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Culture, product type, and price influences on consumer purchase intention to buy personalized products online

Junyean Moon [a], Doren Chadee [b,1], Surinder Tikoo [c,2]

Abstract

With personalization, consumers can choose from various product attributes and a customized product is assembled based on their preferences. Marketers often offer personalization on websites. This paper investigates consumer purchase intentions toward personalized products in an online selling situation.

The research builds and tests three hypotheses: (1) intention to purchase personalized products will be affected by individualism, uncertainty avoidance, power distance, and masculinity dimensions of a national culture; (2) consumers will be more likely to buy personalized search products than experience products; and (3) intention to buy a personalized product will not be influenced by price premiums up to some level. Results indicate that individualism is the only culture dimension to have a significant effect on purchase intention. Product type and individualism by price interaction also have a significant effect, whereas price does not. Major findings and implications are discussed.

[a] Department of Business Administration, School of Economics and Business, Hanyang University, Ansan, South Korea
[b] Department of International Business, School of Commerce and Business, University of Auckland, Auckland, New Zealand
[c] School of Business, State University of New York at New Paltz, New Paltz, New York 12561, USA

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Corresponding author. Tel.: +82 31 400 5653; fax: +82 31 400 5591.
E-mail addresses: jmoon@hanyang.ac.kr (J. Moon), d.chadee@auckland.ac.nz (D. Chadee), tikoos@newpaltz.edu (S. Tikoo).

[1] Tel.: +64 9 373 7599 x85951.
[2] Tel.: +1 845 257 2959.

1. Introduction

Computer manufacturer Dell has been very successful in meeting the diverse needs of different customers by producing thousands of computer configurations (Wind and Rangaswamy, 2001). Its customers can make their own choices on important computer features and still buy the product at a price similar to that of competitors' standard products. However, since its market entry in Korea, Dell has been a tiny player, commanding less than a 5% market share. In China, it is a market follower, lagging far behind a local market leader.

Why has Dell performed so poorly in Korea and China? It seems that Dell's personalized approach is not very popular in these countries. Personalization involves “customizing some features of a product or service so that the customer enjoys more convenience, lower cost, or some other benefit” (Peppers and Rogers, 1997).

Customers can select from various product attributes, ending up with a final product that is assembled on the basis of their individual preferences. Product personalization strategies have grown increasingly popular in various types of businesses (Goldsmith and Freiden, 2004). Firms have adopted personalization to successfully market a wide range of products, such as eyeglasses, bicycles, coffee, greeting cards, and computers.

We posit that customer purchasing of personalized products differs across cultures. A personalized product is a differentiated product because the end result differs from the standard version. Customer preference and value placed on customization and differentiation are likely to vary depending on the customers' cultural orientation. Hofstede's (1980) cultural dimensions of individualism, uncertainty avoidance, power distance, and masculinity should be a useful framework to explain cross-cultural differences in customer acceptance of personalized products.

Personalization is often offered by online marketers. Technological developments have enabled economical mass production and distribution of personalized products. The most significant factor is the emergence of the Internet as an interactive medium to offer personalization (Hanson, 2000). This leads to another question: Does customer purchase of personalized products vary according to product types? Literature indicates that online retailing is more appropriate for selling search goods than for experience goods. For search goods, consumers can obtain full information about the dominant product attributes without direct experience (Citrin etal., 2003; Klein, 1998). Can online marketers compensate for the weak points of experience goods by offering personalization?

Still another question has to be raised concerning online personalization. The essence of personalization is to provide what a particular customer wants by transforming a standard product into a specialized solution for that individual (Pine and Gilmore, 1999). Customization of product features increases the value of the bundle of benefits the customer receives from a product or service. Then, can an online marketer charge a price premium for a personalized product on the basis of the value increase?

