The cross-national comparison of website feature preferences: a practical approach

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Abstract: Tailoring consumer shopping sites to fit diverse national markets requires a grasp of the similarities and differences among those national markets in preferred site features. The past literature indicates five issues that can cloud attempts to gauge the national differences in the preferability of Business-to-Consumer (B2C) site features. This paper proposes the ‘Preference Component Perspective’, a conceptual-methodological approach to overcome these challenges and more meaningfully assess these national differences. The framework identifies two independent components of site feature preferences (elevation and priority) and provides a means to distinguish the societal-level and individual-level effects. A survey of online shoppers in the USA, the
People’s Republic of China and Poland demonstrated the approach’s ease of application and the validity of its core assumptions in the data sample. It was shown that the approach can yield insights that are valuable to practitioners who devise effective B2C websites for international markets and to marketing/behavioural/information scientists who develop theoretical models of online shopping adoption.

**Keywords:** online shopping; website feature preferences; global marketing; cross-cultural comparisons; website localisation; internet marketing; internet advertising.


**Biographical notes:**

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1 Introduction

There has been considerable discussion of whether a Business-to-Consumer (B2C) website should be tailored to specific national markets and, if so, how to select an appropriate set of features to fit a given national market (e.g., Singh et al., 2004; Tsikriktsis, 2002; Lynch et al., 2001). Evidence is accumulating that national markets differ in their reactions to particular site features, whether those sites are B2C (e.g., Lynch and Beck, 2001; Lynch et al., 2001) or B2B (Chakraborty et al., 2005). Localisation, then, requires a grasp of the similarities and the differences between the relevant national markets in the site features they prefer.

1.1 Five considerations

Review of the literature suggests that five issues can obstruct meaningful comparisons across nationalities or cultural groups. To illustrate, let us assume that we have a survey of online shoppers in two nations, the USA and India, that has gauged the preference of each respondent in each sample for various features, e.g., ten characteristics such as quick download speed, entertaining graphics, and good price incentives. Typically, data analysis would include a comparison of the average (mean) preference scores of the two national samples on each feature. This comparison might suggest, for example, that the US shoppers show only a moderate preference for sites offering fast download speed while the Indian shoppers express a strong desire for this feature.

1.1.1 The distinction between individual level effects and societal level effects

It is well recognised (e.g., Lynch and Beck, 2001; Malhotra et al., 1996) that differences between two national samples of respondents can be due not to societal or cultural differences, but rather simply to differences in demographic profiles or in other individual characteristics of the two samples. ‘Individual level effects’ refer to the effects of demographic, attitudinal, personality and other such characteristics of individual shoppers. These effects occur independently of the societal context.

The ‘societal level effects’ (here, nationality) pertain to the consequences of the social and physical environment in which the individual lives and shops. Samiee (1998), for one, has reviewed national differences in the cost and accessibility of internet connections, in the availability of more exotic and other types of products in the local stores, in the existence of competing shopping venues (e.g., print catalogues or TV shopping channels), and the implications these factors have for internet shopping. Similarly, national laws of commerce may facilitate or impede ready access to a variety of consumer goods, or tax laws may affect the ways in which consumers choose purchase venues (e.g., Schwartz and Bardi, 1997). Further, nations may differ in basic cultural values that can impact what and where one buys (e.g., Salciuviene et al., 2005) at the societal level as well as at the individual level (e.g., Allen and Ng, 1999). More generally, Dutta and Roy (2004–2005) have reviewed the societal level mechanisms involved in the growth of the internet.

In our example, is the hypothetical difference between the US and Indian samples in preference for fast download speed due to a societal level effect (such as the cost of internet access in the two nations) or is it due to the effect of age or other individual level characteristics that differ between the two samples?
1.1.2 The distinction between reactions to features in general and to specific website features

Demands for website features expressed by one nation’s shoppers may be greater across the wide variety of features than are the demands expressed by another nation’s shoppers. This difference in level of overall demand may be due to “real” substantive reasons; e.g., Tsikriktsis (2002) noted how cultural differences influence expectations of site quality. More specifically, Blake and Neuendorf (2005) suggested that shoppers in nations with an extensive system of internet shopping opportunities may have higher expectations of websites and so demand more and better features compared to shoppers in nations new to online shopping. Or the difference in overall reported demand may reflect differences between national samples in the magnitude of response biases (e.g., Van der Vijver, 2003b; Malhotra et al., 1996), such as acquiescence and extremity, which can systematically increase or decrease preference ratings for the entire set of features.

With only ten features in our hypothetical study, the feature sample lacks the breadth of coverage needed to confidently determine whether the preference for any single feature is due to differences between the two nations for features in general or to something unique to the feature in question.

1.1.3 The relative preferability of a feature to the individual consumer

Is it the relative priority given to the features by each consumer (and not just the absolute level of one’s preference for a feature considered in isolation from the other attributes) important? For several decades, it has been proposed that these relative preferences are important to predicting the judgements and behaviours of consumers. Among others, classic theories of impression formation/attitude structure in psychology (see Bagozzi et al., 2002) and multiattribute models in marketing science (e.g., Currim and Sarin, 1984) consider relative preferences for alternative features of a stimulus (product, service). The Technology Acceptance Model (e.g., Davis et al., 1989), Ajzen and Fishbein’s (1980) Theory of Reasoned Action and its successor, the Theory of Planned Behaviour (Ajzen, 1991), focus upon the relative preferability of consequences, costs, and benefits of alternative behavioural options. As a group these theories suggest that a particular shopper is attracted to sites that have those features which rank high in his/her preference hierarchy more than to sites which have features that are relatively low in his/her hierarchy. Whether a nation’s sample would be attracted more to sites with entertaining graphics or to sites with fast downloading, then, would depend upon the proportion of consumers who prefer one feature over the other.

