

# Evaluating the Influence of Country-Related Pictures on the Perception of a Foreign Online Store

Vanessa BRACAMONTE<sup>†a)</sup> and Hitoshi OKADA<sup>††</sup>, *Members*

**SUMMARY** The sense of presence, that is, the sense of the website being psychologically transported to the consumer, has been identified as an important factor for bringing back the feeling of sociability and physicality that is lost in online shopping. Previous research has investigated how visual content in the design can influence the sense of presence in a website, but the focus has been limited to the domestic electronic commerce context. In this paper, we conduct an experimental study in a cross-border electronic commerce context to evaluate the effect of country-related pictures on the perception of country presence, visual appeal and trust in a foreign online store. Two experimental conditions were considered: country-related pictures and generic pictures, each one evaluated for Thai and Singaporean websites. It was hypothesized that country-related content in pictures included in the design of the foreign online store would result in a higher level of country presence, and that this would in turn result in higher visual appeal and trust in the website. We conducted a survey among Japanese online consumers, with a total of 1991 participants obtained. The subjects were randomly assigned into four groups corresponding to the combination of country-of-origin of the website and picture condition. We used structural equation modeling in order to analyze the proposed hypotheses. The results showed that for both the Thai and Singaporean websites, country-related pictures resulted in higher country presence, and visual appeal was positively influenced by this increase in country presence. However, country presence did not have a direct effect on trust; this effect was completely mediated by visual appeal. We discuss these results and their implications for cross-border electronic commerce.

**key words:** website design, presence, visual appeal, trust, cross-border electronic commerce

## 1. Introduction

An essential characteristic of electronic commerce is the fact that there is a spatial and temporal separation of user and vendor [1]. For cross-border electronic commerce in particular, this separation can be even greater since consumers and vendors are located in different countries. As a consequence of their physical separation, websites can be perceived by consumers as distant and impersonal [2].

In order to improve the perception of closeness with the online store, research on consumer behavior in electronic commerce has looked into the concept of presence [3]–[5]. The sense of presence, that is, the sense of being psychologically transported to another place or with other people through a technological medium [6], can help reduce the

perception of distance [7].

In domestic electronic commerce, distance results in a lower sense of sociability and physicality than in conventional shopping, which can be addressed by an increase in social presence [3] and physical presence [5] respectively. However, in the case of cross-border electronic commerce, the distance between the consumer and the foreign vendor also results in a lower sense of the country-of-origin of the online store. Increasing country presence may be able to bring the consumer psychologically closer to the foreign online store and improve their evaluation of the website.

In addition to aesthetic considerations, websites rely on visual content to transmit information and messages to the consumer [8]. Characteristic of the design can influence consumer perception of factors such as risk [5], trust [12] or credibility of the website [27], for example. Similarly, the sense of presence can be affected by the manipulation of the visual design of a website [9]. Previous studies have investigated for example how the inclusion of pictures of people or with high social content can induce social presence in online stores [7], [8], [10]. However, the effect of visual content on the sense of presence related to country has not been previously considered.

The objective of this study is to add to the existing knowledge on the effect of pictorial content on presence by considering country-related imagery and evaluating how pictures with content related to the country-of-origin of a foreign online store can improve country presence. We hypothesize that an increase in country presence will have a positive influence on the visual appeal and trust in the website. Trust in particular is a highly important factor in the intention of use of electronic commerce [4], [11], [12]. To the best of our knowledge there are no previous studies regarding the effect of country-related pictures on consumer perception.

In order to validate the hypotheses of this research, we conducted an experiment manipulating the content of pictures in two foreign electronic commerce websites, from Thailand and Singapore, and analyzed the responses of Japanese users. The results found confirm that country-related pictures can increase the country presence in the foreign online store, and that country presence subsequently affects the perception of visual appeal and trust.

Section 2 of this paper presents the theoretical framework and hypotheses of this study. Section 3 describes the methodology used in the experiment. Section 4 presents the analysis and results obtained. Section 5 presents the

Manuscript received March 2, 2015.

Manuscript revised August 5, 2015.

Manuscript publicized October 21, 2015.

<sup>†</sup>The author is with SOKENDAI (The Graduate University for Advanced Studies), Kanagawa-ken, 240–0193 Japan.

