Should We Label Products from Clones? An Exploratory Study of Beliefs, Attitudes and Food Safety Information on Consumer Purchase Intentions

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The primary purpose of this study is to investigate the impact that credible food safety information has on consumer purchasing of products from the offspring of clones. Also explored is the relationship between consumer beliefs and attitudes about using cloning as a technology with regard to food purchases. Results from a sample of 145 individuals found that credible information about food safety increased the likelihood of purchasing these kinds of products. Respondents also demonstrated negative beliefs and attitudes toward cloning. These were negatively correlated with purchase intentions. Discussion of the study findings and direction for future research is also provided.

INTRODUCTION

In January of 2008, after 6 years of deliberations, the Food and Drug Administration (FDA) announced that food derived from the offspring of cloned cows, pigs, and goats was safe for human consumption. Because clones are genetically and nutritionally indistinguishable from the parent (Miller, 2008), the FDA will not require any special labels on food from the progeny of clones (FDA Consumer Health Information, 2008). In spite of this ruling, food companies now face a dilemma determining the best way to persuade consumers to buy these food products. The industry believes that food from clones is tastier, better in quality and even healthier but without the labeling they will not be able to communicate these benefits to consumers (The Economist, 2008). In contrast, it is likely that many consumers, because of various moral, ethical and philosophical issues as well as their perceptions about the health and environmental risks from this technology will not purchase products from cloned animals (Foreman, 2006; Kornberg, 2007; Weise, 2003). In addition, a survey conducted by the International Food Information Council (IFIC) found that 64% of respondents stated that they were unlikely to purchase such products (IFIC, 2005). These results suggest that including this information on the label could deter consumers from purchasing these products. So what should companies do?

In the absence of prior knowledge, most people make judgments about specific products based on their general beliefs about the technology that is used (i.e., cloning) which influences their attitude and

purchase intentions (Bredahl, 2001; Frewer, Scholderer, and Bredahl, 2003). Considering the lack of knowledge and also the negative beliefs and attitude people have about food produced using technologies such as genetic engineering or cloning (Brizek, 2009; Feight & Zuraikat, 2009) providing information and educating consumers about the safety of these products is likely to reduce their risk perceptions and enhance the likelihood of their purchasing these products in the future. However, these relationships have yet to be explored with regard to food from the offspring of clones and this study attempts to shed more light on this issue. The primary purpose of this research is to determine if a credible source such as the FDA making a claim that food from the offspring of clones is safe for human consumption will have a positive impact on the purchase intentions of these products. More specifically, the study investigates the impact that the FDA claim "beef from an offspring of an animal clone is as safe as beef bred from conventional animals" has on purchase intentions at three different price levels. Second, consumer reactions to a failure to label food produced from an offspring of a cloned animal will also be investigated. At the present time, the FDA does not require this type of labeling and as such the food industry has a choice. Finally, the study will make an attempt to determine the relationship that consumer beliefs and attitudes about animal cloning used as a technology to produce food and risk averseness has on their intentions to purchase these food products.

This study is exploratory in nature and as such will not make any attempt to test an existing theory or model. However, considering the paucity of empirical evidence that focuses on this important consumer issue, results will have managerial implications as food companies develop strategies to educate, promote, and sell food produced from the off-spring of cloned animals.

BACKGROUND

Cloning is not genetic engineering. Even though most people in the U.S. have consumed food that is genetically modified without any adverse effects to their health or the environment for a long time now, there are many who still believe that these products can be dangerous to our health and the environment, and are immoral and unethical (Juanillo, 2001; Nonis, Guha, & Segall, 2004). While genetic engineering involves the manipulation of genes, cloning does not. Cloning involves the creation of an organism that has the same genetic code as another (Miller, 2008). One outcome of the natural process of cloning is identical twins. Similar examples can be found in fruits, vegetables and meats. In fact, we all have consumed foods from the natural process of cloning such as apples and pears, potatoes and truffles as well as meats and dairy products from livestock that were cloned by natural reproduction (Miller, 2007). When cloning is done artificially, a single animal cell that is to be replicated is taken and fused with an egg that has its DNA removed. This egg is then transferred to a surrogate mother and the end result is a clone.