Only a few studies have examined online personalization. Broekhuizen and Alsem (2002) used case analyses to study the success factors of mass customization. Cooke et al. (2002) examined how consumers respond to recommendations of unfamiliar products made by electronic agents and found that either evaluative assimilation or contrast is produced as a function of the context of the recommendations. Liechty et al. (2001) analyzed customers' portfolio of choices of Web-based information service from each of several experimental choice menus by estimating the utility for each menu item as a function of its characteristics, price, and other specific attributes, such as multifeature discounts.

No empirical research has examined the key factors of consumer purchase of personalized products

from a cross-cultural perspective. Thus, we have set out to study consumer purchase of personalized products across different cultures. Specific research questions include: How strongly do consumers intend to purchase a personalized product? Do consumers of different cultural orientations show different responses? Do consumer responses vary across product types? How much price premium can an online marketer charge for personalized products?

Online personalization may provide a new direction in the long-lasting but unresolved debate in international marketing: standardization versus customization (see Jain, 1989; Zou and Cavusgil, 1996). Personalization can take advantage of both standardized and customized strategies because it offers individually tailored products at costs that are almost the same as that of standardized production and mass marketing. Although the concept of global online personalization seems feasible and plausible, ithas not been rigorously tested with diverse consumers across different cultures (Goldsmith and Freiden, 2004).

This research can contribute to expanding our limited understanding of consumer responses to personalization. It investigates personalization from a consumer perspective in a comprehensive context by considering online selling situations, cross-cultural differences, product types, and price. In the sections that follow, we develop the research hypotheses, describe the experimental study used to test the hypotheses, report the results, and discuss the implications of the findings.

2. Research model and hypotheses

A few related terms need to be clarified to define personalization in this research. One-to-one marketing refers to marketing based on the knowledge of what individual customers want (Peppers and Rogers, 1997). For example, a hotel may offer a smoke-free room based on past preferences indicated by a customer. Peppers and Rogers (1997) define personalization as “customizing some features of a product so that the customer enjoys more convenience, lower cost, or some other benefit”. Personalization can be initiated by the customer, such as My Yahoo! or by the firm, such as a real estate agent determining what set of houses to show to a customer. Mass customization is defined as offering products tailored to customers' needs but at costs that are almost the same as that of standardized production and mass marketing (Pine and Gilmore, 1999).

Personalization in this paper is defined as “customizing some important attributes of a product or service and offering it online at price that is almost the same as or somewhat higher than that of a comparable standardized product”. It combines important elements of Peppers and Rogers' (1997) definition of “personalization” with the definition of mass customization (Pine and Gilmore, 1999).

One key ingredient of personalization defined here is that customers can select levels of various product attributes to create the customized products assembled on the basis of their own preferences. Von Hippel (1998) emphasizes the importance of customer involvement in designing products, noting that the customer has the best understanding of his or her needs. Another ingredient is differentiation since the final product differs from the standard version. Personalization can thus enhance customer perceived value by increasing the value of the bundle of benefits the customer receives from the product or service.

Again, we posit that customer perceived value of a personalized product will be influenced by the customer's cultural orientation, the type of product, and price levels. The relationships hypothesized are shown in Fig. 1.

2.1. Hypothesis 1: culture effect

Since Levitt's (1983) globalization of markets proposition, some scholars have posited that globalization has created a progressively more homogenized world market, with a growing number of consumers from diverse geographic locations and cultural backgrounds sharing the same preferences. The view that people around the world live in a more uniform pattern has facilitated the emergence of

global brands with relatively standardized marketing strategies across cultural boundaries (Zou and Cavusgil, 1996).

However, other researchers report an evidence of increased divergence, especially among industrialized countries (Usunier, 1997). For example, in Europe, even with economic union and progress toward standardization of the political and social infrastructure, national cultural values are strongly rooted in history and appear to be stable over time (De Mooij, 2000). Suh and Kwon (2002) report that consumers from different cultures have different attitudes, preferences, and values, and remain reluctant to buy foreign products even after much exposure to globalization. Cultural differences affect consumer behaviors, such as attitudes and persuasion (Aaker, 2000), diffusion of new products (Takada and Jain, 1991; Steenkamp et al., 1999), and product and service usage (Zaichkowsky and Sood, 1989).