<sup>††</sup>The author is with National Institute of Informatics (NII), Tokyo, 101–8430 Japan.

a) E-mail: vbracamonte@nii.ac.jp

DOI: 10.1587/transinf.2015MUP0002

discussion of the results. Lastly, Sect. 6 provides the conclusions and implications.

## 2. Theoretical Framework

Presence is a feeling of transportation [6] which can occur in technologically mediated environments. Although more closely associated with virtual environments [13], even television, cinema or paintings can provide a sense of presence, though to a different degree than virtual reality [14]. Presence has two general categories: social and physical [15]. Social presence is the feeling of being and communicating with other people. Physical presence is the feeling of being in another place or feeling that another place is here [6]. There are also additional categories of presence, such as co-presence for example, which is a combination of social and physical presence [14].

In this study, we define country presence as the sense of a website's country-of-origin transmitted to the user. This definition is based on the type of transportation in which another place and the objects within it are transported to the user [6], where place refers to the country. The definition also considers the limitations of applying the concept of presence in an electronic commerce context, in a similar manner as previous research in this area [7], [8].

The feeling of presence can be influenced by the content that is being represented by the medium [13], [15], such as people, places, events or interactions. In the case of electronic commerce, this may be accomplished through the design of the website, as user response can be manipulated by modifying visual elements of the design [43]. For example, visual content such as photos of people [3] or human pictures [8], [10] can be included in the design to improve social presence in a website. Similarly, country-related content in pictures may be able to increase country presence in the foreign online store.

*Hypothesis 1:* Displaying country-related pictures in a foreign online store results in higher country presence than displaying generic pictures

Trust is defined as the belief that the vendor will have integrity and keep its commitments, that it will be benevolent and act in the best interests of the consumer, and that it will be competent in performing their task [16], [17]. Trust is important because the belief that the vendor will act favorably can affect the consumers' decision to use an online store [18], [19]. Trust is a factor that becomes relevant in situations of risk [20], and therefore it is critical in cross-border electronic commerce, where the perception of risk is increased.

One source of uncertainty in online consumers is the physical and temporal separation of consumers and vendors [1]. This distance means, among other things, that consumers have restricted access to knowledge about the vendor, beyond what they can gather from the website itself. Therefore, the website must include this information in

order to convey it to the consumer. Sense of presence can increase information richness in technology-facilitated communication [21], and the increase of information richness brought by social presence has been shown to improve trust in an online store [7], [8], [10], [12]. Information about the vendor is an important consideration for trust in Japanese users in particular [8], otherwise they are more likely to avoid purchase. In a scenario of initial trust, users have restricted knowledge about the vendor. Therefore, providing clear and immediate information about the foreign online store, conveyed by country presence, may have a positive effect on trust.

*Hypothesis 2:* Country presence results in higher trust in the foreign online store

Visual appeal is defined as the perception of the aesthetics of a website [22]. Similarly to conventional shopping, online shopping is not only motivated by utilitarian purposes. Consumers can also visit online stores motivated by hedonic reasons [23], such as enjoyment of the experience. Consequently, when evaluating the visual appeal of a website, consumers are not only influenced by the order and clarity of the design, but also by its expressiveness and the emotions it evokes [24]. A study that compared the responses of participants from different countries [25] identified that Japanese users in particular showed preference for designs with a more emotional approach, which had more pictures and brighter colors. They also used descriptors such as "cold" for an opposite design.

By transporting the consumer, sense of presence can increase the emotional investment with the website. A high social presence condition induced consumers to describe the design of a website as interesting and appealing [7], [10]. In contrast, the design was described as plain, boring and unappealing in a lower social presence condition. Increased physical presence in a website can also influence the aesthetic dimension of consumer attitude, such as the perceived attractiveness and visual appeal of products [9]. Although the relationship between presence and visual appeal of an online store has not been formally analyzed in these studies, the findings point to the likelihood that there is such a relationship between them. In this study, we propose that by increasing country presence, the consumer may feel more emotionally involved in the foreign online store and perceive it as having an attractive design.

