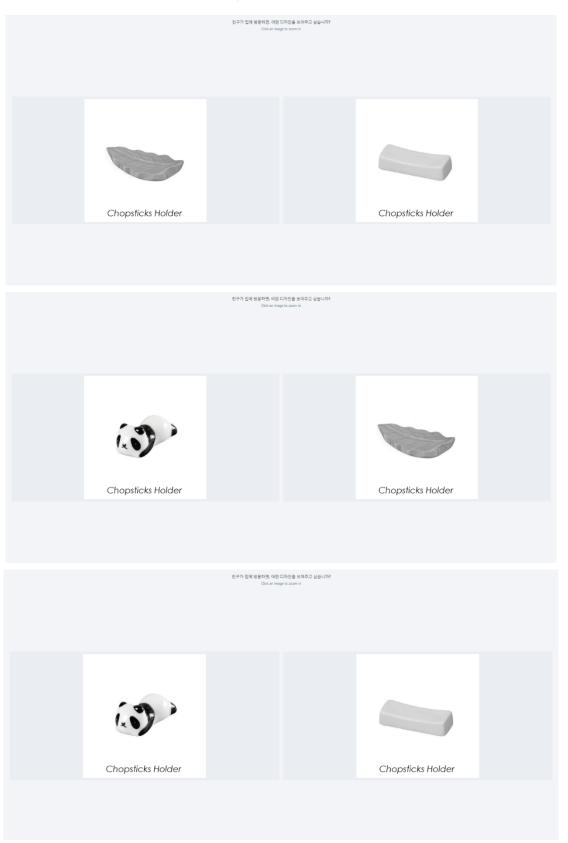








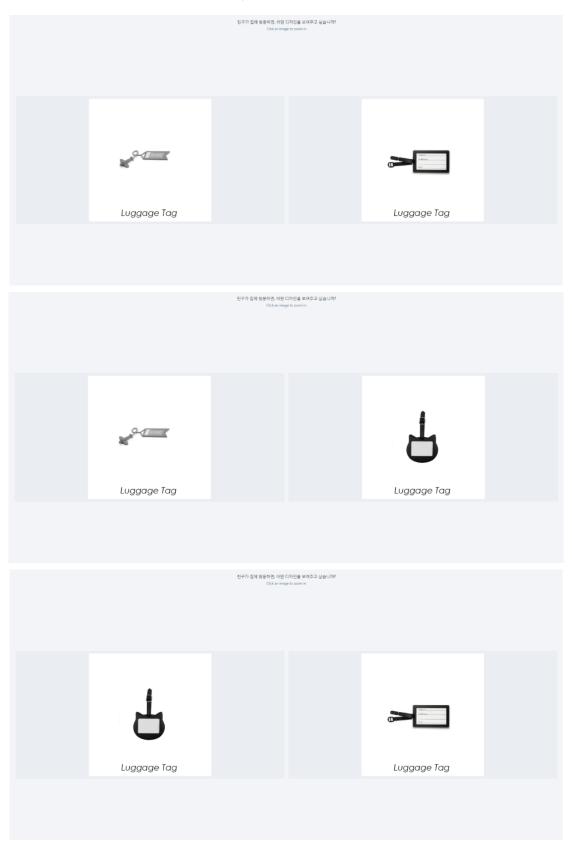


















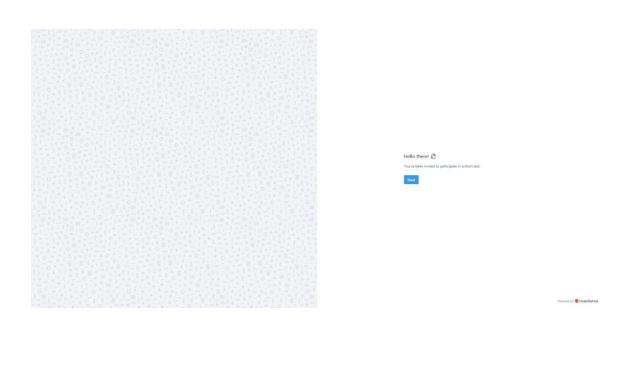
Thanks for the help



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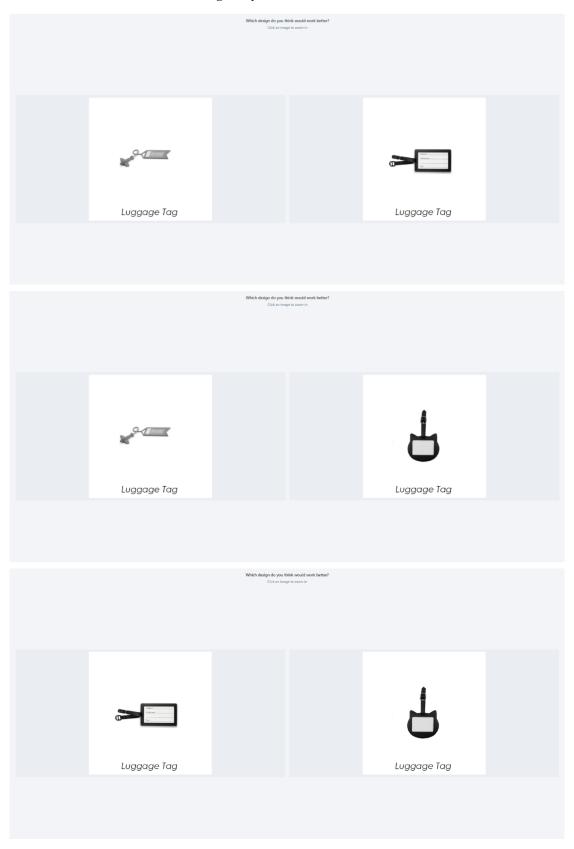
1.3. Online survey of United States



This experiment aims to explore user experiences to discover designation of our everyday products. Vow will be asked to choose one between two product images tha would better suit to each question from your point of view. This research will be only for academic research and your sincere perforation mound be appreciated. Thanks again for your help!