Consider an investigator who compares the average preference score for a single feature, say fast download speed, in the US sample with the average preference score in the India sample. That researcher likely will fail to detect how high or low that particular feature stands in the feature preference hierarchies of the US and the Indian consumers. That investigator may, therefore, subsequently misestimate the site choices of consumers in the two nations.

1.1.4 Bases underlying preferences for site features

Numerous studies find that user perceptions of a site’s success in providing particular features reflect a fairly small number of underlying evaluative dimensions (e.g., Kim and Stoel, 2004; Chen and Wells, 1999; Ranganathan and Ganapathy, 2002; Torkzadeh and
Dhillon, 2002). Other studies (e.g., Blake et al., 2005) assessed dimensions underlying user judgements of the appeal of various site features. These dimensions or constellations have been interpreted as functions or roles played by multiple features and, therefore, can serve as dimensions of the perceived quality of a B2C website.

Differences among nations in preference for entertaining graphics or for any other particular feature may be traceable, then, to national differences in the strength of demand for the function provided by that feature. In other words, it is possible that there are functions played by features that are common across particular nations (e.g., entertaining graphics play the same function in a comparison of India and the USA) and that the nations differ in the strength of their preferences for that function.1

1.1.5 The nature and range of features assessed

In past studies, ‘features’ have been conceptualised at different levels of abstraction and generality. Features analysed vary from concrete characteristics built into a site like download speed of page (e.g., Yoo and Donthu, 2001) or product price (e.g., Lynch et al., 2001) to abstract user judgements about a site’s operation, such as its being convenient or risky (e.g., Bhatnagar et al., 2000). They range from a narrowly defined attribute like recognisability-desirability of brand (e.g., Balabanis and Reynolds, 2001) to broadly defined combinations of features like interactivity (e.g., Fiore and Jin, 2003).

In order to gauge consumers’ reactions to site features in general (our second consideration) and to provide a realistic depiction of the priority consumers place on a particular feature relative to the wide variety of extant features (our third consideration), the feature set used should include the various types of features consumers might encounter in the nations studied. Unfortunately, a ‘master list’ of all potential features of a B2C site does not exist, nor is there a widely accepted theory identifying the major domains or subpopulations of features. It therefore seems logical that, at the present stage of knowledge, the feature set employed in an inter-nation comparison should try to establish breadth of the feature sample by:

- covering a wide variety of domains proposed by pertinent major theories
- include features at the various levels of abstraction, running from the specific and physical to the broad and experiential.

1.2 Study objectives

The first objective is:

- To describe an integrated theoretical/measurement framework that addresses the above considerations, and to do so in adequate detail so that others can employ it in their analyses.
- Demonstrate its use in a realistically diversified (if not strictly representative) sample of online shoppers in the People’s Republic of China, Poland, and the USA.
- Suggest its value in avoiding the above potential pitfalls when comparing national samples.

The second objective is to address three research questions; affirmative answers in these samples would increase our confidence in three core assumptions of the framework.2
2 Proposed approach

2.1 Preference components

Continuing our previous illustration, suppose that on an appeal scale from 0 (low attraction) to 10 (high attraction) a shopper in India judges download speed to be 8, short delivery time to be 7, and for the entire feature set, the average (mean) feature to be 3. In contrast, a US shopper sees the download speed to be 3, short delivery time to be 0, and the average feature to be 7.

The proposed approach, the ‘Preference Component Perspective’, posits, first, that there are two Components of a feature preference: ‘Elevation’ and ‘Priority’. Assuming that preferences are fairly normally distributed, the Components should be fairly separate and statistically independent. Nations and individuals can differ on each Component. Elevation is the overall demand for website features in general. It can be gauged by the average (mean) of the preference scores for a broad cross section of site features. In our illustration, the US shopper’s elevation is 7, the Indian shopper’s 3. Such a pattern would be consistent with the assumption that in nations like the USA with a long established “consumer culture” (i.e., diversified shopping venues, each with wide varieties of consumer products available at reasonable prices, cultural values emphasising acquisition and consumption of material goods), (Alden et al., 1999) shoppers may demand more and higher quality features in any shopping venue than do those in nations like India with a less established, less pervasive consumer culture. In our example, the typical feature has four points more appeal to the US than to the Indian shopper.

Priority is the relative appeal of a feature compared to the appeals of the other features in the eyes of a particular shopper. To the illustrative Indian shopper, download speed is five points more attractive than is the average feature (3); to the US shopper that same attribute is four points less attractive than that US shopper’s average (7). Inclusion of a person’s own baseline provides useful context for the understanding of one’s preference for any single feature (Baron, 1996). The priority this person gives to a feature can be indexed by an ipsative score, i.e., the standard (z) score of that feature compared to the mean of that person’s preferences for the features in the sample.

Second, the framework posits that to discern those differences between national samples that are due to societal level influences, the effects of individual level (demographics, here) processes must be removed first. This can be accomplished by:

- regressing a given component score on the individual level variables
- subtracting the component score predicted by the individual characteristics from the actual component score
- using this residual as the adjusted component score after the effects of the individual level characteristics have been removed
- comparing the adjusted scores in one national sample with those of another national sample to estimate societal level differences between nations.