*Hypothesis 3:* Country presence results in higher visual appeal of the foreign online store

Previous research has found a strong relationship between the aesthetic appeal of a website and the perception of trust [26]. Visual appeal is a dimension of quality in websites [22], and perception of quality of the design can influence user's trust [28]. When users first visit a website, they lack experience with the features that it can offer. However, they can immediately perceive and form an opinion about

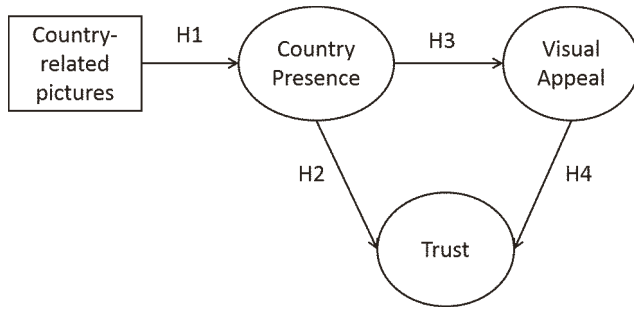


Fig. 1 Proposed model.

the design and look of the website [29], because this doesn't require anything more than observation. These characteristics are also the most often mentioned by users, when asked to make an evaluation of the credibility of a website [27]. The higher the aesthetic perception, the more users trust the information content of a website [30]. Visual design perception is also important in scenarios of initial trust in electronic commerce [12], where consumers are unfamiliar with the online store.

*Hypothesis 4:* Visual appeal results in higher trust in the foreign online store

The research model with all hypotheses is presented in Fig. 4.

### 3. Methodology

#### 3.1 Participants

A survey was conducted among Japanese internet users. Participants were recruited online by sending an invitation to participate through an online survey company. Participants who responded to the invitation filled a preliminary questionnaire on their online shopping experience. Participants with and without cross-border electronic commerce experience were selected to take the main questionnaire.

#### 3.2 Experiment Design

A between-subjects experiment design was used, with two experimental conditions: one where the design of the online store included country-related pictures, and another that included generic pictures.

The criteria for choosing the countries for the experiment was as follows: The countries should be geographically close to Japan and they should be a popular travel destination for Japanese people. This was to ensure that the participants would have some degree of familiarity and interest about the country. Also, the countries should have at least a neutral relationship with Japan, in order to limit any negative image effects.

Following these criteria, the two countries chosen were Thailand and Singapore. These countries are relatively close



Fig. 2 Experimental websites for the Thai online store group: country images (left) and generic images (right).



Fig. 3 Experimental websites for the Singaporean online store group: country images (left) and generic images (right).

to Japan, and are the third and fourth most visited countries by Japanese people [32], after China and South Korea. Both countries also have a positive relationship with Japan [33], [34], though cultural exchange with Singapore appears to be lower than with Thailand.

The picture and country conditions resulted in a total of four combinations, which were represented in four mock-up websites of a B2C online store (Fig. 2 and Fig. 3). The mock-up websites were developed specifically for the experiment and they shared the exact same design and textual content, with the only difference being the country-of-origin and pictures.

The pictorial content to represent the country included the flag of the country, symbols, and places indicated by official tourism websites. The pictures chosen after gathering this information were reviewed by a Japanese native for identification with the country and aesthetic appeal. The generic pictures were abstract shapes and colors, and were the same for both country conditions. All pictures obtained were under a creative commons license. Multiple pictures were used in order to increase country presence rather than identify a particular picture as the source of the change.

#### 3.3 Survey and Measures

The participants were randomly assigned to view one of the four possible mock-up websites and answer a questionnaire about their perceptions. The items included in the questionnaire were adapted from previous studies: trust [16] and visual appeal [22]. With consideration of the context of the study, country presence items were adapted from reference [10]. The adapted items were translated into Japanese language by a native Japanese speaker and reviewed separately by another native Japanese speaker. All items were measured on a five-point Likert scale ranging from strongly disagree to strongly agree. The details of the measurement items are presented in the Appendix.

The questionnaire included the following manipulation check questions, which would indicate if the participant correctly perceived the website as being from the foreign country: “I am very aware that this website is from [country]”, “This online store is from a company in [country]”, and “This online store delivers from [country]”. As mentioned before, countries with a positive relationship with Japan were chosen for the experiment. In addition, the questionnaire included validation questions about the reputation of the country (“Good name and reputation”) and the perception about their people (“Hospitable, friendly people”).