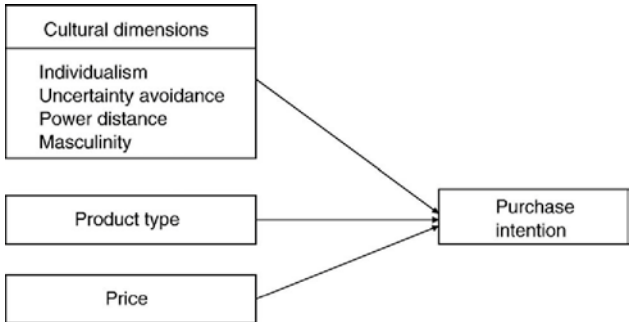

Fig. 1. Conceptual model.

Accordingly, we posit that consumers respond differentially to personalized products across different cultures. For example, New Zealand is a more individualistic, less uncertainty avoiding, less power distant, and more masculine society than Korea (Hofstede, 1980), and the difference may affect consumer responses to personalized products between the two countries.

The four cultural dimensions suggested in Hofstede's (1980) seminal work about cultural dimensions likely explain cross-cultural differences in consumer purchase intentions. Individualism implies a loosely knit social framework in which the “I” consciousness and individual initiative are strong. In contrast, collectivism indicates a tight social framework that emphasizes the “We ” consciousness and organizational belonging and membership. People in highly individualistic societies value a private life, individual decisions, autonomy, and variety, whereas people in highly collectivist societies value group decisions, order, and security. For example, Chinese society has historically focused on harmony and conformity in governing all interpersonal relations, while de-emphasizing personal goals (Neelankavil et al., 2000). On the other hand, in Europe and North America, where cultures are more individualistic, consumers are expected to express their own individuality more strongly than those in less individualistic countries. Personalized products help consumers express their unique characters because the products are individually customized to their preferences. Therefore, Hypothesis 1a is offered as:

H1a. Consumer intention to purchase online personalized products will be stronger for consumers of more individualistic countries than for those of less individualistic countries.

Uncertainty avoidance, according to Hofstede (1980), indicates the extent to which societies feel threatened by uncertain and ambiguous situations and the extent to which they attempt to avoid such situations. In a society with high uncertainty avoidance, individuals tend to establish more formal rules and do not tolerate deviant ideas and behaviors. Consumers are likely to be more satisfied with a standardized product because being different from others is not desirable. We posit that the tendency to seek a personalized product designed for oneself will be weaker in such a country than in one with

less uncertainty avoidance. Therefore, Hypothesis 1b is offered as:

H1b. Consumer intention to purchase online personalized products will be stronger for consumers of less uncertainty avoiding countries than for those of more uncertainty avoiding countries.

Power distance is the extent to which a society accepts the fact that power is distributed unequally. In societies with a high degree of power distance, status and age are very important and people generally tend to be less innovative. Yaveroglu and Donthu (2002) find that the coefficient of innovation is significantly lower in such countries.

Power distance is related to conservatism and maintaining the status quo (Steenkamp et al., 1999). We posit that the tendency to accept these values is likely to induce individuals to accept "the status quo product," which is probably a standard product. Thus, individuals are more likely to buy a standard product in more power distant countries than those in less power distant countries. Consumers in countries with high power distance are less likely to seek a personalized product that is less "status quo". Therefore, we offer Hypothesis 1c as:

H1c. Consumer intention to purchase online personalized products will be stronger for consumers of less power distant countries than for those of more power distant countries.

Finally, Hofstede (1980) defines masculinity as the degree to which a society values assertiveness, achievement, and the acquisition of wealth. In masculine cultures, achievement and success are more important than caring for others and improving the overall quality of life. A largely symbolic means of demonstrating achievement is by having the latest and most novel possessions (Yeniyurt and Townsend, 2003). Having a customized product will help consumers demonstrate their achievement in this regard. The implication is that consumers are more likely to seek a personalized product in more masculine countries than in less masculine countries. Therefore, Hypothesis 1d is offered as:

H1d. Consumer intention to purchase online personalized products will be stronger for consumers of more masculine countries than for those of less masculine countries.

