The Online Shopping Profile in the Cross-National Context:
The Roles of Innovativeness and Perceived Innovation Newness

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ABSTRACT. A study of online shopping in five nations (Austria, Canada, Iran, Taiwan, and the USA) demonstrates the utility of the 7-facet “online shopping profile” (OSP), beyond the unidimensional indices widely employed in investigations of the adoption/use of online shopping. Further, the roles of domain-specific innovativeness and of two dimensions of perceived newness of the innovation (novelty and recency of introduction) are examined. Findings indicate that domain-specific innovativeness is a highly effective predictor of many facets of OSP in each nation’s sample, but call into question whether domain-specific innovativeness represents innovativeness as traditionally defined.
Implications for behavioral/marketing scientists and for practitioners are discussed. doi:10.1300/J046v19n03_03 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2007 by The Haworth Press, Inc. All rights reserved.]

KEYWORDS. Online shopping, cross-national context, innovativeness, Canada, Australia, Taiwan, Iran, the USA

INTRODUCTION

The global market for Internet shopping has changed substantially in recent years. As ongoing international monitoring studies show (e.g., www.internetworldstats.com/stats.htm), online shopping has achieved substantial penetration in numerous national markets and is making inroads in others. It is likely that in some national markets online shopping is pervasive enough so as to be no longer viewed as a unique and different shopping channel, while elsewhere it is still a relatively unknown quantity. This evolution needs to be taken into account in how online shopping is conceptualized and measured, particularly in analyses of international differences in online shopping.

A substantial number of studies have been launched to identify the particular demographics, attitudes, values, and other characteristics of individuals that draw them to online shopping (e.g., Donthu and Garcia 1999; Swinyard and Smith 2003). A fundamental perspective of many of these studies is to view online shopping as an instance of consumers' adoption of an innovation. On the marketing/behavioral science side, these studies have extended models of the adoption and diffusion of technological innovations (cf. Rogers 1995). For practitioners, these studies have yielded insights into such pragmatic issues as how a Web site can be configured to appeal to the likely initial shoppers (e.g., Blake, Neuendorf, and Valdiserri 2005; Citrin, Sprott, Silverman, and Stern 2000; Liu and Arnett 2000).

The bulk of these adoption studies have indexed adoption of online shopping as either a dichotomy (does or does not shop online), or as a continuum running from infrequent to frequent. Given the evolving status of online shopping, we suggest that, instead of the previously employed unidimensional “extent” or “magnitude” measures of online shopping, analyses of the contribution of individual differences to online shopping in domestic and international markets employ a multifaceted
conceptualization of online shopping that can be labeled the “Online Shopping Profile” (OSP). This process of profiling the online shoppers has been developed from a close examination of the literature and research on innovativeness and the diffusion of innovations.

LITERATURE REVIEW

Innovativeness

Traditionally an “innovation” has been defined as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (Rogers 1995, 11). “Innovativeness,” in turn, can be defined as the degree to which one has adopted particular innovations earlier than others or as the predisposition or readiness to adopt an innovation. In the consumer marketing realm, this predisposition or readiness can be at a generalized level cutting across multiple product or service classes (e.g., Atkin, Jeffres, and Neuendorf 1998; Baumgartner and Steenkamp 1996; Eastlick and Lotz 1999; Goldsmith 1991; Hurt, Joseph, and Cook 1977; Im, Bayus, and Mason 2003; Limayem, Khalifa, and Frini 2000; Rangaswamy and Gupta 1999; Kirton 1976; Manning, Bearden, and Madden 1995; Steenkamp, Hofstede, and Wedel 1999).

Innovativeness can also be defined at the more delimited product or service class level. “Domain-specific innovativeness (DSI),” often operationalized by Goldsmith and Hofacker’s (1991) DSI scale, is defined as the readiness to try a product or service perceived to be new in a given product or service class. The DSI has been found to be positively associated with purchase or use of new products in a wide range of classes—for example, wine (Goldsmith 2000b), foods (McCarthy, O’Reilly, and Sullivan 1998), music (Goldsmith and Hofacker 1991), Internet usage for information and entertainment (Wolfradt and Doll 2001), clothing styles (Goldsmith and Hofacker 1991), and vacation travel (Flynn and Goldsmith 1993; Litvin and Goldsmith 1998; Szmigin and Carrigan 2001).

It has long been contended (e.g., Foxhall and Haskins 1986; Gatignon and Robertson 1985; Goldsmith and Flynn 1995; Goldsmith, Freiden, and Eastman 1995; Midgley and Dowling 1978), but not universally accepted (Manning, Bearden, and Madden 1995), that domain-specific innovativeness is a better predictor of adoption of a particular innovation in a given product class and, indeed, may mediate the relationship between generalized innovativeness and adoption. Accordingly, quite a
few studies of the association between innovativeness and adoption of Internet shopping have used the DSI.

Within the USA, the DSI has been found to predict the extent of online shopping (e.g., Blake, Neuendorf, and Valdiserri 2003; Citrin, Sprott, Silverman, and Stern 2000; Goldsmith 2000a, 2001; Goldsmith and Lafferty 2001; Park and Jun 2003). These demonstrations of the relationship of DSI to adoption of online shopping are very important to behavioral/marketing scientists and to practitioners. To the former, domain-specific innovativeness has been forwarded as an explanation for a substantial portion of individuals’ adoption of an innovation within a national market and as a theoretical framework to account for differences among national markets in the diffusion of innovations (Goldsmith, d’Hauteville, and Flynn 1998). To practitioners, DSI is suggested to play two separate roles. First, as a predictive tool it can target market sectors or national markets that have a higher potential for online shopping (e.g., Goldsmith, d’Hauteville, and Flynn 1998). Second, the DSI offers tactical guidance; knowing that the initial shoppers at a site are innovative indicates to a marketer how to structure a Web site to appeal to such people (e.g., Blake, Neuendorf, and Valdiserri 2005; Goldsmith and Flynn 1995).

Several important questions remain about the role of domain-specific innovativeness in online shopping. First, past studies of the DSI-OS relationship have focused on the extent of online shopping. Only one study to date (Blake, Neuendorf, and Valdiserri 2003) has explored the contributions of DSI to the range and typicality of the product classes shopped, and that study was limited to a North American sample. Second, there is limited information about the applicability of the DSI to online shopping in nations other than the USA. A large number of national markets must be studied before global or at least widespread applicability is assumed. Park and Jun (2002), for example, found in a Korean sample that the DSI did not predict online shopping. The third concern is that much of the evidence (Goldsmith, d’Hauteville, and Flynn 1998) assessing the applicability of the DSI in national markets outside the USA is based on college student samples. Student populations are fairly homogenous in age, education, and other demographics; also, they can include an unknown number of persons from other nations studying under student visas or persons from families recently immigrated from abroad (and, so, potentially displaying the orientations of the country of origin rather than the current country).