The success of this adjustment, though, depends on proper use of the shopper samples. It is not proper to compute the residual scores separately within each nation and then to compare the residual scores in one nation with the residual scores in the other nation. Suppose, for example, that age is strongly and positively correlated with Elevation in the USA but is only slightly and positively correlated in India. A portion of each correlation...
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is traceable to the individual level effect (i.e., the impact of age on Elevation independent of the national setting) and a certain portion to the societal effect (i.e., the impact of age on Elevation that occurs in one nation but not elsewhere). In our example, conducting the residualisation separately in the Indian and in the US samples would result in subtracting too little in India and too much in the USA.

The estimation of the individual level effects should be based on a pooled sample in which each national sample is weighted so as to have an equal input into the estimation of the individual level effects. Computing residuals via predicted scores obtained in the pooled sample would adjust out that particular effect of age that does not depend upon the unique situations in the USA and in India.4

Third, when comparing national samples, assessment of each person’s Elevation and Priority is based upon the residualised scores. The formula used to compute the residualised scores is calculated from the pooled sample, not for each nation sample separately. A person’s Elevation would be gauged by the mean of the person’s feature preference scores after those scores have been adjusted for his or her individual characteristics. Differences among national samples in their mean Elevation scores are then assessed.

Fourth, Priority scores are obtained by calculating the standard (z) score equivalents of all the initial (before residualisation) feature preferences reported by that person. These scores are, therefore, ipsatised independently for each person according to that person’s own baseline. Then, feature by feature, the standardised scores for a given feature are adjusted for individual level determinants by using residual scores which are computed via the regression equations emerging from the analysis of the pooled nation sample.

Fifth, dimensions underlying feature Priorities are identified, here via factor analysis. Priority scores are, after adjustment by the use of residuals, no longer strictly ipsative and, hence, can be used in factor analysis (Dunlap and Cornwell, 1994). Sixth, differences among nations are determined by computing each single person’s factor score on each revealed dimension and then comparing the national samples in their mean factor scores on each dimension (factor).

2.2 Internet usage and online shopping in People’s Republic of China, Poland, and the USA

People’s Republic of China (PRC). PRC has become the second largest internet-user market in the world, behind only the USA. As of the end of 2005, 111 million Chinese (PRC), 8.5% of the 2005 population, were considered internet users (Internet world stats: usage and population statistics, 2006). Zhu and Wang (2005) note that internet use is concentrated among the more educated and those under 35 years of age. Roughly 27 million, or 24.5% of internet users in PRC, have engaged in online shopping (China Internet Network Information Center, 2006).

Poland. As of March 2005, 27.8% of the Polish population used the internet (Internet world stats: usage and population statistics, 2006). Gemius (2005) noted that 41% of internet users had shopped online.

USA. Internet usage and online shopping are extensive, with 68.6% of adults estimated to be internet users (Internet world stats: usage and population statistics, 2006) and 28% of the users to be online shoppers (Rainie et al., 2005). Although reports are often inconsistent, when studies do report demographic effects, online shoppers are more likely to be male, older, with higher education and income (Chang et al., 2005).
Feature preferences. While some information does exist about the cross-national appeal (desirability, perceived importance) of site features (e.g., Hwang et al., 2006), with but one exception known to the authors (Blake and Neuendorf, 2005), limited attention has been given to international differences in the components of feature preferences or to whether observed differences among nation samples in these regards are due to societal (national) or are due to individual level effects.

2.3 Research questions

RQ1: When respondents’ Elevation scores are adjusted for individual level demographic effects, do online shopper samples in Poland, the PRC and the USA differ in the Elevation of their website feature preferences?

Based on the existence of a consumer culture in the USA (Alden et al., 1999), that is far more established than in Poland and in PRC, it was anticipated that Elevation would be greater in the USA than in Poland or PRC.

RQ2: Can dimensions be found to underlie Priorities after adjustment for individual level demographic effects, dimensions that are interpretable and useful for etic comparisons among the national samples?

RQ3: Do online shopper samples in the three nations differ on the preference dimensions underlying the relative Priority accorded to website features?

Further, the frequency of consumers’ internet usage often has been found to impact the extent of online shopping (Blake et al., 2003; Blake et al., 2007; Chang et al., 2005). Since frequent internet users may make different demands upon a website than do infrequent users (Blake et al., 2005), frequency of respondent internet use was added as a control variable.

3 Method

3.1 Site features assessed

The feature list and the rating instructions were based on four considerations. First, the feature set was to cover a broad range of site features potentially pertinent to a site’s appeal. Items were drawn from several sources:

- Torkzadeh and Dhillon’s (2002) proposed taxonomy of nine consumer value dimensions impacting the success of B2C sites
- the five domain categorisation of innovation features determining rate of adoption/diffusion of an innovation in the widely used theoretic perspective of Rogers (1995)
- three supplementary items known to impact site usage that were not explicitly included in the preceding sources.
The nine Torkzadeh and Dhillon values (with an illustrative feature written in a Likert-type agree-disagree format) were:

1. shopping convenience (“It is important to make shopping easy”)
2. internet ecology (“It is important to minimize environmental damages”)
3. internet customer relations (“It is important to provide an easy return policy”)
4. product value (“It is important to minimize product cost”)
5. product choice (“I like having maximum product variety”)
6. online payment (“I am concerned about misuse of my credit card”)
7. vendor trust (“I am concerned about seller legitimacy”)
8. shopping travel (“I like to minimize travel for purchase”)
9. shipping errors (“I am concerned about shipping errors”).

The five Rogers domains (with their definition drawn from Rogers (1995)) are:

1. relative advantage (“the degree to which an innovation is perceived as being better than the idea (technology) it supersedes”, p.212)
2. compatibility (“the degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters”, p.232)
3. complexity (“the degree to which an innovation is perceived as relatively difficult to understand and use”, p.242)
4. trialability (“the degree to which an innovation may be tried or experimented with prior to making a commitment”, p.242)
5. observability (“the degree to which the results of an innovation are visible to others”, p.244).