2.2. Hypothesis 2: product type effect

The Internet retail format benefits both marketers and consumers compared to alternative channel formats. Most notably, it eliminates time and space barriers and facilitates efficient consumer information searches (Hoffman and Novak, 1996; Peterson et al., 1997). Its major limitation is that Internet shoppers cannot physically experience a product at the time of purchase. Indeed, the best-selling products on the Internet are products that can be digitized or that are dominated by search attributes (Rosen and Howard, 2000). This Internet sales pattern is consistent with the link between product characteristics and retail store patronage, which has been noted in conceptual and empirical research (Alba et al., 1997; De Figueiredo, 2000; Sheth, 1983; Vijayasarathy, 2002).
Because of its inability to provide product experience prior to purchase or use, the Internet is more appropriate for selling search goods than experience goods (Citrin et al., 2003; Klein, 1998). A consumer can obtain full information on the dominant attributes of a search good without direct experience. For experience goods, an information search for dominant attributes is more costly or difficult than direct product experience (Klein, 1998; Nelson, 1970, 1974).

Does personalization make a difference in consumer willingness to purchase search versus experience goods in online settings? We would expect consumers to be more likely to buy search products online. Besides providing consumers with specific information about important attributes, personalization ensures that the attribute specifications match their individual preferences. The potential impact on purchase intention for experience goods is less clear. In addition to the higher costs and difficulties mentioned previously, buying customized products generally involves non-monetary costs such as additional time, effort, and uncertainty as well as monetary costs like

price premiums (Broekhuizen and Alsem, 2002).

Participating in the personalization process, however, could contribute toward making the consumer more comfortable with buying experience goods online. The evaluation of experience goods can be highly subjective, and personal taste plays an important role in their purchase. Consumers are more satisfied when they are allowed to specify their attribute preferences (Huffman and Kahn, 1998). Personalizing products can also give consumers a sense of control over the exchange process, which should also make them more willing to buy (Van Raaij and Pruyn, 1998).

Nevertheless, the potential benefits of personalizing experience products appear to be limited compared to the benefits of personalizing search products. Accordingly, Hypothesis 2 is offered as: H2. Consumer intention to purchase online personalized search products will be stronger than the intention to purchase online personalized experience products.

2.3. Hypothesis 3: price effect

Broekhuizen and Alsem (2002) suggest that customers are often willing to pay a premium for customized products because their needs are better met. If a company facilitates the creation of a co-production process to make a product tailored to the customer's needs and the product adds great value, price becomes a less important factor (Wind and Rangaswamy, 2001). There is less incentive for customers to comparison shop based on price.
Personalization reduces similarity across competing products or brands, thus, making a direct price comparison more difficult for consumers. Although search costs for price are generally low online (Bakos, 1997), in this case the cost increases. Consumer search costs for price and product attributes such as quality are a key concept in online price research. Lynch and Ariely (2000) found that price competition is reduced when the cost of searching for prices is higher than the cost of searching for product attributes. Similarly, Zettelmeyer (1998) explores a scenario in which firms compete with two distribution channels and control the amount of product information provided to consumers who are uncertain about their preferences. His research shows that firms can achieve finer consumer segmentation by strategically influencing search costs.

However, if the price goes up beyond a certain range, customers may begin tosubstitute less customized products. They search for information until the marginal cost of obtaining a unit of information is equal to the marginal benefit of possessing a unit of information (Urban et al., 1993). Thus, the price search will increase as the benefits of searching increase, which happens when the price of a seller's customized product goes up.
Moreover, conventional wisdom maintains that the Internet lowers the cost of distribution and consumer search, thereby lowering entry barriers and intensifying price competition (Alba et al., 1997; Bakos, 1997). The convenience, time-saving aspects, and product-matching features of online markets can boost consumer motivation to search for price information, indicating that consumers are becoming more price-sensitive (Jiang, 2002).