Fourth, and perhaps most importantly, does the DSI reflect “innovativeness,” that is, readiness to try products or services perceived as new?
The answer to this question is critical to behavioral/marketing science because the theoretical value of all the empirical demonstrations of the predictive ability of the DSI hinges upon identifying the nature of the construct or conceptual dimension tapped by the DSI. The answer is important to practitioners, also. Suppose the DSI does not reflect innovativeness per se. While the DSI would continue to be useful as a predictive tool for targeting purposes, its value as a tactical guide to tailoring a Web site to attract “innovative” visitors would be curtailed. Past studies did not address two points that would indicate that the DSI does reflect innovativeness per se . . . they did not directly verify that the “innovations” whose adoption was predicted by the DSI were truly seen to be new by the sample or that the relationship between DSI and adoption is weaker among those who view the product in question as commonplace than among those who judge the product to be new.

**Perceived Innovation Newness**

Beyond its possible interaction with DSI, the perceived newness of online shopping may have a direct impact on the OSP. On one hand, products that seem to be new and unusual carry risks, ambiguity, and uncertainty for a consumer (cf. Rogers 1995). These aversive properties, in turn, can discourage adoption of innovations in general (e.g., Bhatnagar, Misra, and Rao 2000; Steenkamp, Hofstede, and Wedel 1999) and of online shopping in particular (e.g., Cases 2002). On the other hand, perceived innovation newness imparts excitement and interest, and so can an attribute encouraging adoption (e.g., Blythe 1999; Venkatraman 1991). Thus, the impact of perceived newness could be either positive or negative.¹

Further complicating the picture are national differences. For example, Park and Jun (2002) found that perceived riskiness is predictive of online shopping intentions in Korea, but not in the USA. Because newness may be more appealing in one cultural context than in another (e.g., more appealing in a rapidly evolving environment technologically developed than in a more conservative, economically and socially stable culture), the impact of perceived newness on online shopping may be culture specific.

Further, Blake, Perloff, and Heslin (1970) and Blake, Perloff, Zenhausem, and Heslin (1973) have differentiated between two dimensions of perceived innovation newness: (1) “novelty”—the degree a product is seen to be unusual, different, unique compared with other products, and (2) “recency”—the length of time a product is seen to have been available on the
market. These studies demonstrate that the relationship between individual characteristics (in those studies, personality profiles) and willingness to adopt a new product depends upon whether the product is new due to its being novel or its being recently available. Subsequently, Hart and Jacoby (1973) have observed that consumers use recency more than novelty to define a product as “new.” Yet, uncertainty and risk, interest and excitement, and incongruity are conceptually associated more with novelty than with recency per se. Hence, the reasoning leading one to expect an impact of newness on online shopping is based more upon novelty.

**An Online Shopping Profile Framework**

The goals of this study are to (1) propose an OSP framework and assess its value relative to a more unidimensional index of online shopping adoption, (2) use the OSP to gauge the cross-national contributions of domain-specific innovativeness to Internet shopping, and (3) use the OSP to assess whether dimensions of perceived newness impact the strength of online shopping.

To measure the level of online shopping in a market, three distinctions are systematically considered: (1) overall frequency (extent) versus range (variety of product/service types), (2) inclusive shopping (i.e., browsing and/or purchasing) versus purchasing, and (3) typical versus atypical product/service categories. These three distinctions provide indicators that constitute the online shopping profile.

*Overall Frequency versus Range.* Frequency or extent of online shopping refers to how often one shops online, that is, the number of occasions within a given time period. Range pertains to the variety of product classes shopped online, that is, the number of different product categories one has searched or bought online. As Blake, Neuendorf, and Valdiserri (2003) have observed, even though frequency and range tend to correlate positively, the two are not equivalent and may be responsive to different determinants.

Why should the two differ? Ram and Jung (1989, 1990, 1994) observe that purchasing an innovative product or service does not imply usage variety, that is, the number of different ways in which that product is used. Similarly, Ridgeway and Price (1994) suggest that the frequency of use of a product is not equivalent to the number of different ways the product is used. More recently, Shih and Venkatesh (2004) have posited a somewhat comparable distinction between “adoption diffusion” and “use diffusion” in regard to home technologies (notably, a home computer). Echoing Ridgeway and Price (1994), Shih and Venkatesh (2004)
find that different antecedent factors may influence the two dimensions of use diffusion.

This distinction is also critical to practitioner understanding of online shopping patterns. For example, consider a market sector composed of persons who repeatedly shop online within a single product class and are reluctant to go online for other product classes. Such a market, despite its proclivity to online shopping, may offer little sales potential to an Internet marketer with a product from a new and untried class or to a marketer whose site offers a broad product line. An index of range may provide different and, perhaps, more useful insights than would a measure of frequency alone.

**Inclusive Visiting versus Purchasing.** Shopping includes visiting a site for information or other non-buying reasons as well as going to a site to purchase the product. Let the term “visiting” refer to the more inclusive form of shopping, that is, going to a site whether or not one makes a purchase. Clearly, visiting and purchasing are not equivalent (e.g., Fram and Grady 1995; Helander and Khalid 2000; Lee and Johnson 2002; Moe 2003; Shim, Eastlick, Lotz, and Warrington 2001). For example, Parsons (2002) notes various reasons to “go shopping” online other than to purchase a product—for example, sensory stimulation, entertainment, and diversion from routine activities. This distinction between visiting and purchasing may be especially important when assessing differences among national markets. Among shoppers lacking credit cards or without confidence in the security of personal financial information provided to retailers online, buying will be less (e.g., Nua 2002), but visiting (without buying) online may not be hurt to the same degree. Conversely, where the cost of Internet access is high, shoppers may spend less time in leisurely informational visiting, and focus more rapidly upon the actual purchase (cf. Samiee 1998).

The distinction between visiting and purchasing should be of particular interest to online marketers. For example, knowing that many shoppers will be looking to obtain information, a marketer needs to structure the Web site to ensure that it clearly directs visitors to offline channels to consummate the purchase. Conversely, a marketer, knowing that, in a given market, actual purchases will be made online, should guarantee that a Web site offers ease of ordering, speed of delivery, and other features that will close the sales (e.g., Torkzadeh and Dhillon 2002).