Each of the Torkzadeh and Dhillon dimensions and the Rogers domains can be represented by numerous site features. The set for the current study was prepared to tap the reasoning underlying each dimension/domain. Because the two taxonomies are not mutually exclusive, certain features can operationalise both a dimension and a domain. To keep the feature set reasonably brief, eight of these ‘dual function’ items were used. At least one item represented each dimension/domain (with two exceptions, as noted below).

Second, all features were to be phrased in a common format so as to facilitate comparison of features and to minimise the prospect that potentially misleading ‘method factors’ would emerge in the later factor analyses. Torkzadeh and Dhillon (2002) used a Likert-type format, while Rogers (1995) did not propose any particular response format. All the present items, then, were rated on a seven-point preference scale. Third, because the dimensional structure underlying judgements of preference may be distinct from the structure of judgements of performance/satisfaction, and because using diverse judgement frameworks (e.g., ‘I desire.’ vs. ‘It is important. . . ’) can complicate comparisons of reactions to features, all assessments were to have the same bases for judgement. In contrast, the Torkzadeh and Dhillon items included three different judgement frameworks: “I like having. . . ;” “I am worried/concerned. . . ;” and “It is
important. . .” Fourth, the items were to refer to features on which sites can readily
differ. Thus, two Torkzadeh and Dhillon dimensions were deleted because they pertained
to the online venue per se rather than to features on which sites can vary (“Internet
ecology” and “shopping travel”).

Finally, three issues were added to cover features shown to be important in a variety
of contexts: interactivity (e.g., Fiore and Jin, 2003), entertaining graphics/displays
(e.g., Ranganathan and Ganapathy, 2002), and enjoyability of visiting (e.g., Chen and
Wells, 1999). All features used and their sources are listed in Table 1.

3.2 Questionnaire

A self-administered questionnaire contained, among questions irrelevant to this study,
the following:

- An item measuring the frequency of internet use: ‘On average, how many hours per
week, if any, do you use the Internet?’ Response were: ‘0’, ‘1–5’, ‘6–10’, ‘11–15’,
‘16–20’, ‘21 or more’.
- Feature preference ratings: ‘How much would the following encourage you to shop
(seek information, make a purchase, etc.) at a particular website?’ The 23 features
(see Table 1) were rated on a scale of 1 (‘strongly discourages me’) through 4
(‘neither encourages nor discourages me’) to 7 (‘strongly encourages me’).
- Demographic questions of age, gender, marital status, education, employment
and income.

Using Polish and PRC native born citizens as translators, the questionnaire was translated
into Mandarin Chinese and Polish via multiple back translation procedures to establish
comparability among the three language versions.