Here we must balance the generally negative implications of higher prices with the positive implications of consumer willingness to pay a premium for personalization along with reduced price comparisons. Therefore, Hypothesis 3 is offered as follows:

H3. A price premium up to some level will not affect customer purchase intention for personalized products.

3. Research methods

3.1. Experimental stimuli

For the current study, 47 undergraduate students at a large New Zealand university participated in a pretest, which was conducted to identify both product stimuli for search and experience goods and

important product attributes to be customized. The subjects were provided with four products: computer desks, desk lamps, sunglasses, and blue jeans. These products were selected because they are used extensively by college students and have been the subjects of study in other research. The subjects were asked to rate the products on three items intended to capture the difference between search and experience goods:

1) the quality of [name of product] can be judged by web-based information;
2) the quality of [name of product] can be judged without physical examination; and
3) the quality of [name of product] can be judged without trial use.

The responses were measured on a seven-point Likert scale, with 1 = “Do not agree at all” and 7 = “Agree completely”.

The mean rating on the three items was highest for the computer desks and lowest for sunglasses. We thus selected the computer desks as the experimental stimulus for the search good and sunglasses for the experience good. Computer desks (CD) and sunglasses (SG) differed significantly from each other in terms of each item's score and the average score of the three items (CD=5.93, SG=4.67, t=5.16, pb.001). For each item in the set of products, subjects were provided with eight product attributes and asked to rate the importance of these attributes for purchase. The attributes were identified using Consumer Reports and student input.

For personalization to become meaningful, the product or service should provide attributes that customers truly care about (Pine, 1993). Thus, the attributes of the two selected products had to be important, and the two sets of product attributes could not differ from each other in terms of perceived importance. Construction, height, width, and CPU storage were selected for the computer desks, whereas lens material, lens diameter, nose bridge length, and frame material were selected for the sunglasses. Respondents were asked to evaluate the importance of the attributes in purchasing the products. The average score of the four attributes was 5.29 for the desks and 5.31 for the sunglasses, and there was no significant difference between them (F=.004, p=.94).

3.2. Experimental design and procedure

In this study, culture was coded by the subjects' nationalities and hence was a within-subject factor. The product type factor had two levels: computer desks as a search product and sunglasses as an experience product. Price had three levels: same as, 15% higher, and 30% higher than a standard price. The price levels were set keeping in mind customer perceptions of value. Assuming personalized products better match customers' needs, customers should be willing to pay a premium price for them. They can obtain maximum value from a personalized product if it is available at a price similar to the standardized mass-produced one. Thus, the same price level and two price levels at intervals of a 15% increase beyond the standardized price were selected here.

Subjects were assigned randomly to one of the six between-subject experimental conditions. The subjects were told that an Internet shopping mall had developed a plan to customize products and was evaluating it on a small scale. The subjects were asked to assume that they happened to find an information window while surfing this mall. They were shown an announcement offering a customized computer desk or pair of sunglasses, then were shown an ad manipulation of product type and price allowing them to choose from different specifications for four important product attributes. *Appendix A* shows the ad for the sunglasses.

	Same price	15% Higher	30% Higher	Total
Computer desks	20	18	20	58
Sunglasses	19	19	20	58
Total	39	37	40	116

Table 1
Number of subjects in each experimental condition

	Variables	Beta	*t*
Model 1			
Four dimensions as independent variables (Model F=3.32, p<.05)	Individualism	.42	1.96*
	Power distance	−.29	−1.39
	Masculinity	.02	.20
	Uncertainty avoidance	−.07	−.72
Model 2			
Two factors as independent variables (Model F=3.29, p<.05)	Factor 1	.22	2.41*
	Factor 2	−.08	−.87

* Statistically significant at p<.05.

Table 2
Regression analysis results

Subjects assigned to the computer desk conditions could make choices regarding construction, height, width, and CPU storage. Subjects assigned to the sunglasses conditions could make choices regarding lens material, lens diameter, nose bridge length, and frame material. The delivery information was the same for all experimental conditions: free delivery in five working days.