**Product Class Typicality.** A “typical” product class is one sought by the majority of shoppers in a market. An “atypical” class is a category to which a decided minority of shoppers gravitate. Persons going online for typical products are essentially displaying behavior normative for
that online shopping market. Their doing so may be at least partially explained by the well-known Rogers adoption framework (1995). That is, as has been observed for teleshoppers (Eastlick and Lotz 1999), online shoppers are attracted to product classes they perceive favorably in respect to relative advantage over offline channels for their product class, compatibility with cultural values and beliefs, low complexity, trialability, and observability. But consider a consumer going online for multiple atypical product classes. Are these consumers more innovative or do they have other characteristics that facilitate their “taking the road less traveled”? Do these precipitating factors differ from one nation or culture to another? Given the paucity of past research on these questions, we should at least consider the possibility that those individual characteristics determining online shopping differ between atypical and typical products, and that those antecedent factors may be nation-specific.

**The Seven Facets of OSP.** The above reasoning suggests that a profile of online shopping in a given national market incorporate seven indicators: (1) overall frequency or extent of inclusive online shopping including both visiting and purchasing, (2) range of product classes visited, (3) range of typical product classes visited, (4) range of atypical product classes visited, (5) range of product classes purchased, (6) range of typical product classes purchased, and (7) range of atypical product classes purchased.

**Research Questions**

Given the non-traditional approach to the measurement of online shopping behavior presented here, research questions rather than hypotheses are offered.

**RQ1: OSP versus Single Indicators.** The first research question of this study asks whether the OSP approach is more informative than is the use of a single overall indicator of the amount or extensiveness of online shopping, as used in the bulk of past studies. We can conclude that a systematically applied OSP is preferable to a single magnitude indicator if (1) the antecedent conditions differ from facet to facet within a national market, and (2) national markets differ in what determines a given OSP facet.

**RQ2: The Role of Domain-Specific Innovativeness.** The second research question of the study asks whether (1) the DSI predicts online shopping along each of the seven facets of the OSP, (2) the DSI interacts with perceived innovation newness in impacting each of the various facets of the OSP, and (3) the answers to these queries vary from one
national market to another. The predictive ability would be established by the strength of the associations (Beta coefficients) between the DSI and OSP indices. Finding that the DSI is predictive of online shopping more strongly among persons perceiving online shopping as newer than among those seeing it as more commonplace would support the validity of the DSI as a measure of innovativeness as traditionally defined.

**RQ3: The Importance of Perceived Innovation Newness.** The third research question asks about the impact of the two dimensions of perceived innovation newness (i.e., novelty and recency) upon the various OSP facets. It is expected that, where perceived innovation newness has an impact, it will be novelty rather than recency that will contribute to the prediction of online shopping.

**METHOD**

**Sample**

Several considerations guided the choice of respondent samples. For generalizability, the first concern was to secure a spread both geographically and in online shopping “cultures.” Lynch and Beck (1999) observed that a broad sample of nations is needed to assess cross-national differences in the appeal of Web sites. They found large differences among geographic regions of the world, but small differences among the contiguous nations comprising a given region. Accordingly, five countries were selected: Austria (Western Europe), Canada (North America), Iran (Middle East), Taiwan (Asia), and the USA (North America). Austria is still in the early stages of e-commerce. Online shopping is beginning to grow, but it is still a small portion of the total online activity there (Nua 2002). In Canada, online shopping has taken hold, aided by the comparatively widespread use of the Internet (E-Marketer 2003; Greenspan 2002). In Iran, online shopping is in its infancy, in fact, early infancy (e.g., Taylor, Nelson, Sofres 2002). Statistics are somewhat uncertain for this nation, but anecdotal information suggests that relatively few consumers purchase online, although a larger number visit sites for product information. Obstacles to Internet shopping in this conservative country include the limited ownership of credit cards and the proportionately few homes with computer access. In Taiwan, Internet shopping is becoming quite popular, with a penetration somewhat akin to the USA and Canada (Taylor, Nelson, Sofres 2002; Trappey and Trappey 2001; Xinhua 2002). In the USA (e.g., Nua 2003), online shopping has made a comparatively
substantial penetration; a relatively large number of Web sites on the Internet are headquartered there.

Second, while a large representative sample of a nation would be ideal, such a sample is impossible to achieve for the defined population of Internet users and shoppers. A smaller snowball sample will be adequate to test the hypotheses if there is demographic diversity among Internet users and shoppers, and will provide clear superiority over the typical university student sample.

Between June 2001 and June 2002, a snowball sample of adults completed a self-administered print questionnaire that was distributed by the authors’ colleagues to their friends, family, and acquaintances. The colleagues, graduate students native to the respective countries, sought a sample that was adult (at least 21) and demographically diverse, and contained relatively few students or recent immigrants. A cover letter in the appropriate language explained that the study, sponsored by university research, was undertaken to explain the factors underlying Internet usage and shopping. The letter noted that the responses were anonymous and voluntary. All protocols were approved by the university IRB before data collection began.

Measures

The majority of the questionnaire items were original measures developed and tested over the past several years for our program of online shopping research (Blake, Neuendorf, and Valdiserri 2003, 2005). The questionnaire was prepared in English and then translated into German (for Austria), Farsi (for Iran), and Mandarin Chinese (for Taiwan), with a double back-translation check. Persons who indicated that they had never used the World Wide Web before were not asked the online shopping questions.

*Domain-Specific Innovativeness.* The six-item Goldsmith and Hofacker (1991) Domain-specific Innovativeness scale, with items specified in terms of online shopping, was used. For example, one item was as follows: “Compared to my friends, I have visited few online shopping Web sites.”

*Overall Shopping Frequency.* The first of two items was, “How often, if ever, do you go online to shop (both for information or make a purchase)?” Responses (1-6) were “Never, Less than once a month, 1-2 times per month, 3-5 times per month, 6-9 times per month, and 10 or more times per month.” The second was, “On average, how often do you do the following on the Internet: shopping (that is, searching for products or service information, or making a purchase)?” Response catego-
ries (1-4) were “Rarely or never, About or less than once a month, About once a week, and Daily.” The responses to each item were converted to standard (z) scores and averaged; the mean of an individual’s two standard scores was that person’s overall shopping frequency score.5

The following visit and purchase questions were not asked of respondents if they indicated “Never” to the first shopping frequency question. Visit Range. The question asked: “How often, if at all, do you visit each type of Web site (with or without purchasing) in order to help you make a purchase decision? For example, if you regularly visit clothing or accessories Web sites, check regularly. If you rarely visit Web sites to learn about clothing or accessories, check ‘never’.” Eleven classes were then listed:

1. clothing/accessories;
2. books/magazines;
3. travel;
4. health and medical;
5. financial services;
6. consumer electronics (TV, VCR, stereo, cellular phones);
7. entertainment (compact disks, videos, concert tickets);
8. computer hardware or software;
9. home appliances (dishwasher, refrigerator);
10. food/beverage/grocery; and
11. other.

For each, the respondent indicated: Regularly, Sometimes, Seldom, or Never. A person’s score was the total number of categories (excluding other) that were ever visited. Scores could vary from 0 to 10.