3.3 Data collection

Snowball sampling was used to obtain as demographically diverse a sample of adults
as possible in each nation. Persons were recruited by the research team and by the
relatives, co-workers, acquaintances of research team members. In the USA, an online
version of the questionnaire was posted on the University’s website, drawing a total of
294 respondents from the Midwest, Western, and Eastern states. In PRC, 125 respondents
went to the University’s website. In Poland, the questionnaire was distributed in
print booklet form, garnering 148 respondents. After elimination of respondents due to
incomplete data, the sample was 402 (217 USA, 95 PRC, 90 Poland). All used the
internet and answered all questions.
<table>
<thead>
<tr>
<th>Item #</th>
<th>Feature</th>
<th>Conceptual definition***</th>
<th>Preference mean</th>
<th>Preference SD</th>
<th>Demographic R²</th>
<th>1 Shopping Essentials</th>
<th>2 Online Concerns</th>
<th>3 The Buzz</th>
<th>Communality</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>The delivery time is short.</td>
<td>Convenience and relative advantage</td>
<td>5.39</td>
<td>1.37</td>
<td>.023</td>
<td>.759</td>
<td>.304</td>
<td>.237</td>
<td>.724</td>
</tr>
<tr>
<td>2</td>
<td>The products I am looking for are easy to find.</td>
<td>Convenience</td>
<td>5.50</td>
<td>1.42</td>
<td>.069**</td>
<td>.756</td>
<td>.316</td>
<td>.193</td>
<td>.709</td>
</tr>
<tr>
<td>7</td>
<td>Reputation and credibility of the company on the web.</td>
<td>Vendor trust</td>
<td>5.40</td>
<td>1.46</td>
<td>.027</td>
<td>.737</td>
<td>.605</td>
<td>.281</td>
<td>.716</td>
</tr>
<tr>
<td>4</td>
<td>Product price.</td>
<td>Product value and relative advantage</td>
<td>5.51</td>
<td>1.56</td>
<td>.057*</td>
<td>.697</td>
<td>.405</td>
<td>.101</td>
<td>.661</td>
</tr>
<tr>
<td>1</td>
<td>The order process is easy to use.</td>
<td>Convenience</td>
<td>5.19</td>
<td>1.46</td>
<td>.043</td>
<td>.663</td>
<td>.337</td>
<td>.143</td>
<td>.574</td>
</tr>
<tr>
<td>6</td>
<td>My friends and family have been happy when they have shopped there.</td>
<td>Compatibility</td>
<td>4.87</td>
<td>1.37</td>
<td>.023</td>
<td>.660</td>
<td>.083</td>
<td>.426</td>
<td>.624</td>
</tr>
<tr>
<td>13</td>
<td>Low or no charge for shipping and handling.</td>
<td>Product value and relative advantage</td>
<td>5.67</td>
<td>1.46</td>
<td>.038</td>
<td>.656</td>
<td>.556</td>
<td>.110</td>
<td>.750</td>
</tr>
<tr>
<td>10</td>
<td>The site is in my primary language.</td>
<td>Convenience and compatibility</td>
<td>5.32</td>
<td>1.53</td>
<td>.049*</td>
<td>.650</td>
<td>.337</td>
<td>.218</td>
<td>.584</td>
</tr>
<tr>
<td>8</td>
<td>It is enjoyable to visit.</td>
<td>Enjoyability</td>
<td>4.91</td>
<td>1.40</td>
<td>.067*</td>
<td>.633</td>
<td>.122</td>
<td>.464</td>
<td>.631</td>
</tr>
<tr>
<td>17</td>
<td>Provides credit card safety.</td>
<td>Online payment</td>
<td>5.56</td>
<td>1.67</td>
<td>.066*</td>
<td>.592</td>
<td>.461</td>
<td>.091</td>
<td>.674</td>
</tr>
<tr>
<td>12</td>
<td>A wide selection and variety of products.</td>
<td>Product choice</td>
<td>5.23</td>
<td>1.40</td>
<td>.022</td>
<td>.578</td>
<td>.359</td>
<td>.337</td>
<td>.576</td>
</tr>
<tr>
<td>5</td>
<td>Provides a place for you to learn about other customers’ evaluation of the product.</td>
<td>Trialability</td>
<td>4.72</td>
<td>1.40</td>
<td>.008</td>
<td>.532</td>
<td>.205</td>
<td>.462</td>
<td>.538</td>
</tr>
<tr>
<td>21</td>
<td>A return policy that is easy to understand and use.</td>
<td>Customer relations and trialability</td>
<td>5.45</td>
<td>1.43</td>
<td>.022</td>
<td>.441</td>
<td>.734</td>
<td>.184</td>
<td>.767</td>
</tr>
<tr>
<td>22</td>
<td>Price incentives (coupons, future sale items, frequent shopper programs, etc.).</td>
<td>Product value and relative advantage</td>
<td>5.16</td>
<td>1.52</td>
<td>.036</td>
<td>.314</td>
<td>.697</td>
<td>.289</td>
<td>.668</td>
</tr>
<tr>
<td>20</td>
<td>The download speed of the page.</td>
<td>Relative advantage</td>
<td>5.12</td>
<td>1.44</td>
<td>.023</td>
<td>.403</td>
<td>.641</td>
<td>.228</td>
<td>.626</td>
</tr>
<tr>
<td>18</td>
<td>Fast response time from customer service.</td>
<td>Shipping errors</td>
<td>5.49</td>
<td>1.37</td>
<td>.028</td>
<td>.598</td>
<td>.616</td>
<td>.190</td>
<td>.773</td>
</tr>
<tr>
<td>15</td>
<td>Provides product information including FAQs – frequently asked questions.</td>
<td>Product choice and trialability</td>
<td>4.91</td>
<td>1.43</td>
<td>.078**</td>
<td>.254</td>
<td>.572</td>
<td>.348</td>
<td>.513</td>
</tr>
</tbody>
</table>

Table 1: Website features: conceptual derivation, mean and standard deviation of preference ratings (pooled sample), demographic R², priority factor loadings, and communalities.
<table>
<thead>
<tr>
<th>Item #</th>
<th>Feature</th>
<th>Conceptual definition***</th>
<th>Preference mean</th>
<th>Preference SD</th>
<th>Demographic R²</th>
<th>Priority factors: 1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Community **</th>
</tr>
</thead>
<tbody>
<tr>
<td>23</td>
<td>Interactive web design (try it on, design your own product/service).</td>
<td>Interactivity</td>
<td>4.54</td>
<td>1.43</td>
<td>.077**</td>
<td>.110</td>
<td>.59</td>
<td>.547</td>
<td>.624</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>A good place to find a bargain.</td>
<td>Product value and relative advantage</td>
<td>5.38</td>
<td>1.49</td>
<td>.060*</td>
<td>.537</td>
<td>.548</td>
<td>.201</td>
<td>.629</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>My friends and family will like to know my opinions of the site.</td>
<td>Compatibility</td>
<td>4.12</td>
<td>1.31</td>
<td>.047</td>
<td>.186</td>
<td>.060</td>
<td>.798</td>
<td>.675</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>The website is new and different.</td>
<td>Complexity</td>
<td>4.21</td>
<td>1.40</td>
<td>.038</td>
<td>.282</td>
<td>.116</td>
<td>.715</td>
<td>.604</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>It has entertaining graphics and displays.</td>
<td>Entertaining</td>
<td>4.46</td>
<td>1.43</td>
<td>.064*</td>
<td>.145</td>
<td>.358</td>
<td>.664</td>
<td>.589</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I hear about it on radio, television, or in newspapers.</td>
<td>Observability</td>
<td>4.28</td>
<td>1.29</td>
<td>.039</td>
<td>.166</td>
<td>.295</td>
<td>.640</td>
<td>.524</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:  
* p < .05; ** p < .01.  
*** Key for conceptual definition sources.  

Torkzadeh and Dhillon’s (2002) typology dimensions:  
- Convenience (internet shopping convenience)  
- Customer relations (internet customer relations)  
- Product value (internet product value)  
- Product choice (internet product choice)  
- Online payment  
- Vendor trust (internet vendor trust)  
- Shipping errors (internet shipping errors).  

Rogers’ (1995) five innovation characteristics:  
- Relative advantage (over the idea/technology the innovation supercedes)  
- Compatibility (with existing value, past experiences, adopter needs)  
- Complexity (perceived complexity of product use)  
- Trialability (degree to which an innovation may be tried prior to making a commitment)  
- Observability (degree to which the results of an innovation are visible to others).  