3.3. Measures and subjects

The dependent variable, purchase intention, was measured by adapting items used in previous research (Dodds et al., 1991; Sweeney et al., 1999). The four items of the scale were: (1) I will purchase the computer desk/sunglasses; (2) Given a choice, my friends will choose the computer desk/sunglasses; (3) There is a strong likelihood that I will buy the computer desk/ sunglasses; and (4) I would like to recommend the computer desk/sunglasses to my friends. All four items were measured on a seven-point Likert scale, with 1 = “Do not agree at all” and 7 = “Agree completely”.

To assign scores for each of the four cultural dimensions, the subjects were asked to name the country in which they were born. The cultural dimension scores for the named countries were taken from Hofstede (1983). The foreigners residing in New Zealand for five or more years were classified as New Zealand residents. Some studies report that immigrants are acculturated as they reside in a host country for more than 3 years (e.g., Sonderegger and Barrett, 2004); however, we adopted a more conservative rule to classify fully acculturated individuals as New Zealand residents (Gentry et al., 1995).

A total of 116 undergraduate and graduate students of a large New Zealand university participated in this research. In terms of nationality of origin, 35 of the students were Chinese (30.2%), 33 were New Zealanders (28.4%), and no other nationality made up more than 5% of the sample. The total number of nationalities of origin was 30. The number of subjects assigned to each of the six experimental conditions is shown in Table 1.

4. Results

4.1. Reliability

Cronbach's alpha value was .86 for the four-item purchase intention scale and the value indicates that the scale had satisfactory reliability. The average score of the scale was computed and used in statistical analyses.

Variables	Factor	
	1	2
Individualism	.93	.14
Power distance	−.88	−.30
Masculinity	.68	−.36
Uncertainty avoidance	.10	.91
Eigenvalue (% of variance)	2.18 (54.61)	1.02 (25.72)

Table 3
Factor analysis results: standardized factor loadings and eigenvalues

4.2. Manipulation checks

We compared the importance ratings of the four product attributes for the computer desks (CD) and the sunglasses (SG) to check the equality for product attribute importance. There was no difference on the perceived average importance of the attributes for the two products (CD=5.27, SG=5.10; F=1.31, p=.25). Nor did the two products differ from each other on any pair of individual attributes. Therefore, we concluded that any effect on the dependent variable was not attributable to differences in the importance of the product attributes for the two products.

The desks and sunglasses were rated differently from each other on each of the three items of product type manipulation: (1) can be judged by web-based information (CD=5.17, SG = 4.50; F=7.45, pb.001); (2) can be judged without physical examination (CD = 4.88, SG = 4.30; F = 7.56, pb.001); and (3) can be judged without trial use (CD=4.80, SG=4.29; F=6.28, pb.01). The two products also differed from each other on the average score of the three items (CD=4.95, SG=4.36; F=8.98, pb.001). These results indicated that the product type manipulation was successful.

4.3. Preliminary analysis on culture effects

The dependent variable, purchase intention, was regressed on the four cultural dimensions to assess the relative importance of the dimensions and decide the analysis procedure for them (see Table 2). Only individualism had a significant regression coefficient among the four dimensions (β=.42, t=1.96). Almost the same result was obtained when each observation was coded as either high or low on each dimension and ANOVA was conducted.

Source	Sum of squares	*F*	*p*
Model	40.00	2.76	<.005
Individualism	5.12	3.89	<.05
Product type	6.68	5.08	<.05
Price	3.66	1.39	.25
Individualism × product type	1.21	.92	.33
Individualism × price	7.99	3.04	<.05
Product type × price	1.43	.54	.58
Individualism × product type × price	8.21	3.12	<.05