Typical Product Visits. A product category was considered to be typical if 50 percent or more of the survey respondents who visited any product sites visited site(s) from that product category. A person’s score was the number of typical product categories that one ever visited.

Atypical Product Visits. A product category was judged to be atypical if it was visited by 30 percent or fewer of those survey respondents who visited any product sites. A person’s score was the number of atypical product categories visited.

Purchase Range, Typical Purchases, and Atypical Purchase. The three purchase behavior indicators were calculated from a multipart question parallel to the visit question.

Novelty. This was tapped with the question: “Compared to other ways of shopping, how unusual or novel do you personally find online shop-
ping to be? Using the scale of 1-7, where 1 means ‘not at all novel or unusual’ and 7 means ‘very novel or unusual,’ circle one number.”

**Recency.** The item: “As far as you know, for about how many years has online shopping been available to people in ______ (country)?” had the response alternatives: “1 year,” “2 years,” “3 years,” “4 years,” “5 years,” “6 years,” “7 years,” “8 years,” “9 years,” and “over 9 years.” The item was scored with “1 year” receiving a high score of 10, and “over 9 years” receiving a low score of 1.

**Gender.** This variable was dummy coded, with male = 1.

**Education.** A six-choice question asked: “What was the last year of education you completed?” The answers were: Some high school, Highschool, Technical school/training (such as auto mechanics), Some college/university, College/university graduate, and Graduate or professional school. For analysis, persons reporting at least some college were scored 1, those without any college experience received 0.

**Age.** Respondents selected one of eight categories: 18 or under, 19-24, 25-30, 31-40, 41-50, 51-60, 61-70, and over 70. For analysis, a person’s score was the category midpoint; those under 18 were scored 17, and those over 70 were given a score of 72.

**Employment.** Respondents chose from among seven categories. For analysis, persons employed full-time were scored 1, those not employed full-time were assigned 0.

### RESULTS

#### Sample Description

Respondents were from in and around Vienna (Austria), Toronto (Canada), Tehran (Iran), Taipei (Taiwan), or Ohio/Pennsylvania (USA). Based on our decision that a nation sample should screen out immigrants and other recent arrivals as well as temporary visitors, in each nation sample respondents were included only if both parents and at least one grandparent were born in that country. Of the 777 respondents, 625 were used in the analyses.

As was intended, each nation sample showed substantial demographic diversity (see Table 1). Also, and not surprising (e.g., Swinyard and Smith 2003), since the samples contained Internet users responding with regard to online shopping, the majority of those reporting tended to be employed full time, better educated, and between 25 and 50 years of age.
Analyses

Homogeneity of DSI. Cronbach’s alpha was computed for the DSI in each nation sample.

The Canadian ($\alpha = .86$) and the USA (.77) indices were quite satisfactory. The Austrian (.67) and Taiwanese (.67) alphas were above the .65 minimum cutoff for acceptability (DeVellis 2003), though below .70 often desired (Nunnally 1978). Although the Iranian index (.60) was lower,

### TABLE 1. Demographic Characteristics of Each Sample

<table>
<thead>
<tr>
<th></th>
<th>Austria</th>
<th>Canada</th>
<th>Iran</th>
<th>Taiwan</th>
<th>USA</th>
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<tr>
<td>Gender (%)</td>
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<tr>
<td>Males</td>
<td>63.2</td>
<td>48.3</td>
<td>56.1</td>
<td>53.9</td>
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<td>Females</td>
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<td>51.7</td>
<td>43.9</td>
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<tr>
<td>Age (%)</td>
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<td>Under 25</td>
<td>34.9</td>
<td>41.6</td>
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<td>Over 60</td>
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<td>5.0</td>
<td>4.1</td>
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<td>Education (%)</td>
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<tr>
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the scale was used due to its predictive ability (described later). Thus, the Farsi, German, and Mandarin Chinese versions were less homogeneous than was the English version in the Canadian and USA samples.

**Relationship of Novelty and Recency.** As was previously noted in research on the USA market (e.g., Blake, Perloff, and Heslin 1970; Blake et al. 1973; Hart and Jacoby 1973), novelty and recency were separate dimensions of perceived innovation newness in the USA sample \(r = -0.015, \text{ns}\). The same independence held for the Iranian \(r = -0.029, \text{ns}\) and Taiwanese \(r = 0.053, \text{ns}\) samples. In the Austrian group \(r = 0.238, p < .05\) and, even more so, in the Canadian one \(r = 0.636, p < .001\) the two dimensions of perceived innovation newness were associated. That is, when individuals saw online shopping to be available only recently in the last few years, the more unusual a shopping vehicle it was perceived to be. It appears, then, that the dimensionality of perceived innovation newness may be specific to the national market.

**Impact of DSI and Perceived Innovation Newness on OSP**

Separately in each nation sample, a hierarchical multiple linear regression analysis\(^6\) was computed for each of the seven OSP facets\(^7\) (see Table 2). Block 1 contained the demographic variables of gender, education, employment status, and age;\(^8\) Block 2 included DSI, the two perceived innovation newness variables, and the three two-factor interactions (DSI-novelty, DSI-recency, and novelty-recency). Each interaction term was the product of standardized \((z)\) indices of the two component variables. Dependent variables were the seven (six in Iran) OSP facets. The degrees of freedom varied inconsequentially from one dependent variable to another within a nation sample due to missing data; accordingly, the range of \(df\) is indicated in the table.

**Austria**

Block 1 was significant for all OSP facets except atypical purchases. The complete two-block model also was significant for all but this single dependent variable.

**Demographics.** Compared with females, males were higher in overall frequency; females displayed more atypical visits (see Table 3). Further, those employed full-time were higher in visit range, atypical visits, typical and atypical purchases.