Unlike genetically modified organisms or GMOs in food production where the benefits are accrued mostly to the farmers in terms of plants that require fewer pesticides, are more tolerant of harsh weather conditions and produce higher yields, with cloning the more tangible benefits are reaped by the consumer. It is likely that food from the progenies of clones will be of higher quality (The Economist, 2008). For example, breeders will be able to use the offspring of cloned animals to produce meat that is consistently leaner, marbled, and/or more tender and therefore charge a higher price. While it makes marketing sense for food that contains GMOs to remain unlabeled because of a lack of direct benefits to the consumer, should the information about the technology being used also be hidden when there are clear consumer benefits from cloning? How will consumers identify higher quality food products if this information is not provided on the label especially for commodities such as milk or beef?

It should be noted that cloned animals are expensive (prices vary between $20,000 to 80,000) and are therefore used mainly for breeding purposes (Zhang & Jargon, 2008a). The question is whether or not to state on the label that the product is an offspring of a clone or a progeny. While big food companies such as Smithfield Foods Inc., Tyson Food Inc., Wal-Mart Stores Inc., and Kraft Foods Inc. have stated that they will not use milk or meat from cloned livestock, they have not made similar statements about the conventionally bred offspring of clones (Zhang and Jargon, 2008b) which are the focus of this study.

HYPOTHESES TO BE TESTED

People perceive less risk from naturally occurring events than those originating from technology (Katsuya, 2001). For example, people are generally more concerned about the safety of food than the possibility of experiencing a tornado or an earthquake. Risk perceptions of possible harm will also be higher for incidents that people perceive as involuntary compared to those perceived as voluntary (Slovic 1987; 1993). Together, these findings imply that consumers are likely to perceive higher risks from cloning even when science suggests otherwise. If cloning does not involve the manipulation of genes as in genetic engineering and if the risks to health are similar to that of food produced from conventionally bred animals, it may be beneficial for marketers to state on the label that a product is from a clone. Benefits to the consumer from this information could outweigh the perceived costs when they are also knowledgeable about the actual risks associated with this technology. In addition, marketers will be able to emphasize the benefits of these products such as higher quality, better taste, health benefits etc. on the label as well as in promotion and advertising efforts. In this study, we hypothesize that providing information to consumers from a credible source stating that beef from the off-spring of cloned animals is safe for human consumption along with the benefits to them will increase their likelihood of purchasing beef at three different price levels: (1) same price as USDA prime, (2) 10% more than USDA prime, and (3) 20% more than USDA prime. The rationale for higher prices is the benefits these products offer to the consumer over what is provided by conventionally bred animals currently on the market. That is, if consumers believe that meat from the off-spring of cloned cattle is better quality than USDA prime, which is the best quality meat in the market today, then they will be more likely to purchase this meat if a credible source like the FDA states that the meat is safe for human consumption. This leads us to the first hypothesis.

H1: Information from a credible source, such as the Food and Drug Administration (FDA), stating that meat from cloned animals is safe for human consumption will increase the likelihood of consumers purchasing this meat at three different price levels: (1) same price as USDA prime, (2) 10% more than USDA prime, and (3) 20% more than USDA prime.

As stated before, the FDA does not require companies that produce food from the off-spring of cloned animals to label them. However, when asked, most consumers claim they want this information. In fact, a national survey conducted by Consumers Union reported that 89% of respondents wanted to see cloned food labeled (Mendelson, 2008). One concern about labeling is that consumers might perceive this information as a warning. Considering that 65% of respondents in a survey conducted by (IFIC, 2005) stated that they were unlikely to buy food products from cloned animals, this study hypothesizes that consumers will be concerned if they find out later that they have consumed products from cloned animals without their knowledge. In this study it is hypothesized that consumers will have high levels of concern if they find out after the fact that they have consumed meat from the offspring of a cloned animal without their knowledge.

H2: Consumers will have high levels of concern about food consumed from an offspring of a cloned animal without prior knowledge of it.

When it comes to potential hazards that are technological in nature, scientific facts alone are not sufficient to estimate consumer risks. Consumer perceptions based primarily on their beliefs and attitudes also play a significant role in the calculation of total risks by the consumer (Slovic, 1987; 1993; Fife-Schaw & Rowe, 2000; Sparks & Shepherd, 1994). Based on this line of thinking, it is reasonable to expect the beliefs and attitudes that consumers have about cloning will influence their intentions to purchase cloned products. While the authors were unable to find a study that had investigated these relationships, research on biotechnology has consistently found that consumer beliefs and attitude about biotechnology were significantly related to their intentions to purchase products using this technology