Continue

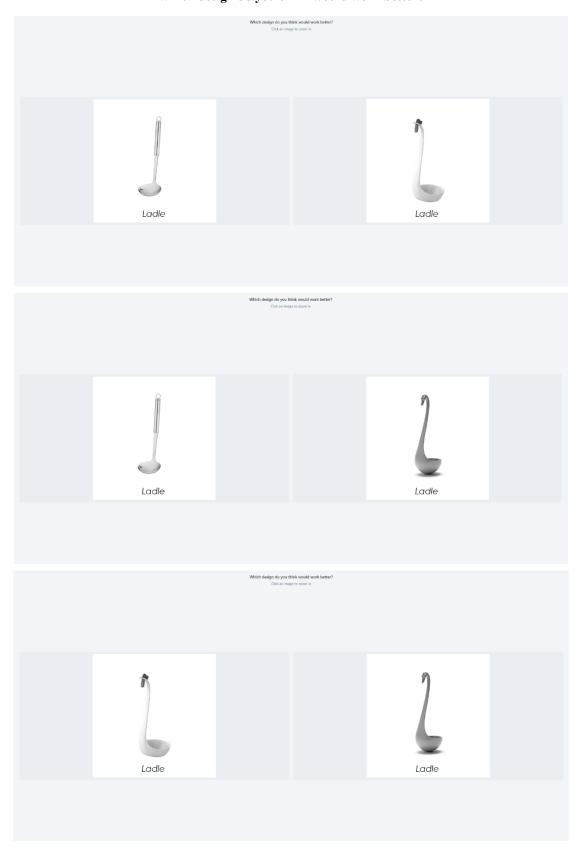








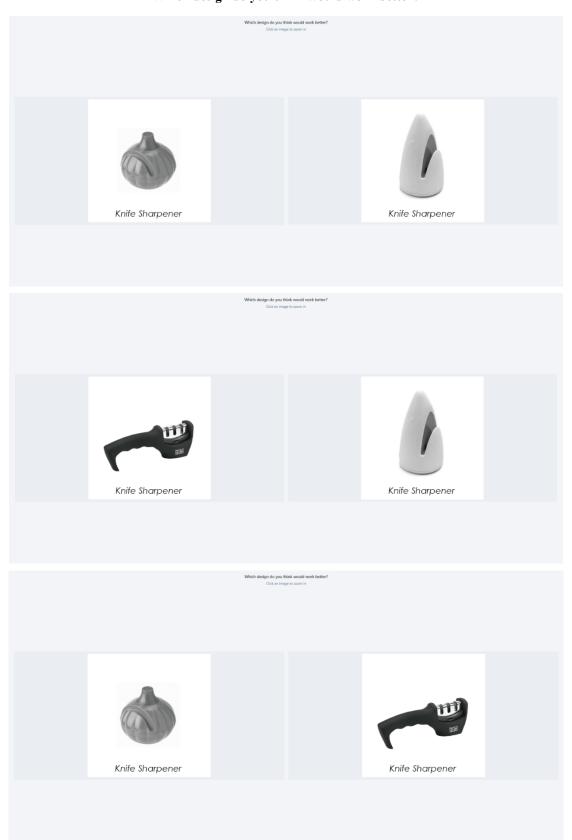








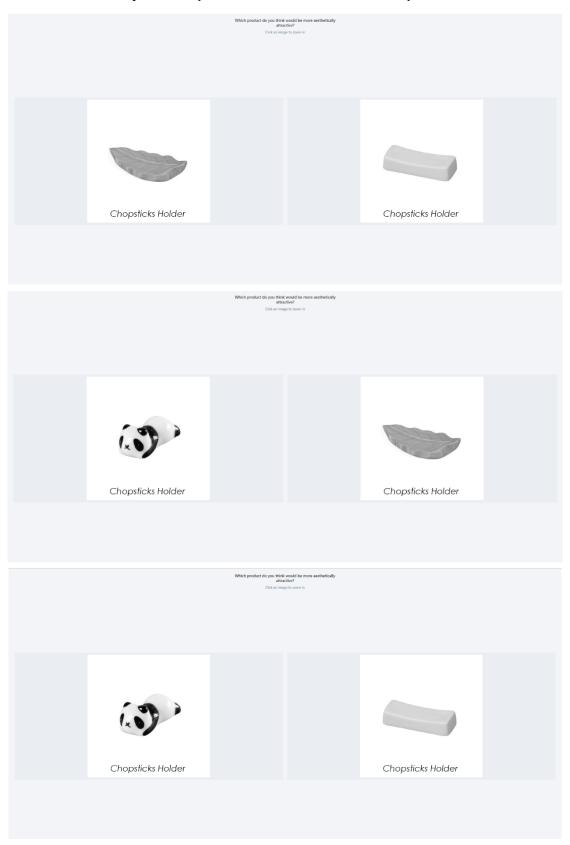