**DSI.** Those with higher DSI scores shopped more in regard to each OSP facet, except, of course, for atypical purchases.
**TABLE 2. Two-Block Model Results**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>Overall Shopping Frequency</th>
<th>Visits</th>
<th>Purchases</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Typical</td>
<td>Atypical</td>
</tr>
<tr>
<td>Austria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1 Inc. R²,a</td>
<td>.170**</td>
<td>.143*</td>
<td>.142*</td>
</tr>
<tr>
<td>Block 2 Inc. R²,b</td>
<td>.280***</td>
<td>.425***</td>
<td>.425***</td>
</tr>
<tr>
<td>Total R²,c</td>
<td>.450***</td>
<td>.567***</td>
<td>.566***</td>
</tr>
<tr>
<td>Canada</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1 Inc. R²,d</td>
<td>.135</td>
<td>.177</td>
<td>.095</td>
</tr>
<tr>
<td>Block 2 Inc. R²,e</td>
<td>.479***</td>
<td>.372**</td>
<td>.364**</td>
</tr>
<tr>
<td>Total R²,f</td>
<td>.614***</td>
<td>.550***</td>
<td>.459*</td>
</tr>
<tr>
<td>Iran</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1 Inc. R²,g</td>
<td>.073</td>
<td>.028</td>
<td>.056</td>
</tr>
<tr>
<td>Block 2 Inc. R²,h</td>
<td>.164*</td>
<td>.202**</td>
<td>.211**</td>
</tr>
<tr>
<td>Total R²,i</td>
<td>.237*</td>
<td>.230*</td>
<td>.267</td>
</tr>
<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Block 1 Inc. R²,j</td>
<td>.116</td>
<td>.050</td>
<td>.042</td>
</tr>
<tr>
<td>Block 2 Inc. R²,k</td>
<td>.220**</td>
<td>.298***</td>
<td>.228***</td>
</tr>
<tr>
<td>Total R²,l</td>
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<td>.348***</td>
<td>.270**</td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1 Inc. R²,m</td>
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<td>.042</td>
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<td>Block 1 Inc. R²,n</td>
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<td>.315***</td>
<td>.239***</td>
</tr>
<tr>
<td>Total R²,o</td>
<td>.371***</td>
<td>.346***</td>
<td>.281***</td>
</tr>
</tbody>
</table>

*p < .05; **p < .01; ***p < .001.

adf. = 4.76 to 4.81; abdf. = 6.75 to 84; cdf. = 10,75 to 78; df. = 10,75 to 78; eaf. = 4.82 to 95; af. = 6.79 to 89; bdf. = 6.81 to 184; cdf. = 6,177 to 178; ddf. = 10,177 to 178.
<table>
<thead>
<tr>
<th>Profile Facets</th>
<th>Gender</th>
<th>Education</th>
<th>Employment</th>
<th>Age</th>
<th>DSI</th>
<th>Novelty</th>
<th>Recency</th>
<th>DSI × Novelty</th>
<th>DSI × Recency</th>
<th>Novelty × Recency</th>
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</thead>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Overall shopping frequency</td>
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<td>.119</td>
<td>−.002</td>
<td>.542***</td>
<td>−.166</td>
<td>−.180</td>
<td>.120</td>
<td>−.200*</td>
<td>−.141</td>
</tr>
<tr>
<td>Visit range</td>
<td>.033</td>
<td>−.002</td>
<td>.195*</td>
<td>−.044</td>
<td>.583***</td>
<td>−.277**</td>
<td>−.203*</td>
<td>.089</td>
<td>−.022</td>
<td>−.106</td>
</tr>
<tr>
<td>Typical visit</td>
<td>.088</td>
<td>.009</td>
<td>.172</td>
<td>−.043</td>
<td>.544***</td>
<td>−.301***</td>
<td>−.161</td>
<td>.105</td>
<td>.070</td>
<td>−.048</td>
</tr>
<tr>
<td>Atypical visit</td>
<td>−.219*</td>
<td>−.076</td>
<td>.305**</td>
<td>.761</td>
<td>.294*</td>
<td>−.199</td>
<td>−.200</td>
<td>.063</td>
<td>−.001</td>
<td>−.150</td>
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<tr>
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<td>.186</td>
<td>.005</td>
<td>.397***</td>
<td>−.378***</td>
<td>−.011</td>
<td>.004</td>
<td>.028</td>
<td>.145</td>
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<td>Typical purchase</td>
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<td>.218*</td>
<td>−.089</td>
<td>.426***</td>
<td>−.336***</td>
<td>−.066</td>
<td>−.023</td>
<td>.098</td>
<td>.181</td>
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<td>Atypical purchase</td>
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<td>−.036</td>
<td>.219</td>
<td>−.008</td>
<td>.106</td>
<td>−.123</td>
<td>−.119</td>
<td>.050</td>
<td>.086</td>
<td>.021</td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall shopping frequency</td>
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<td>−.012</td>
<td>.080</td>
<td>−.079</td>
<td>.617***</td>
<td>−.154</td>
<td>.027</td>
<td>−.262</td>
<td>.263</td>
<td>.125</td>
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<td>Visit range</td>
<td>.124</td>
<td>−.030</td>
<td>.214</td>
<td>−.172</td>
<td>.444**</td>
<td>−.385*</td>
<td>.098</td>
<td>−.195</td>
<td>.105</td>
<td>.106</td>
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<tr>
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<td>.035</td>
<td>−.080</td>
<td>.177</td>
<td>−.200</td>
<td>.579***</td>
<td>−.289</td>
<td>.120</td>
<td>.071</td>
<td>−.036</td>
<td>−.162</td>
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<td>.151</td>
<td>.027</td>
<td>.389*</td>
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<td>.078</td>
<td>.118</td>
<td>.578**</td>
<td>−.085</td>
<td>−.072</td>
<td>.041</td>
<td>.013</td>
<td>−.023</td>
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<td>.031</td>
<td>.163</td>
<td>.438*</td>
<td>−.071</td>
<td>−.047</td>
<td>.290</td>
<td>−.238</td>
<td>−.024</td>
</tr>
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<td>Atypical purchase</td>
<td>.184</td>
<td>−.182</td>
<td>.041</td>
<td>.161</td>
<td>.540**</td>
<td>−.020</td>
<td>−.002</td>
<td>−.038</td>
<td>.235</td>
<td>.030</td>
</tr>
</tbody>
</table>

*p ≤ .05; **p ≤ .01; ***p ≤ .001.
Novelty. Novelty depressed shopping in regard to (1) typical visits and purchases, and (2) visit and purchase ranges. Responses to atypical product categories (both visiting and purchasing) were not affected by novelty nor was the overall shopping frequency.

Recency. This was significant for only one OSP dimension; recency decreased visit range.

Interaction. DSI interacted with recency in respect to overall shopping frequency. To assess the components of this interaction (comparable analyses were done for all subsequent interaction terms), respondents were split at the median of the recency score into high-low recency groups. Then a product moment correlation was computed separately for each of the two recency groups between DSI and overall shopping frequency. The objective was to see whether the DSI-Shopping frequency relationship was limited to those who saw online shopping as relatively new. It was found that the DSI-Overall shopping frequency relationship was significant among those who thought online shopping was available for quite some time ($r = .56, p < .01$) as well as those who thought it as new ($r = .45, p < .01$).

Canada

As seen in Table 2, Block 1 demographics were significant only in regard to atypical visits. Table 3 shows, however, no single demographic was significant in its partial impact. The complete Block 2 model was significant for all but the typical and atypical purchases.

DSI. In each significant regression, the higher the DSI, the greater was that form of shopping.

Novelty. Visit range was reduced by the perceived novelty of online shopping.

Recency. In not a single case did recency influence OSP.

Interactions. Whether they saw shopping as newer or more commonplace, the effect of DSI was the same for shoppers. None of the interactions reached significance.