Table 4
Analysis of variance (ANOVA) results

Individualism	Product type	Price	Mean	Standard deviations
High	Computer desks	Same	4.33	.97
		15% Higher	4.12	.64
		30% Higher	3.67	1.32
		Total	4.09	1.02
	Sunglasses	Same	3.22	.83
		15% Higher	5.00	.81
		30% Higher	3.00	1.00
		Total	3.36	1.12
Low	Computer desks	Same	3.60	.84
		15% Higher	4.00	1.00
		30% Higher	3.81	1.07
		Total	3.77	.95
	Sunglasses	Same	3.08	1.83
		15% Higher	2.69	1.31
		30% Higher	3.40	1.14
		Total	2.96	1.49

Table 5
Means and standard deviations

Two factors emerged with having an eigenvalue above 1 when the four dimensions were factor analyzed using principal component analysis. As shown in Table 3, the first factor consisted of individualism, power distance, and masculinity and explained about 55% of total variance. The second factor contained only uncertainty avoidance and explained about 26% of total variance.

The first factor had a significant regression coefficient at pb.05, whereas the second did not have a significant coefficient when purchase intention was regressed on the two factors (see Ta b l e 2). It seems that individualism represented the effect of the four cultural dimensions on purchase intention. We may conclude that the other three dimensions did not significantly affect consumers' purchase intention, or at least their direct effect on purchase intention was not as large as that of individualism.

4.4. Tests of hypotheses

Table 4 shows the results of an analysis of variance model in which individualism, product type, and price level were the factors and purchase intention was a dependent variable. For each observation's country of origin, the individualism score was coded as either high or low, according to Hofstede (1980).

The overall model was statistically significant (F=2.76, pb.005). As main factors, individualism was significant (F=3.89, pb.05) and product type was significant (F=5.08, pb.05). However, price was not significant at pb.05. As an interaction effect, individualism by price was significant (F=3.04, pb.05), while individualism by product type and price was also significant (F=3.12, pb.05).

Individualism	Mean	Product type	Mean	Price	Mean
High	3.89	CD	3.92	Same	3.56
Low	3.43	SG	3.40	15% Higher	3.95
				30% Higher	3.47

Table 6
Marginal means

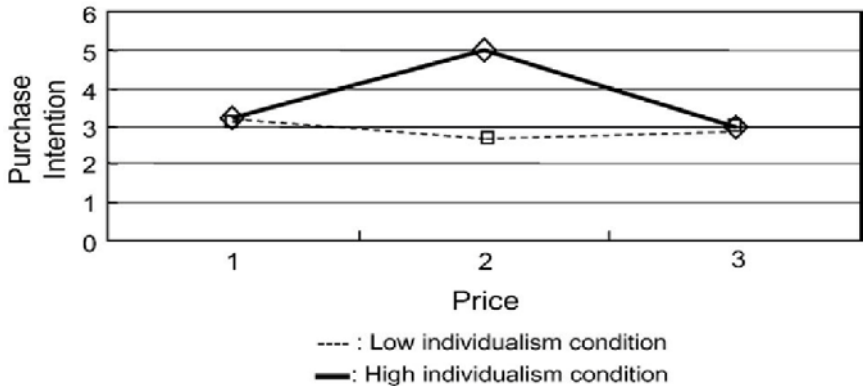

Figure 2
Individualism×price interaction pattern for sunglasses

Table 5 shows cell means and standard deviations, while Table 6 shows marginal means. Combined with the preliminary analysis, ANOVA results indicated that individualism significantly affected consumers' purchase intention for online personalized products. As predicted by H1a, purchase intention was greater in conditions of high individualism (3.89) than for low individualism (3.43). Therefore H1a was supported, whereas H1b, 1c, and 1d were not.

H2 regarding product type effect was supported. As predicted, the purchase intention was greater for the search product (computer desk: 3.92) than for the experience product (sunglasses: 3.40).

As shown in Table 4, price factor was not significant and a multiple comparison test did not indicate difference in any pair of the three price levels. Thus, H3 suggesting no price effect up to some level was supported. We can note a recognizable pattern in marginal means in Table 6, although the means were not significantly different from each other. Consumers' purchase intention went up for a 15% price premium and then went down for a 30% premium.