Fiore and Jin (2003):  
- Interactivity.  

Ranganathan and Ganapathy (2002):  
- Entertaining (entertaining graphics/displays).  

Chen and Wells (1999):  
- Enjoyability (enjoyment of visiting).  

Table 1: Website features: conceptual derivation, mean and standard deviation of preference ratings (pooled sample), demographic R², priority factor loadings, and communalities (continued).
4 Results

4.1 Sample

While the Polish sample tended to be young with many students, respondents in PRC were relatively older, better educated, and more often employed full time. The US respondents were the oldest, best educated, and were typically employed. Chinese respondents were the most, and the Polish the least, active users of the internet. 6

4.2 Pooling national data sets

A composite group was created by pooling the three national data sets and weighting them to equate the number of respondents in each sample.

4.3 Demographic variables

The response categories of the demographic questions were recoded to be comparable across nations. A set of 13 variables was used in all analyses with the pooled nation set: 11 dummied variables – gender (male = 1), marital status (married = 1), high school, some college, college, employed full time, employed part time, self employed, student, unemployed, plus the two continuous variables age and income.

4.4 Internet usage

Internet usage was recoded into a two group classification, light users (internet use five or fewer hours per week) and heavy users (internet use more than 5 h per week).

4.5 Elevation

Each person’s Elevation score was the mean of that person’s 23 ratings of feature preference. A multiple regression analysis (simultaneous entry) was conducted with the pooled data set; the 13 recoded demographics were the predictors and Elevation the criterion. Demographic effects were not significant in the pooled sample (R = .176, \(F_{(13, 387)} = .951, p = .499\)). Thus, across the nation samples, the Elevation score was not influenced by these individual level characteristics. 7 A societal level analysis was next conducted to identify differences in Elevation among nation samples and between internet usage groups when the individual level demographic effects were controlled. Using the regression equation predicting from demographic variables to Elevation, each person’s residual score was calculated by subtracting the predicted Elevation from the original Elevation scores. The residual Elevation scores (see Table 2) were then entered as the dependent variable into a between subjects Analysis of Variance (ANOVA) with Nations (3) and internet usage (2) as independent variables. Using the entire unweighted data set (n = 402), the ANOVA produced a significant main effect of Nation, \(F_{(2, 396)} = 3.436, p < .05\). Neither the internet usage main effect \(F_{(1, 396)} = .418, p > .10\) nor the Nation x Internet usage interaction \(F_{(2, 396)} = .227, p > .10\) was significant. The Tukey HSD post hoc test found that the USA Elevation scores were higher than Poland’s (p < .05), but that there was no difference between PRC and the USA (p > .10) or PRC and Poland (p > .10).
Table 2  Sample sizes (n), means and standard deviations (SD) of the elevation and priority residual scores for each nation and internet usage group

<table>
<thead>
<tr>
<th>Nation</th>
<th>Usage</th>
<th>Sample n</th>
<th>Elevation</th>
<th>Shopping essentials</th>
<th>Online concerns</th>
<th>The buzz</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>Light</td>
<td>48</td>
<td>.165 (.68)</td>
<td>.206 (.74)</td>
<td>.197 (1.04)</td>
<td>-.194 (.99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>Heavy</td>
<td>169</td>
<td>.160 (.76)</td>
<td>.293 (.81)</td>
<td>.195 (.98)</td>
<td>-.334 (1.00)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>Total</td>
<td>217</td>
<td>.161 (.74)</td>
<td>.274 (.79)</td>
<td>.195 (.99)</td>
<td>-.303 (1.00)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRC</td>
<td>Light</td>
<td>15</td>
<td>-.184 (1.11)</td>
<td>-.179 (.94)</td>
<td>.225 (.93)</td>
<td>.396 (.99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRC</td>
<td>Heavy</td>
<td>81</td>
<td>-.023 (1.09)</td>
<td>-.175 (1.02)</td>
<td>-.067 (.92)</td>
<td>.293 (.99)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PRC</td>
<td>Total</td>
<td>95</td>
<td>.010 (1.09)</td>
<td>-.175 (1.00)</td>
<td>-.020 (.92)</td>
<td>.309 (.98)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Light</td>
<td>60</td>
<td>-.162 (1.20)</td>
<td>-.217 (1.12)</td>
<td>-.005 (1.02)</td>
<td>-.012 (.98)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Heavy</td>
<td>30</td>
<td>-.189 (1.00)</td>
<td>.139 (1.12)</td>
<td>-.514 (.99)</td>
<td>.007 (.84)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Total</td>
<td>90</td>
<td>-.171 (1.14)</td>
<td>-.098 (1.13)</td>
<td>-.175 (1.00)</td>
<td>-.006 (.93)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In summary, Elevation was not influenced by the individual level demographic characteristics across the three nation sample. At the societal level, internet shoppers in the US sample had a stronger demand for the entire set of website features than did those in the Polish sample. Numerically, PRC was intermediate between, and not significantly different from, the US and Polish samples.

4.6 Priority

As noted earlier, Priority scores are obtained separately for each person by converting one’s 23 preference ratings into z score equivalents. The higher is the z, the more is the relative appeal of that feature. Next, we adjust these Priority scores to remove individual level effects via the use of residual scores. Separately for each feature, each person’s standardised feature preference score was regressed against the 13 individual level demographic characteristics using the pooled sample. Table 1 (Column 5) displays the R^2 and significance of the regression for each feature. The individual level characteristics were modestly predictive of nine of the 23 features. A person’s residual Priority scores were then calculated separately for each feature by subtracting that person’s predicted Priority score from his/her actual Priority score.