Iran

Block 1 demographics (see Table 2) were not significant for any OSP facet. The complete two-block model was significant for all criteria except purchase range.

Demographics. In the two-block model education was positively associated with overall frequency and with typical visits (see Table 4).
<table>
<thead>
<tr>
<th>Profile Facets</th>
<th>Gender</th>
<th>Education</th>
<th>Employment</th>
<th>Age</th>
<th>DSI</th>
<th>Novelty</th>
<th>Recency</th>
<th>DSI×Novelty</th>
<th>DSI×Recency</th>
<th>Novelty×Recency</th>
</tr>
</thead>
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<tr>
<td>Iran</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall shopping frequency</td>
<td>.102</td>
<td>.224*</td>
<td>.020</td>
<td>.063</td>
<td>.385***</td>
<td>.026</td>
<td>-.137</td>
<td>.011</td>
<td>.120</td>
<td>-.053</td>
</tr>
<tr>
<td>Visit range</td>
<td>.059</td>
<td>.147</td>
<td>.012</td>
<td>-.005</td>
<td>.427***</td>
<td>-.098</td>
<td>-.149</td>
<td>-.033</td>
<td>.091</td>
<td>-.016</td>
</tr>
<tr>
<td>Typical visit</td>
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<td>.217*</td>
<td>-.005</td>
<td>-.084</td>
<td>.409***</td>
<td>-.089</td>
<td>-.195</td>
<td>-.046</td>
<td>.071</td>
<td>-.057</td>
</tr>
<tr>
<td>Atypical visit</td>
<td>.210</td>
<td>.113</td>
<td>.026</td>
<td>.103</td>
<td>.391***</td>
<td>.002</td>
<td>.025</td>
<td>-.097</td>
<td>-.063</td>
<td>-.032</td>
</tr>
<tr>
<td>Purchase range</td>
<td>.126</td>
<td>.086</td>
<td>.112</td>
<td>.101</td>
<td>.117</td>
<td>-.178</td>
<td>-.150</td>
<td>.014</td>
<td>-.131</td>
<td>.156</td>
</tr>
<tr>
<td>Typical purchase</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atypical purchase</td>
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<td>.052</td>
<td>.115</td>
<td>.143</td>
<td>.197</td>
<td>-.208*</td>
<td>-.104</td>
<td>-.078</td>
<td>-.239*</td>
<td>.124</td>
</tr>
<tr>
<td>Taiwan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall shopping frequency</td>
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<td>-.061</td>
<td>.331**</td>
<td>-.100</td>
<td>.396***</td>
<td>-.172</td>
<td>.017</td>
<td>.050</td>
<td>.099</td>
<td>-.107</td>
</tr>
<tr>
<td>Visit range</td>
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<td>.029</td>
<td>.165</td>
<td>-.074</td>
<td>.441***</td>
<td>-.253**</td>
<td>-.019</td>
<td>-.061</td>
<td>.037</td>
<td>-.021</td>
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<tr>
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<td>.070</td>
<td>.142</td>
<td>-.008</td>
<td>.434***</td>
<td>-.125</td>
<td>.058</td>
<td>.071</td>
<td>.135</td>
<td>-.080</td>
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<td>Atypical visit</td>
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<td>.024</td>
<td>-.043</td>
<td>.099</td>
<td>.345***</td>
<td>-.147</td>
<td>-.029</td>
<td>-.134</td>
<td>-.037</td>
<td>-.051</td>
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<td>Purchase range</td>
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<td>.177</td>
<td>.065</td>
<td>.248*</td>
<td>-.277**</td>
<td>-.136</td>
<td>-.121</td>
<td>.017</td>
<td>-.083</td>
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<td>Typical purchase</td>
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<td>-.120</td>
<td>.097</td>
<td>.092</td>
<td>.348***</td>
<td>-.223*</td>
<td>-.195</td>
<td>-.141</td>
<td>-.107</td>
<td>-.056</td>
</tr>
<tr>
<td>Atypical purchase</td>
<td>-.070</td>
<td>.057</td>
<td>-.097</td>
<td>.206</td>
<td>.182</td>
<td>-.326**</td>
<td>.001</td>
<td>-.293**</td>
<td>.040</td>
<td>-.004</td>
</tr>
</tbody>
</table>

*p ≤ .05; **p ≤ .01; ***p ≤ .001.
DSI. Again, DSI was predictive of the bulk of the OSP facets. However, it did not significantly predict purchasing (range of purchases, atypical purchases). This was not surprising in that online shopping in Iran is principally a matter of visiting online shopping sites rather than purchasing items from them.

Novelty. Perceiving online shopping as novel was associated with fewer atypical purchases.

Interaction. The DSI-by-Recency interaction was significant. Interestingly, the correlation between DSI and atypical purchasing was not significant \((r = -0.191, p = .258)\) within the high-recency group, but was significant \((r = 0.388, p < .01)\) within the low-recency group. That is, if consumers saw online shopping as new (recently available), DSI did not predict atypical purchasing. But if consumers saw such shopping as more commonplace, DSI was predictive. The components of this interaction, then, are not what would be expected if DSI were a measure of innovativeness as traditionally defined.

Taiwan

As noted in Table 2, Block 1 was significant only for the overall frequency. The two-block model was significant for all OSP facets.

Demographics. In the two-block model (see Table 4) full-time employment enhanced overall shopping.

DSI. DSI was positively predictive of all OSP facets except atypical purchases.

Novelty. For four OSP facets, less shopping was associated with perceptions of online shopping as novel or unusual.

Recency. OSP was not a function of recency perceptions.

Interaction. The DSI-by-Novelty interaction was significant for atypical purchases. Among those considering online shopping as highly novel, DSI did not predict atypical purchasing \((r = -0.073, \text{ns})\); but DSI was predictive among those considering it more prosaic \((r = 0.391, p < .01)\). Again, the interaction components were not consistent with the contention that DSI taps innovativeness as traditionally defined.

USA

As noted in Table 2, Block 1, demographics were significant for five OSP facets, far more than was found in other nation samples. To some degree, the strength of the demographic Block may reflect the availability
of more degrees of freedom in this sample. The complete two-block model was highly significant for all OSP facets.

Demographics. In the two-block model age was consistently significant (Table 5); for all OSP facets there was more shopping among older persons. Note, though, that there were comparatively few persons over 60 (.4%) or even over 50 (12.1%). It would be more accurate to say that middle-aged respondents were found to shop more than were young adults.

DSI. Consistently across the seven shopping indicators, higher DSI scores related to more extensive shopping.

Perceived Innovation Newness. Novelty and recency were neither significant as independent predictors nor as interaction effects.