(Mathias & Frewer, 2000; Miles & Frewer, 2001; Siegrist, 1999; 2000). That is, individuals who believe biotechnology is morally acceptable and ethical and who trust regulatory agencies such as the FDA to keep unsafe food off the market were more likely to purchase food that is produced using biotechnology. In addition, individuals who have a positive attitude about biotechnology were more likely to purchase food produced using it. Because of the consumer's lack of knowledge about food from cloning, their perceptions of this technology are likely to influence their perceptions of food from this process. For example, Hallman and Condry of the Food Policy Institute at Rutgers University have conducted many US public opinion surveys on animal cloning and food, and claim that consumer acceptability of this technology is likely to go beyond the science of cloning and will include ethical, moral, or philosophical beliefs (Hallman & Condry, 2006). Also, assuring the safety and approval of this technology by regulatory agencies such as FDA is also likely to have a strong impact on consumer acceptance (Hallman & Condry, 2006). This leads to the next two sets of hypothesis:

H3A: Consumer perceptions of the ethical and moral issues about cloning will be negatively correlated with intentions to purchase meat produced from an offspring of cloning.

H3B: The trust and credibility that consumer's perceive about the FDA will be positively correlated with their intentions to purchase meat produced from an offspring of cloning.

H4: The attitude that consumer's have about cloning will be positively correlated with their intentions to purchase meat produced from an offspring of cloning.

A consumer's propensity to take risks will influence his or her likelihood of purchasing meat from an offspring of a cloned animal even if available science has shown risks from these products to be no different to meat from conventional animals (Miller, 2007). Perceived risk is a powerful influence over consumer behavior. For example, Mitchell (1992) states that perceived risks will influence all stages of the consumer decision making process starting from problem recognition to pre-purchase information search, evaluation of alternatives, purchase decision and post-purchase behavior. This leads to the final hypothesis.

H5: Consumer risk aversion will be negatively related to intentions to purchase meat produced from the offspring of a clone.

When testing hypotheses H3A, H3B, H4, and H5 relating to the beliefs, attitudes, and risk averseness of consumers, an attempt is made to control for gender as well as innate consumer innovativeness. Prior research relating to the adaptation of new technology has reported that both of these variables impact the relationship that beliefs, attitude, and risk averseness has with purchase intentions (Midgley & Grahame, 1978; Steenkamp, Hofstede, & Wade, 1999) and controlling for these variables will partial the possible influence they could have on the relationships that are being investigated.

METHODOLGY

Samples and Data Collection

Data for this research were collected from students who were attending a medium size university (10,000+) in the Mid-South region of the U.S. Participants were asked to provide their intentions to purchase beef at the 3 different price levels for top quality (i.e., tender, lean, tastier etc.) USDA (U.S. Department of Agriculture) approved beef where the label also stated that the beef was from an off-spring of cloned cattle. Once this was completed, participants were shown a short 3 minute video clip that showed an official from the FDA making the claim that food from cloned animals was safe for human consumption and that there were no verifiable differences genetically or nutritionally between meats from cloned animals and other conventionally bred animals (BBC News, 2008). After this video message,

participants were once again asked to respond to the same 3 questions about purchase intentions at the 3 different price levels. In addition, students also responded to items that measured their beliefs and attitude about cloning and the FDA, propensity to take risks, inert innovativeness and demographics. These items are provided in the appendix. Data collection resulted in 145 usable surveys that were subject to further analyses.

Measurement and Analysis

Beliefs – The scale developed and used by Nonis, Guha, and Segall (2004) to measure consumer beliefs about biotechnology and genetic engineering was used to measure the two belief dimensions, ethics and morality of cloning used as a technology to produce food and trust and credibility of the FDA in terms of keeping out food from the market that can be dangerous to health etc. The reported reliability coefficients for the two dimensions varied between 0.80 and 0.86. Items are provided in appendix A.

Attitudes – Six bipolar adjectives measuring the consumer's overall attitude toward food produced from the off-spring of cloned animals were used. Numerous studies have used similar items to measure attitudes toward a product or a brand (cf. MacKenzie, Lutz, & Belch 1986; Taylor, Miracle, & Wilson 1997) and reported reliability coefficients have varied between 0.70 and 0.97. Items are provided in appendix A.