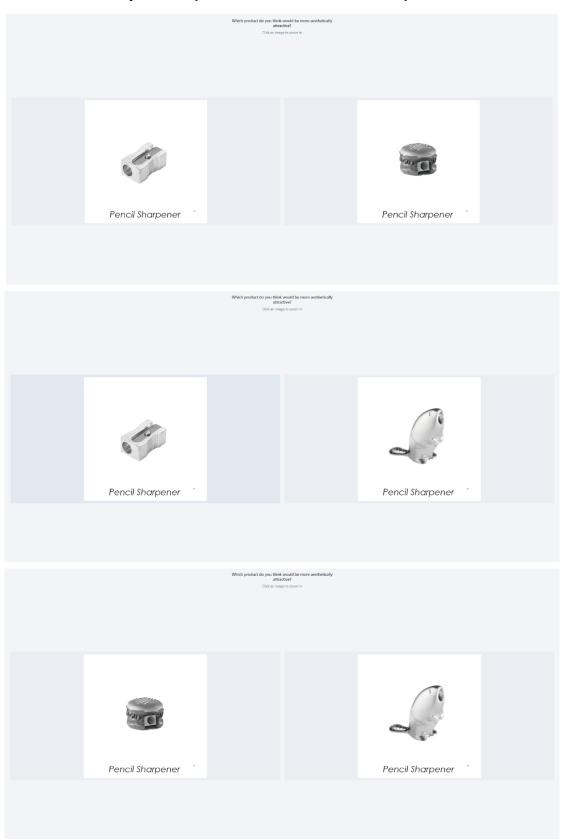




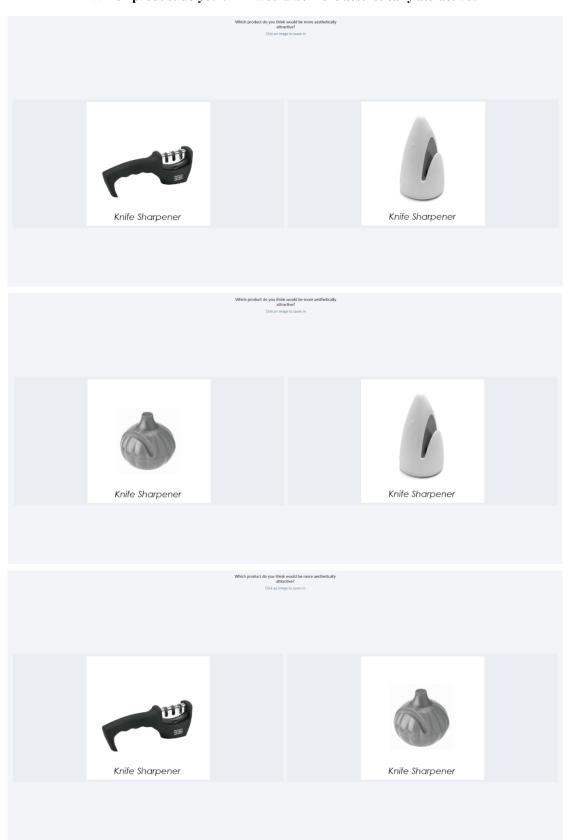




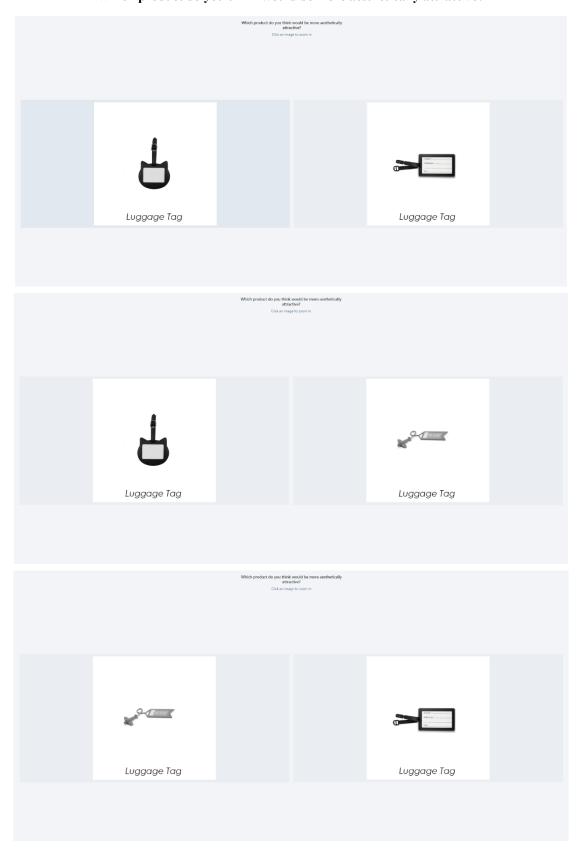