DISCUSSION

Online Shopping Profile

Overall Shopping Magnitude versus OSP. The first objective of this study was to assess whether a full OSP analysis would yield results different from those obtained simply from an assessment of overall shopping magnitude. It was found that the determinants of overall shopping frequency are indeed different from those of other OSP facets in all three nation samples outside North America. Specifically, in the USA and in Canada (except for the effect of novelty on visit range) the regressions yielded the same pattern of predictors for overall frequency as for the other OSP facets. But in Austria, gender affects overall frequency, but not the other OSP facets. Also in Austria, novelty is not a determinant of overall frequency but is influential for four other OSP facets. Further, the DSI by recency interaction occurs for overall frequency but not for any other OSP facet in the Austrian sample. In Iran, education is predictive of overall frequency, but not of four of the five OSP facets. In addition, the predictors of overall frequency are not the same as for atypical purchases; novelty and the DSI-by-Recency interaction are significant for the latter but not for the former. In Taiwan, employment impacts overall frequency but not the other OSP indices. Still further, novelty is not determinant of overall frequency but is predictive of four other OSP facets. The answer to the first question, then, is that a full OSP analysis does reveal patterns not shown by simple analysis of overall OSP magnitude.

Product Typicality. As previously noted by Blake, Neuendorf, and Valdiserri (2003) in a North American sample, DSI was numerically a
### TABLE 5. Beta Coefficients for Two-Block Model: USA

<table>
<thead>
<tr>
<th>Profile Facets</th>
<th>Gender</th>
<th>Education</th>
<th>Employment</th>
<th>Age</th>
<th>DSI</th>
<th>Novelty</th>
<th>Recency</th>
<th>DSI × Novelty</th>
<th>DSI × Recency</th>
<th>Novelty × Recency</th>
</tr>
</thead>
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<td>USA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall shopping</td>
<td>-.018</td>
<td>.077</td>
<td>.052</td>
<td>.192</td>
<td>.540 **</td>
<td>.008</td>
<td>-.095</td>
<td>-.104</td>
<td>-.061</td>
<td>-.002</td>
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<tr>
<td>frequency</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Visit range</td>
<td>.068</td>
<td>-.020</td>
<td>.057</td>
<td>.193</td>
<td>.576 ***</td>
<td>.033</td>
<td>-.072</td>
<td>.052</td>
<td>-.062</td>
<td>.102</td>
</tr>
<tr>
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<td>.023</td>
<td>.099</td>
<td>.160</td>
<td>.509 ***</td>
<td>.039</td>
<td>-.040</td>
<td>.001</td>
<td>.007</td>
<td>.055</td>
</tr>
<tr>
<td>Atypical visit</td>
<td>.112</td>
<td>.030</td>
<td>.107</td>
<td>.240 ***</td>
<td>.368 ***</td>
<td>.127</td>
<td>-.120</td>
<td>.028</td>
<td>-.056</td>
<td>.098</td>
</tr>
<tr>
<td>Purchase range</td>
<td>.098</td>
<td>.043</td>
<td>.065</td>
<td>.192</td>
<td>.508 ***</td>
<td>.045</td>
<td>-.049</td>
<td>.005</td>
<td>.024</td>
<td>.130</td>
</tr>
<tr>
<td>Typical purchase</td>
<td>.040</td>
<td>.099</td>
<td>.065</td>
<td>.189</td>
<td>.512 ***</td>
<td>.051</td>
<td>-.003</td>
<td>.019</td>
<td>.032</td>
<td>.109</td>
</tr>
<tr>
<td>Atypical purchase</td>
<td>.169 *</td>
<td>-.017</td>
<td>.047</td>
<td>.180</td>
<td>.352 ***</td>
<td>.009</td>
<td>-.074</td>
<td>-.003</td>
<td>-.046</td>
<td>.073</td>
</tr>
</tbody>
</table>

*p ≤ .05; **p ≤ .01; ***p ≤ .001.
better predictor of typical than of atypical shopping in all nation samples; this was especially true in regard to purchasing. In fact, of the seven cases in which DSI was not predictive, all but one (Canadian typical purchasing) involved atypical purchases. That is, atypical purchases \textit{per se} were not successfully predicted in Iran, Taiwan, and Austria. Further, DSI was not associated in Iran with purchase range, which in essence reflected atypical products (since there were no Iranian typical products). These patterns, then, suggest the importance of considering product class typicality in assessing the dynamics of shopping adoption.

\textit{Inclusive Visiting versus Purchasing.} As noted by others (Fram and Grady 1995; Helander and Khalid 2000; Lee and Johnson 2002; Moe 2003; Shim, Eastlick, Lotz, and Warrington 2001; Swinyard and Smith 2003), visiting and purchasing are not equivalent forms of shopping. Here, the regressions in the Canadian sample were significant for all three visiting facets, but for only one of the three purchase facets. In Iran, online shopping was, for all intents and purposes, visiting not purchasing. In Taiwan, novelty was influential for all three purchasing facets but for only one of the three visiting facets. The present study, then, shows that this distinction must be retained when analyzing determinants of online shopping, here the roles of innovativeness and perceived innovation newness.

\textit{Usefulness of OSP.} The study suggests that when gauging the extent of online shopping in a given market, investigators should assess all facets of OSP. Analyses of a market’s OSP can yield insights not revealed by a single global (as the overall shopping frequency here) or composite index (as in the use of factor scores; see endnote 8). Taking into account distinctions between typical and atypical product classes, and between visiting and shopping, needs to be part of any systematic assessment of the state of online shopping in a national market.

For behavioral/marketing scientists investigating the global diffusion of online shopping, the study demonstrates that the predictors of the range of products shopped are not observable in analyses of a simple summary measure of overall shopping frequency. For practitioners calculating the relative sales potential of a Web site in various markets, the study shows that the OSP can be more informative than is a simple index of purchasing activity. Illustratively, in the Iranian market, a commercial Web site is mainly used for informational visits which later can result in increased product sales through other venues like local traditional stores or direct contacts with manufacturers. Assessment of the OSP would flag this “hidden” sales potential of a site; a global index of shopping possibly would not.
More generally, the regression analyses show behavioral/marketing scientists that the determinants of typical or popular product classes may not be identical to those of atypical classes, and that the influences on visiting are not necessarily the same as those which impact purchasing. Practitioners, then, should be very cautious in generalizing lessons learned (e.g., “best practices”) with Web sites in widely popular product categories to a Web site marketing a less widely sought product class. Similarly, lessons learned with Web sites whose value can be measured in terms of sales executed online may not unequivocally be exportable to a Web site whose main function is to inform shoppers of a product’s features, availability, price, etc.

**Innovativeness**

The second objective of this study was to assess the cross-national utility of the DSI in predicting online shopping, particularly measured via the multifaceted OSP. Results indicate that we ought to distinguish between the DSI scale as a predictor of online shopping and the DSI as an index of the DSI construct.