Purchase Intentions –As stated earlier, purchase intentions were measured at 3 different price levels. Respondents were asked how likely they were to purchase superior quality beef (tender, leaner, tastier[1]) from the off-spring of cloned animals at 20% more than prime quality beef produced from conventionally bred cattle, 10% more, and at the same price as prime quality beef. Possible response choices were 1 "definitely would not buy" 2 "probably would not buy" 3 "neutral" 4 "probably would buy," and 5 "definitely would buy."

Risk Averseness – Propensity to take risks was measured using a 3 item scale developed by Donthu and Gilliland (1996). The reported reliability coefficient for the 3 items is 0.78. These items are provided in appendix A.

Concern about Food Labeling – This was measured using a single item likert type scale that asked the respondent if he or she would be upset if the product label on a food product made from the offspring of a cloned animal did not contain this information. Responses varied between 1 "not at all upset to 7 "very upset."

Inert Innovativeness - This construct was operationalized using the Kirton Adaption-Innovation Inventory (KAI) (Kirton, 1976). The instrument has been extensively tested for psychometric properties in numerous contexts (Bagozzi & Foxall, 1996; Foxall & Hackett, 1992).

Hypothesis H1 was tested using 3 paired sample t-tests. Hypothesis 2 was tested using a one sample t-test using the test value 4 as the midpoint between "not at all upset" to 7 "very upset." (a mean value higher than 4 would indicate the intensity of consumer concern to be high because 4 is the mid-point). Hypotheses H3A, H3B, H4 as well as H5 were tested using partial correlation coefficients controlling for gender and inert innovativeness. When testing all hypotheses, the significance level was set at the 0.05 level.

RESULTS AND FINDINGS

Selected demographic characteristics of the sample were as follows: gender (49.6% males and 50.4% females), marital status (77% single and the remainder married), and average age (24.6 years). The first

question in the survey asked the respondent if he or she had grocery shopped in the last 2 weeks. Those who did not do shop (18 or 12.5 % of the sample) were excluded from any further analysis.

Table 1 summarizes pair-wise correlations for the study variables. Reliability coefficients are provided on the diagonal in parentheses. As can be seen, all reliability coefficients were acceptable as per Nunnally (1979).

TABLE 1
CORRELATIONS AND RELIABILITY COEFFICIENTS

	1	2	3	4	5A	5B	5C	6A	6B	6C
1.Ethics and morals	(0.89)									
2.Credibility (FDA)	-0.13	(0.84)								
3.Risk averseness	0.37	-0.13	(0.72)							
4.Attitude	0.50	-0.13	0.25	(0.93)						
5.Purchase intentions	(before video)									
A. 20% more	-0.14	0.04	-0.06	-0.30						
B. 10% more	-0.16	0.08	-0.10	-0.36	0.77					
C. Same price	-0.29	0.13	-0.22	-0.47	0.38	0.65				
6. Purchase intentions	(after video)									
A.20% more	-0.22	0.21	-0.16	-0.34	0.72	0.58	0.28			
B.10% more	-0.22	0.17	0.12	-0.41	0.57	0.65	0.51	0.77		
C. Same price	-0.42	-0.29	-0.29	-0.58	0.25	0.45	0.70	0.32	0.59	

All correlations above 0.17 are significant at $p < 0.05$ level

Table 2 summarizes results from the paired sample t-tests that tested hypothesis 1. As can be seen, all mean differences were statistically significant at $p < 0.05$ level indicating that credible information from a source such as the FDA increases the likelihood of consumers purchasing meat from a progeny of a clone at all three price levels. This supported the first hypothesis. However, it should be noted that means before as well as after were quite low indicating a lack of consumer willingness to purchase food products from offspring of clones.

TABLE 2
IMPACT CREDIBLE INFORMATION ABOUT SAFETY OF CLONED FOOD HAVE WITH PURCHASE INTENTIONS AT THREE DIFFERENT PRICE LEVELS

	Purchase Intentions [a] (Mean)			
Price	Before	After	t-value	p-value
20% more than Prime USDA Choice Beef	1.67	1.82	-2.23	0.03[1]
10% more than Prime USDA Choice Beef	1.97	2.14	-2.08	0.04[1]
Same price as Prime USDA Choice Beef	2.66	2.84	-2.05	0.04[1]

[1] significant at $p < 0.05$

[a] 1=definitely would not buy, 2=probably would not buy; 3=neutral, 4=probably would buy, and 5=definitely would buy

Hypothesis H2 evaluating consumer concern about product labels not containing information about cloning was also supported. The one sample t-test resulted in $t = 9.24$, $p < 0.05$. The mean was 5.54 indicating concern if consumers later found out that the meat that they have been consuming have been from offspring of cloned animals.