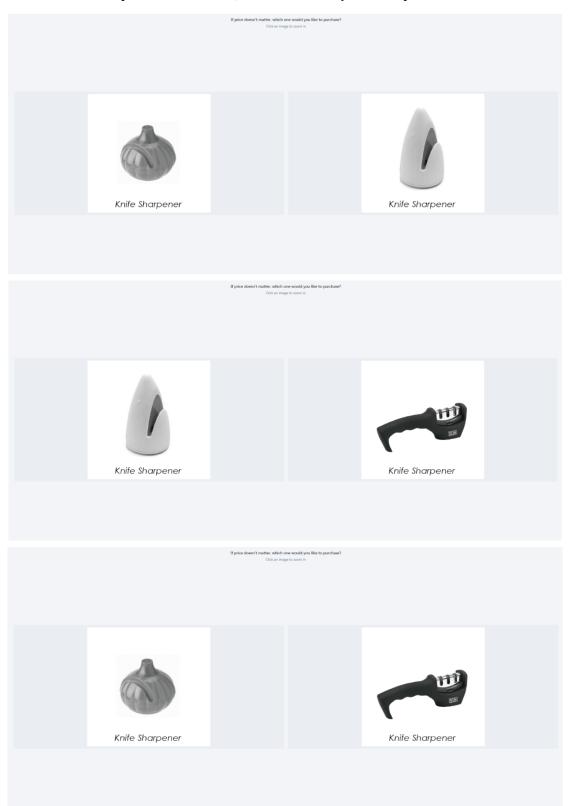




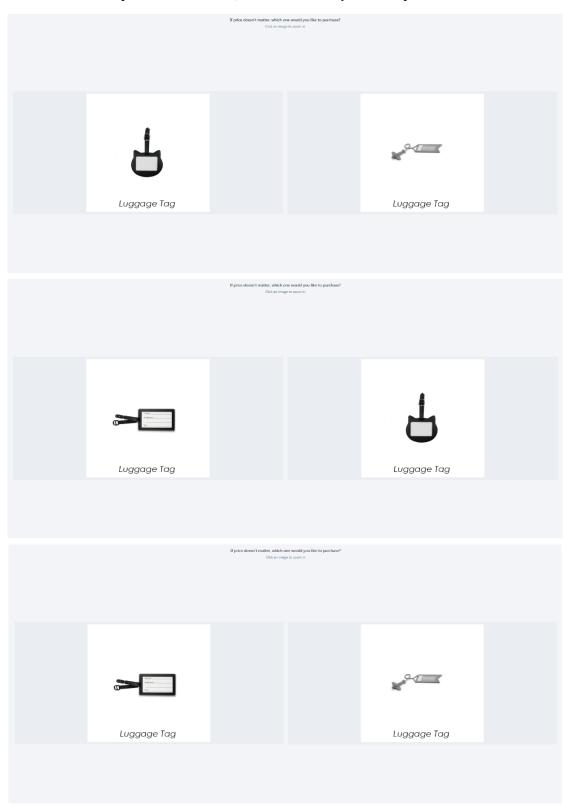




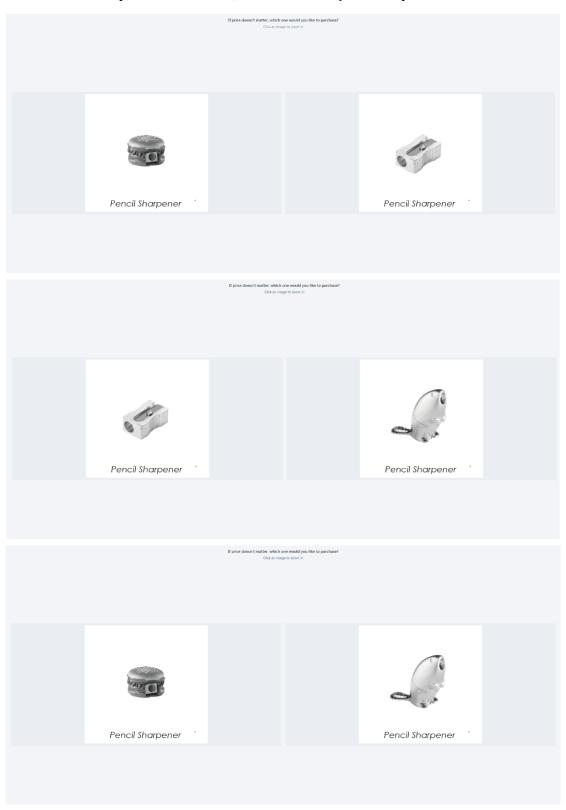