As a predictor, DSI was highly successful, being associated with shopping in all but four of the 34 predictions. This strongly supports the contentions of Goldsmith and colleagues (e.g., Goldsmith, d’Hauteville, and Flynn 1998), that DSI can be a powerful predictor in the international marketplace. This study adds to our knowledge base by demonstrating that the predictive ability of the DSI (1) pertains not only to overall indices of the extensiveness of online shopping but also to the range of product categories shopped, especially to those categories popular in a given country; (2) shown in samples of college students outside the USA can be generalized to demographically more diverse populations; (3) pertains to both visiting and purchasing facets of shopping.

The study shows that the DSI taps an important determinant of online shopping and, hence, needs to be incorporated into predictive models of global variations in Internet shopping. The predictive ability noted here confirms the use of the DSI as a targeting tool, allowing one to identify likely prospects within a national market or to spot those national markets with more sales potential (Goldsmith et al. 1998).

There are constraints to this conclusion, though. First, the predictive ability does not pertain to all forms of online shopping in a given country, especially to purchasing atypical or unusual categories. Second, as shown by Park and Jun (2002) in a Korean sample, the DSI is not a viable predictive tool of a given OSP facet in all cultures.
At the conceptual or construct level, however, two findings are difficult to explain if DSI taps an innovativeness dimension. First, DSI was more strongly a determinant when shoppers were buying the usual and customary product classes (typical purchasing) than when buying the new and different (atypical purchasing). Second, there is no evidence in any of the analyses that DSI was more predictive of shopping when it was perceived as new rather than prosaic, further calling into question the validity of the DSI scale as a measure of innovativeness per se.

**Perceived Innovation Newness**

The third research objective of the study looked at whether two dimensions of perceived innovation newness are related to online shopping. The effect of perceived innovation newness of online shopping was significant for at least one facet of shopping in every nation sample except the USA. The nature of the effect was found to vary (1) from one national group to another, (2) from one facet of OSP to another, and (3) between the novelty and recency dimensions of newness. Further, the impacts of newness appeared to be negative and linear, with no evidence of curvilinearity, confirming the typical repressive impact of perceived newness dimensions on adoption behavior. Scholars should incorporate these joint contributions of perceived innovation newness, shopping facets, and cultural setting into current theories of the diffusion of online shopping.

**Future Studies**

The findings of this study confirm the utility of DSI as a highly effective predictor of many facets of OSP in each nation sample, but call into question whether domain-specific innovativeness represents innovativeness as traditionally defined. Future studies should replicate these analyses with more representative samples of consumers. Additionally, multiple-item measures of novelty and recency should be developed, in order to more fully explore possible contributions by these apparently independent dimensions in predicting innovative consumer behaviors.

Future studies of the dynamics of Internet shopping should systematically attend to the distinctions between the frequency of shopping and the variety of products shopped, between visiting and purchasing, and between popular and unpopular product classes. The determinants of one facet can be different from the drivers of another facet. As it embodies these distinctions, the OSP offers a viable framework for such future investigations.
NOTES

1. It is also possible that the relationship between perceived newness and adoption may be curvilinear. Products that are judged as new are perceived so because their features are incongruous with expectations (schemas) based on currently or previously available items. Moderate incongruity has been hypothesized to generate more positive product evaluations than do low or extreme incongruity. This inverted U relationship between incongruity and evaluation has been discussed by Mandler (1982), Meyers-Levy and Tybout (1989), and Peracchio and Tybout (1996), among others.

2. The present sample is suitable for “theory falsification” but not for “effects application” purposes (Calder, Phillips, and Tybout 1981). As a theory falsification study, the goal here is to assess the OSP framework and to test hypotheses about the impacts of innovativeness and perceived newness upon facets of the OSP. The small size and possible non-representativeness of the samples indicate caution in using the study for effects application, that is, generalizing the specific coefficients derived in the analysis to the respective populations. Assuming that the regression coefficients for the Iranian sample are generalizable throughout Iran, for example, would be inappropriate.

3. The authors thank the following graduate students for their help in data collection and/or manuscript preparation: Fariba Arab, Suzanne Grilly, Ruben Jurik, and Chia Chi Liu.

4. The English, Farsi, German, and Mandarin versions of the questionnaire and cover page can be obtained from the authors.

5. This framework assumes that survey respondents (other than, possibly, those in a diary study) cannot readily recall the occasions of site visits in which they obtain information without purchasing. Such browsing can be done casually with little involvement or can be done with peers and so becomes difficult to recall and to differentiate from visits resulting in a purchase. Consequently, the overall frequency index pertains to shopping whether or not one makes a purchase. Also, visiting was defined to respondents as going to a site whether or not a purchase was made. Future studies should try to validate a measure which can differentiate between purely informational visiting and actual purchase.

6. A series of 29 analyses of non-linear trends found no support for the conjecture of a curvilinear relationship between novelty/recency and OSP facets. Details are available from the authors.

7. The OSP facets were factor analyzed (principal component using varimax rotation for solutions with more than one factor) separately in each nation sample. A single factor emerged in Canada, Taiwan, and the USA. In Austria, two factors were found; the first reflected more the typical visits/purchase and overall frequency, the second keyed more to the atypical visits and purchases. We might consider the first factor as “mainstream shopping” and the second as “unusual shopping.” In Iran two factors emerged, the first could be labeled “shopping as visiting” and the second, “shopping as purchasing.” It was found that the typical purchase score was zero for all Iranian respondents since there was not a single product category attracting 50% or more of the sample. Accordingly, this variable was dropped from the Iranian analyses. Subsequent analyses including the factor scores resulting from these analyses neither resulted in meaningful additional explanatory power nor substantive interpretations.

8. Due to possible instabilities traceable to the limited number of cases at each level of education and employment and to the inherently nominal nature of these variables, analyses of non-linear effects were not undertaken. Instead, linear effects were as-
essed after dichotomizing each variable at the point often found to be more predictive of online shopping (college vs. no college education, full-time vs. not full-time employment). Similarly, the linear rather than the non-linear effect of age was calculated due to the limited degrees of freedom available at each level of age. It was felt that these procedures were appropriate, since, first, the demographics were included only as controls (the goal of the study was not to detail the role of demographic characteristics in shopping behavior). Second, past studies have often found that the effects of these variables within the ranges studied here (i.e., in samples with few elderly or uneducated) were predominately linear (e.g., the analyses of the impact of age, education, and gender upon online shopping by Koyuncu and Lien 2003).

REFERENCES


Blake, B. F., K. A. Neuendorf, and C. M. Valdiserri, 2005. Tailoring new websites to appeal to those most likely to shop online. Technovation 25: 1205-1214.


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