The interaction terms show an interesting pattern. It seems that the significance of the three-way interaction effect was due mostly to the significant individualism by price interaction effect. In Table 5 (see also Fig. 2), we note that for sunglasses individualistic consumers' purchase intention was greater than that of collectivistic consumers for the same price condition (3.22 versus 3.08) and the 15% higher condition (5.00 versus 2.69). However, the magnitude of the purchase intention was reversed for the 30% premium (3.00 versus 3.40). The same pattern was observed for computer desks.

5. Discussion and conclusion

This research produced three major findings. First, individualism dimension of culture significantly affected consumers' purchase intention for both the personalized computer desks and sunglasses. Consumers from individualistic countries were more likely to purchase customized products online than those of collectivistic countries. Moreover, individualism is the most important factor among the four cultural dimensions in explaining consumer purchase intention for online personalized products.

This result is consistent with extant research which has reported cultural impacts in various consumer behaviors, such as consumer attitudes and preferences, product and service usage, and diffusion of new products (e.g., Aaker, 2000; Gentry et al., 1995; Suh and Kwon, 2002; Takada and Jain, 1991). The research expands existing knowledge in that it empirically examines cross-cultural effects on consumers' responses to personalized products. The results imply that firms may attempt to reach consumers in more individualistic countries as a primary target when marketing personalized products online. For example, New Zealand, Australia, and the United States should fare better as initial targets than China, Japan, and Korea.

However, the significant individualism by price interaction indicates that firms should consider

varying price sensitivities to personalized products across different cultures. Individualistic consumers tend to respond to the products more favorably than collectivistic consumers when the personalized products charge the same price as a standard product or a moderate price premium up to 15%. However, their response deteriorates considerably and their purchase intention is lower than that of collectivistic consumers when firms charge up to a 30% premium. Interestingly, collectivistic consumers' purchase intention does not decrease even at this price level. They tend to tolerate a higher price more in order to obtain customized benefits.

The second major finding is the significance of the product type effect. This result is consistent with extant research indicating that Internet retailing is more appropriate for selling search goods than experience goods (Citrin et al., 2003; Girard et al., 2002; Klein, 1998). It implies that the potential beneficial consequences of personalization for experience products are limited compared to those of personalization for search products.

To exploit the marketing potential of the Internet, the challenge for marketers of experience goods is to make buyers comfortable with buying such products online. It seems that providing choice options is not attractive enough to make customers more willing to buy experience products online. Extra efforts may need to be exercised to help consumers evaluate the qualities of an experience good prior to purchase or use.

Third, price did not significantly affect consumer purchase intentions for either the computer desks or sunglasses as personalized items. Purchase intentions were not significantly different across the three price levels. In fact, as shown in Table 6, purchase intention increased with a 15% price premium, though it declined in response to the 30% premium.

This result has two implications for the pricing of personalized products. First, firms need to determine the increase in customer value that personalization creates and the price premium consumers will be willing to pay for the incremental value. Second, the fact that consumers are likely to pay more for the better match provided by a personalized product has important ramifications for the bargaining power between a firm and its customers. A firm loses some pricing power when it is marketing online because the Internet reduces information asymmetry between customer and firm — the buyer gains power (Murthi and Sarkar, 2003). The insignificant price effect we found indicates that personalization might be an effective way to counter a firm's loss of pricing power in online settings.

It is especially beneficial to a firm when it can charge a price premium for personalized products but not incur disproportionate costs for the service. Technological advances have made it possible to produce personalized products at costs similar to standardized products (Hart, 1995). Therefore, this issue should be considered even before deciding standardization versus customization in approaching customers around the world through the Internet.

This research has some limitations, primarily in the fact that it is based on a laboratory experiment involving student subjects. As with most such experiments, the findings may not be generalizable to situations beyond those specified in its design. Only two products that are familiar to students were examined; because of this, we cannot exclude product category-specific, idiosyncratic effects. Moreover, only two levels of price premiums, 15 and 30%, were examined, so we might miss certain response patterns in other price ranges. Future research can examine the impact of personalization using different product stimuli and more varying price levels.

Appendix A. A sample experimental manipulation

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