Next we identified feature preference dimensions on which to compare national samples at the societal level. Accordingly, a Varimax rotated principal component analysis was performed on the residualised Priority scores.

Three factors were revealed accounting for 64.15% of the total variance. Inspection of the factor loadings (Table 1, Column 6–Column 9) suggested the following interpretations. Factor 1 (eigenvalue = 6.61; 28.7% of total variance), ‘Shopping Essentials’, is composed (in order of strength of factor loading) of items: 9, 2, 7, 4, 1, 6, 13, 10, 8, and, less strongly, 17, 12, and 5. Respondents scoring high on this factor are attracted to sites that excel on the essentials of the product shopping process: brief delivery time, ease of product selection, wide selection available, company reputation, product price, ease of ordering, support of friends/family, low or no charge for shipping...
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and handling, absence of a language barrier, credit card safety, provision of customer feedback and an enjoyable experience when shopping. These features are important to any channel – catalogues, department stores, boutique shops, as well as online sites.

Factor 2 (eigenvalue = 4.48, 19.5% of total variance), ‘Online Concerns’, contains items (in order of loading): 21, 22, 20, 18, and, less strongly, 15, 23 and 16. These features are more specific to online shopping. Two apply to the use of computer equipment (download speed, interactive web design). Others pertain to concerns a shopper would have when dealing with a vendor and a product line that are not physically present:

- if a problem occurs, can it be corrected (easy return policy, fast customer service)
- does it actually provide the cost savings that are the supposed advantage of online sites over traditional stores (good price incentives, finding a bargain)
- whether a shopper can gather enough information without directly talking to a sales person or touching a product (provides product information, including FAQs).

Factor 3 (eigenvalue = 3.66, 15.9% of total variance), ‘The Buzz’, includes items 11, 3, 14 and 19. These features refer to the excitement and word of mouth among other people that is generated by a site. Sites that are seen as new and different (no. 3) and offer entertaining visuals (no. 14) can generate substantial word of mouth, as reflected in attention to a site on radio/TV/newspapers (no. 19) or in interactions with family and friends (no. 11). Other features are secondarily pertinent, as seen in their high (but not highest) loading on this dimension: the excitement from a good interactive web design (no. 23) and the word of mouth implicit in a site’s provision of customer feedback (no. 5).

Next, to compare nations on the Priority dimensions, each respondent’s factor score was calculated on each of the three dimensions. The three Priority scores were entered as separate dependent variables into three between subject Nation (3) × Usage (2) ANOVAs.

Priority 1: Shopping Essentials. The ANOVA showed a significant main effect of Nation, F(2, 396) = 5.086, p < .05. The main effect of Usage (F(1, 396) = 1.498, p > .10) and the Nation × Usage interaction (F(2, 396) = .738, p > .10) were not significant. The Tukey HSD post hoc test of group means (see Table 2) showed that this Priority was more important to the US sample than to those in PRC (p < .001) and the Polish (p < .05) samples. PRC and Poland did not differ (p > .10).

Priority 2: Online Concerns. The main effect of Nation was significant (F(2, 396) = 5.599, p < .05). As shown by the Tukey HSD test, greater importance was placed on this Priority in the US than in the Polish sample (p < .05). The numerical difference between the USA and PRC and between PRC and Poland did not reach significance.

Also, the main effect of Usage was significant (F(1, 396) = 4.238, p < .05), however the interaction term was not (F(2, 396) = 1.787, p > .10). Heavy internet users showed less interest in the Online Concerns than did light users (see Table 2).

Priority 3: The Buzz. The main effect of Nation was again significant, F(2, 396) = 7.582, p < .01, whereas the effect of Usage (F(1, 396) = .333, p > .10) and the interaction (F(2, 396) = .174, p > .10) were not. The Tukey HSD test of group means (see Table 2)
revealed that the US sample was less interested in these features than were the PRC (p < .01) and the Polish (p < .05) samples, while the difference between PRC and Poland approached significance (p = .075).

5 Summary and conclusions

The Preference Component Perspective uncovered societal level differences among nation samples in several arenas. First, as asked by RQ1, the nation samples differed in Elevation, the desire for site features in general. The US sample had a strong desire for site features in general (‘more is better’) than did Poland’s sample, with PRC holding an intermediate position. Perhaps the pattern reflects the comparatively great opportunity US shoppers have had, and the relatively brief chance Polish shoppers have had, to appraise the worth of the various features. The standard for what constitutes a good site may, then, be greater in the US than in the Polish market.

Second, pertinent to RQ2, it was found that these three nation samples can be compared along three dimensions underlying shoppers’ preference Priorities:

1. shopping essentials, that are worthwhile in any purchase situation whether on – or offline
2. online concerns, features representing concerns of unique pertinence to shopping with neither the product nor the vendor physically present
3. the buzz, features providing excitement and word of mouth support. 8

Third, in regard to RQ3, national societal level differences were found on each of the three dimensions. The US shopper sample placed particularly strong emphasis on features that facilitate shopping – both Shopping Essentials and Online Concerns. In contrast, they are relatively indifferent to features that convey word of mouth excitement and social approval (The Buzz). PRC and Polish samples, in contrast, gave less importance to Shopping Essentials and Online Concerns than did the US shopper sample, but are more attracted to sites that convey the Buzz features. Perhaps in PRC and Poland, sites have comparative advantage if they enjoy word of mouth, the approval of one’s family and friends, media attention, and the intrigue of being new and different. Perhaps in those nations in which internet commerce is quite young, the guidance of one’s family and peers plays a more directive role and serves to reduce risk and uncertainties inherent in any new form of shopping. That these nations also tend towards more collectivistic and group focused traditions might contribute to the role played by the Buzz features (Fiske, 2002).