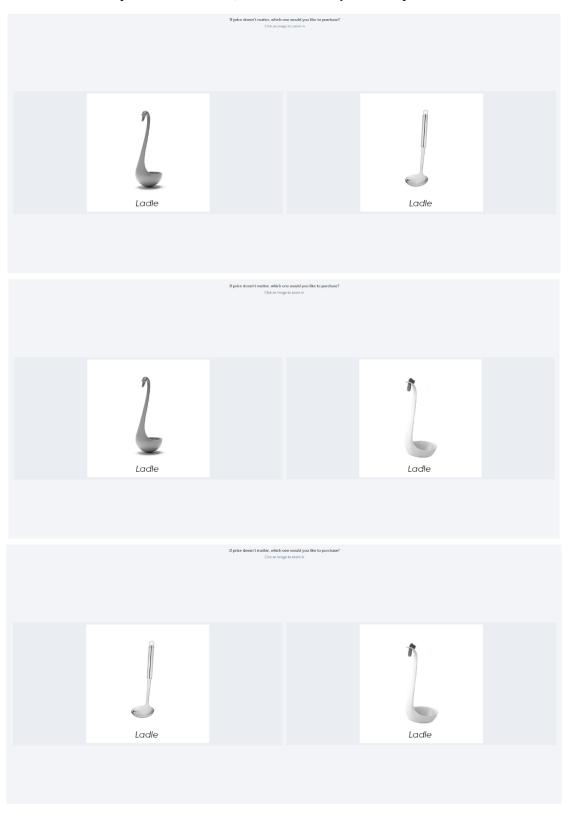




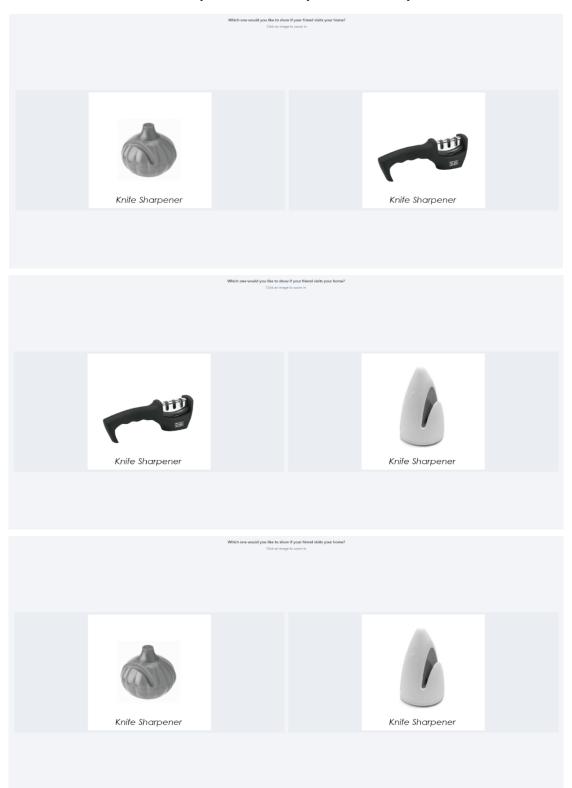








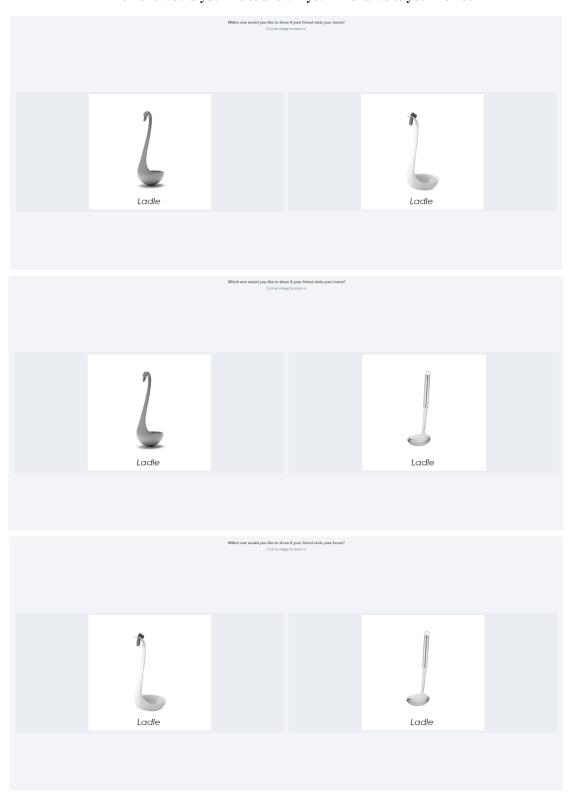