Results from partial correlations that tested the remaining hypothesizes are summarized in table 3.

TABLE 3
RELATIONSHIP BELIEFS, ATTITUDE, AND RISK AVERSENESS HAVE WITH PURCHASE INTENTIONS AFTER CONTROLLING FOR GENDER AND INERT INNOVATIVENESS

	Purchase Intentions [a]	
Variables	Before Video	After Video
Morals and ethics	-0.23[1]	-0.35[1]
Credibility (FDA)	0.14	0.21[1]
Attitude	- 0.44[1]	- 0.54[1]
Risk averseness	-0.18[1]	-0.25[1]

[1] significant at $p < 0.05$

[a] 1=definitely would not buy, 2=probably would not buy; 3=neutral, 4=probably would buy, and 5=definitely would buy

As can be seen, most partial correlation coefficients that provided relationships between beliefs and attitude about meat from offspring of clones and purchase intentions as well as risk averseness and purchase intentions before the respondents watched the video were significant. The relationship between the beliefs morals and ethics and purchase intentions was significant ($r = -0.23$, $p < 0.05$) and this supported hypothesis H3A. However, the relationship between the belief dimension credibility and purchase intentions was not significant ($p = 0.14$, $p > 0.05$) and therefore did not support hypothesis H3B. The relationship between attitude and purchase intentions was significant ($r = 0.44$, $p < 0.05$) and as such supported hypothesis H4. Finally, hypothesis H5 that stated consumer risk aversion to negatively relate with purchase intentions was also supported at the 0.05 level of significance. However, all these relationships were significant after watching the video and in fact the strength of the correlations was higher than before watching the video.

DISCUSSION AND IMPLICATIONS

Means provided in table 2 show low levels of purchase intentions for these products even after emphasizing the quality attributes. The likelihood of purchasing went up after watching the video clip but the means were still between "probably would not buy" and "neutral." At higher price levels, the likelihood of purchasing was even lower. This seems to indicate a lack of desire among people to purchase products from the off-spring of clones.

The results in table 2 and table 3 show that credible information from the FDA has a positive influence on purchase intentions. However, this influence was small in magnitude as indicated in table 2 (mean differences) and table 3 (correlation coefficients). While prior research showed that most consumers have a positive opinion of the FDA (Frewer, Scholderer, & Bredahl 2003), food and drug issues that have dominated the news in the recent past (e.g., Vioxx, the block buster drug for arthritis, Avandia used for

controlling diabetes, and Vytorin used for reducing cholesterol) may have damaged the FDA's credibility. In fact, table 1 shows that the mean credibility for the FDA is 3 which is neutral (mean=2.99).

These findings bring into question the prudence of labeling food as safe even with an endorsement from the FDA. On the other hand, a consumer and opinion leader report conducted recently reported that 84% of those sampled were satisfied with the current information provided on food labels. Only 16% of the consumers could think of additional information they believed was important and less than 1% of those mentioned biotechnology (IFIC, 2007). There are other studies that suggest consumers would grudgingly buy products using this technology if there were no public concerns about its safety (Golan, Kuchler, and Mitchell, 2001; Hoban, 2004). These findings seem to also favor an approach that hides the fact that the product is from a clone. However, the fundamental question still remains as to how firms will communicate to their customers the superior quality of these products without stating that they are from the offspring of clones? Hypothesis H2 suggests that high consumer displeasure will result if they have purchased food from the progeny of clones without their knowledge. It would be a very risky or even unethical strategy if this information was not provided to consumers given the belief that a consumer has a right to know what he or she is purchasing and ultimately consuming.

Means provided in table 1 show that consumers have moral and ethical issues about cloning for food purposes (mean=2.85). Given that the sample consisted of college students, a group that is usually more open to the use of new technologies (they are younger, more educated, and likely to take more risks by trying new things), this finding is troubling. This study also found that ethics and morals have a negative impact on purchase intentions both before and after watching the video at the same price level. Hallman & Condry (2006) suggest that the word cloning evokes negative images and feelings that can lead to discomfort among people and this is reflected in opinion surveys relating to food from clones. Given that we have all likely consumed food from natural clones, credible and easy to understand messages that educate consumers about the safety of these products should reduce the influence that people's ethical and moral concerns have on their purchase intentions.