Fourth, internet Usage, assumed to reflect one’s experience and knowledge of how to use the internet, influenced one’s feature preferences via the Online Concerns dimension. This pattern occurred across all three samples and can not be explained as simply due to demographic correlates of internet usage (since these correlates were controlled in the residualisation procedure). Light internet users (five or fewer hours per week) displayed a stronger desire for features that address the uniqueness of internet sites as a shopping venue. Heavy users, assumedly more conversant with the use of the internet, displayed less felt need for these internet unique features. Online Concern features, then, appeal to the neophytes more than to the internet savvy.
6 Implications

Marketing/behavioural/information scientists attempting to understand differences among nations in the effectiveness of a B2C site, and practitioners attempting to tailor a site to fit various national markets, face five challenges in comparing national markets in regard to what shoppers want in a website. The Preference Component Perspective is proposed as a means to overcome these challenges and to make meaningful inter-nation comparisons in feature preferences.

This conceptual-methodological Perspective has several advantages. First, the Perspective integrates the various steps intended to meet these challenges:

Step 1 assessing a wide cross section of features
Step 2 distinguishing between shoppers’ demand for better features in general and desires for specific features
Step 3 establishing common dimensions on which to quantitatively compare nations
Step 4 taking into account the individual’s relative preferences for one feature over another
Step 5 charting functions played by groups of features that underlie the preferences for the separate features
Step 6 adjusting analyses of societal level differences for potentially misleading results due to individual level characteristics of respondents in the various nation samples.

Second, the Perspective is easy to apply, in that the concepts are straightforward and can be executed using familiar and widely available statistical software (OLS regression, factor analysis, ipsative standardisation, and ANOVA).

Third, isolating differences among nations in the Components can yield results valuable to practitioners as well as to marketing/behavioural/information scientists. To illustrate, let us assume that the results obtained in the present demonstration samples are found when large representative samples of online shoppers are drawn to cleanly estimate the population parameters. Consider the findings for Elevation: PRC and Polish samples made fewer demands on the features of a shopping site. For the practitioners it appears that shopping sites devised for the Polish and PRC markets can be more ‘bare bones’ and less ‘chock full of features’ than is necessary in the US market. Further, scientists need to adjust for these differences in Elevation before attempting to explain any observed differences between the USA and PRC or Poland in the demand for any specific feature. Or consider the findings that the Priority 3 features, The Buzz, are more appealing to the Polish and PRC markets. For practitioners this suggests that in those nations, commercial sites should incorporate The Buzz features and in other ways encourage word of mouth to enhance the public prominence of the site and to do so more aggressively than in the USA. For scientists this implies that site penetration models might consider incorporating indicators of site prominence or social visibility, and that this may be true more for PRC and Poland than for the USA.

A limitation of the study is the nature of the snowball sample employed. Larger and more clearly representative samples should be used to estimate the Elevation and the Priority dimension parameters in the three nations of interest and to extend the study to
other nations. The samples and the nations used, however, are more than adequate to demonstrate the value of the Preference Component Perspective (see Calder et al., 1981). This successful application of the Perspective encourages such replication and extension studies.

Acknowledgements

The authors wish to acknowledge the valuable contributions of Jesse Dostal to the research process and data collection.

References


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Notes
1 Establishing common dimensions on which nation samples differ is conceptually and methodologically distinct from asking, first, what functions site features play in a given nation and, second, whether the functions revealed in other nations are equivalent to those found in the first nation (Van der Vijver, 2003a; 2003b). For example, using confirmatory factor analyses to see if the factor pattern found in the first nation is strictly equivalent to the pattern found in the second nation does not necessarily result in etic dimensions on which one nation can be higher (or lower) than another nation.

2 Since the nation samples may not be representative of the populations in those nations, this is not an “effects application” study (Calder et al., 1981) intended to estimate specific numerical population parameters (e.g., the specific Elevation found in Poland, the specific number of dimensions underlying feature priorities). The point is the conceptual/methodological framework, not the specific numerical differences observed here among PRC, Polish, and US populations.

3 Initial work on the approach is in Blake and Neuendorf (2005).

4 Age might still be correlated with the residual score within the USA and within the India samples, but those correlations would reflect societal level influences, not the effect of age per se (which is estimated in the pooled sample).

5 Studies of consumer satisfaction with site features (i.e., the perceived quality of a site’s performance on a feature or the judged extent to which a site provides a particular benefit) address a different question. User satisfaction with a feature is not equivalent to the importance or value users place on a site’s having that feature; dimensions underlying feature satisfaction are different from dimensions of feature preference (e.g., Kim and Lim, 2001).

6 Due to length restrictions and to the irrelevance of the precise impact of each demographic variable in demonstrating the Preference Component Perspective for assessing societal level national differences, we do not present a full demographic profile of respondent samples, an explicit description of the demographic categories used in the regression analyses, or the beta coefficients in the regression analyses. They are available from the authors.
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7 The absence of a significant impact of these individual level characteristics does not necessarily preclude the possibility that analysis will find one or more predictors significant within a single nation data set. As noted earlier, such an effect reflects a societal level effect (i.e., the interaction of nation with the demographic characteristics in question).

8 The nature of the Priority dimensions revealed and the differences among national samples on those dimensions may well depend upon the nations of interest. Differences between Great Britain and Australia may exist on Priority dimensions other than the three found here to differentiate among the Polish, PRC, and US samples.