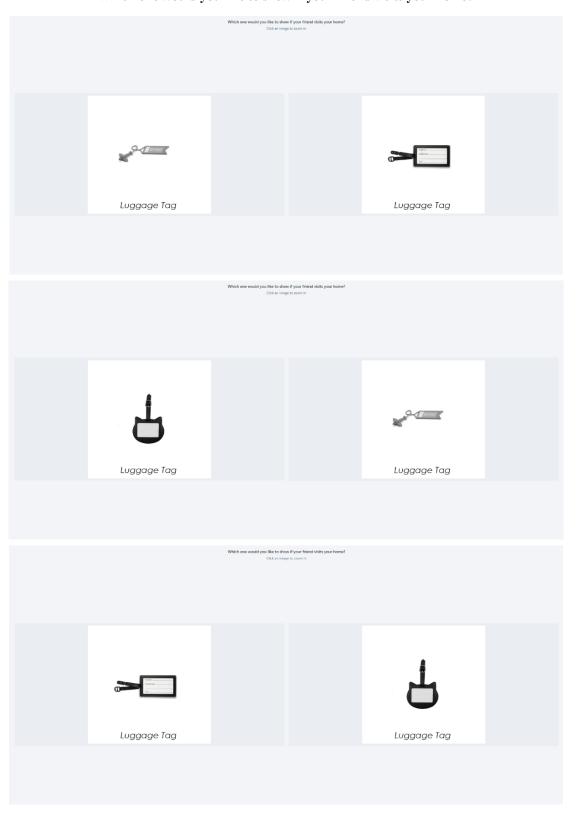




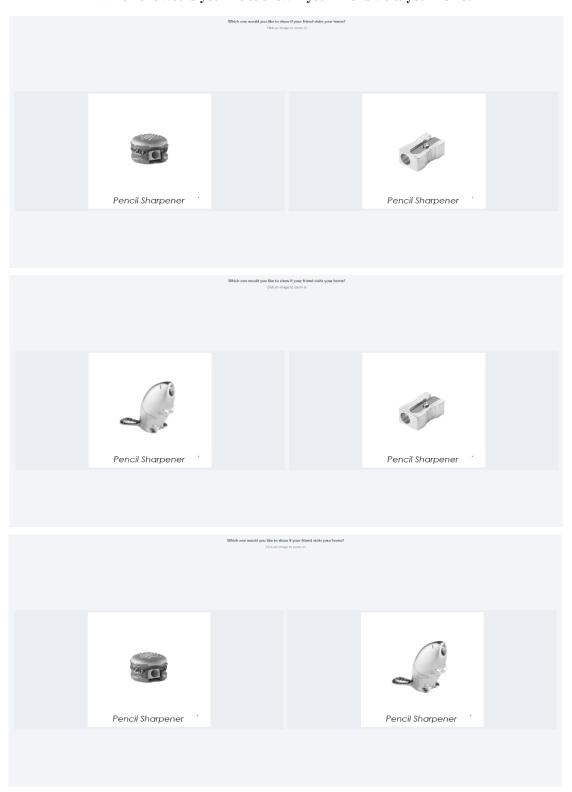














Thanks for the help





The relationship between form as momentary experience and user characteristics in online shopping
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