Consumer attitudes about cloning showed the highest correlation with the likelihood of purchasing these products both before and after watching the video. The correlation indicates that as consumer attitudes about cloning become more negative their likelihood of purchasing these products goes down. Also, the general attitude consumers have about products from cloning was also negative as indicated by the mean in table 1 (mean=4.42; a higher mean suggests a more negative attitude). Considering that consumer beliefs and attitudes were measured in the survey after watching the BBC video about the FDA safety statement, this finding should be a concern to food companies. Overall, table 3 shows that beliefs (credibility of the FDA as well as morals and ethics), attitudes and risk averseness correlate significantly with purchase intentions.

LIMITATIONS AND DIRECTION FOR FUTURE RESEARCH

This study is not without limitations. First, the sample was confined to students and future studies should investigate these relationships with a broader range of consumers prior to making generalizations. Second, this study did not measure the perceived risks to health and the environment as a belief variable. Future studies should include this variable to see the level of concern that consumers have with this technology and how it impacts purchase intentions before and after watching the video. Third, an interesting avenue for future research is to estimate the financial as well as non-financial costs of not labeling. If people consume these products and later find out that this information has been purposely hidden from them, then regulatory agencies like the FDA as well as the entire food industry will have a lot to explain. Finally, this study investigated the impact that credible information has on purchase intentions. Future studies could expand the message to highlight the value to consumers of the potential non-product benefits of these products, i.e., cloning can enable ranchers to breed cattle that are immune to mad cow and foot-and-mouth disease thereby minimizing the use of antibodies, growth hormones, and other chemicals of concern to consumers resulting in increased public acceptance. Along the same lines, rather than providing information that the food from clones is safe, perhaps a more valuable message may

be an explanation of the cloning process. If consumers don't understand the process, then they may not care about the benefits.

ENDNOTES

1. In this study, respondents were asked to allocate 100 points based on importance of the attributes tender, juicy, lean, taste, and price when purchasing beef. Based on results, most important was price (mean=26.3) followed by taste (mean=22.2), lean (mean=21), tender (mean=17), and juicy (mean=13.3). Clearly all these product attributes are important to shoppers when deciding to purchase beef. When price is increased, they have to evaluate value the benefits of the product compared to price and other costs.

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APPENDIX A
SURVEY MEASURES

Purchase Intentions – Before Watching the 3 minute Video

1=Definitely would not buy 2=Probably would not buy 3=Neutral
4=Probably would buy 5=Definitely would buy

1. The price is identical to other USDA prime quality beef from conventionally bred cattle
2. The price is 10% less than other USDA prime quality beef from conventionally bred cattle
3. The price is 20% less than other USDA prime quality beef from conventionally bred cattle

Purchase Intentions – After Watching the 3 minute Video

The same 3 items shown above were used here as well.

Beliefs and Risk Averseness – (vary between 1 "strongly disagree" to 5 "strongly agree")

1. Cloning is NOT morally acceptable
2. Cloning is like playing God
3. Cloning is wrong under any circumstances
4. Regulatory agencies such as the FDA and USDA can always be trusted to keep away the food that is Unsafe for consumption.
5. Regulatory agencies such as the EPA and the FDA can always be trusted to be vigilant and when necessary take action against companies that are conducting research damaging to our environment and health.
6. Regulatory agencies such as the FDA do a great job of approving food that is absolutely safe for consumption.
7. I would rather be safe than sorry
8. I want to be sure before I purchase anything
9. I avoid risky things

Attitude

Beneficial	1----------2----------3----------4----------5----------6----------7	Harmful
Desirable	1----------2----------3----------4----------5----------6----------7	Undesirable
Valuable	1----------2----------3----------4----------5----------6----------7	Worthless
Needed	1----------2----------3----------4----------5----------6----------7	Not needed
Appropriate	1----------2----------3----------4----------5----------6----------7	Inappropriate
High quality	1----------2----------3----------4----------5----------6----------7	Poor quality

Inert Innovativeness (1 = describe myself-image poorly and 5 = describe my self-image very well)

1. Often risks doing things differently
2. Copes with several ideas at the same time
3. Always with ideas
4. Has fresh perspectives on old problems
5. Will always think of something when stuck
6. Can stand out in disagreement against a group
7. Would sooner create than improve
8. Likes to vary set routines at a moment's notice
9. Needs the stimulation of frequent change
10. Prefers change to occur gradually