## 4. Analysis and Results

### 4.1 Sample

2064 participants were initially obtained by the survey. From these, age outliers and participants with suspicious response patterns were identified and eliminated, leaving a total of 1991 cases. The characteristics of the sample are summarized in Table 1, grouped by country-of-origin of the foreign online store. No statistically significant differences between the groups were found in the mean or distribution of age, sex or online shopping frequency. This indicates a successful random assignment.

### 4.2 Data Validation

In addition, respondents who answered negatively to all the country-of-origin manipulation check questions were identified and 186 cases were eliminated. Absolute values of skewness and kurtosis indices (SI and KI, respectively) for all items were lower than the limit of  $SI < 3.0$  and  $KI < 10.0$  [35], which indicates that the items do not show deviations from the normal distribution. Maximum values were  $SI = 0.29$  and  $KI = 1.45$ . There were no missing data. Data validation analyzes were performed using SPSS v18 and Amos v18.

The means of the items related to country perception were above the middle point for both countries, indicating a positive perception. For the reputation of the country, the mean was 3.12 for Thailand and 3.44 for Singapore. On the

other hand, for the perception about the people of the country, the mean was 3.71 for Thailand and 3.51 for Singapore.

### 4.3 Measurement Model

We used structural equation modeling (SEM) in order to simultaneously evaluate the effect of the country-related pictures on country presence, and subsequently on the visual appeal and trust in the foreign online store. First, we conducted a confirmatory factor analysis (CFA) to validate the measurement structure of the model, using Amos v18 with a maximum likelihood estimation. The CFA was conducted for the Thai and Singaporean online store groups separately. Good model fit was determined by the following criteria: the root mean square error of approximation (RMSEA) should be lower than 0.06 ( $p > 0.05$ ), the standardized root mean square residual (SRMR) should be lower than 0.08, and the comparative fit index (CFI) and the Tucker-Lewis index (TLI) should be higher than 0.95 [42]. The normed chi-square ( $\chi^2/df$ ) should be lower than 3.0 [37]. The model chi-square value and degrees of freedom ( $\chi^2(df)$ ) are not part of the fit criteria, but are presented for reference [35].

The initial model did not show good fit for either group. After an examination of the modification indices, three trust items were identified as sources of strain in the model and were removed. The re-specified model showed a good fit for the Thai online store group ( $\chi^2(50) = 164.20$ ,  $\chi^2/df = 3.22$ ,  $RMSEA = 0.05$  ( $p = 0.51$ ),  $SRMR = 0.04$ ,  $CFI = 0.99$ ,  $TLI = 0.98$ ) and for the Singaporean online store group ( $\chi^2(50) = 152.30$ ,  $\chi^2/df = 2.99$ ,  $RMSEA = 0.05$  ( $p = 0.71$ ),  $SRMR = 0.04$ ,  $CFI = 0.99$ ,  $TLI = 0.98$ ). All factor loadings were significant and their standardized values were equal or above 0.7, with the exception of a trust item for the Singaporean online store group, which had a slightly lower but statistically significant loading of 0.67. Standardized factor loadings for both groups are shown in Table 2.

Construct reliability, whether the items consistently measure the intended factor [38], was evaluated by calculating the Cronbach's alpha and composite reliability (CR) values for each factor, which should both be higher than 0.7. Convergent validity, whether the items that measure the same construct are intercorrelated [35], was evaluated by calculating the average variance extracted (AVE) for each

**Table 1** Sample summary.

		Thailand	Singapore
n		998	993
Age mean (SD)		46.5 (14.1)	45.5 (14.9)
	Sex (%)		
	Male	54.3	52.4
	Female	45.7	47.6
EC Frequency (%)	None in the past year	8.9	10.0
	Once a year	4.5	4.8
	Twice a year	7.8	9.1
	2, 3 times in 6 months	18.3	16.6
	Once a month	25.9	26.8
	2, 3 times a month	22.3	22.3
	Once a week	8.7	7.5
	2, 3 times a week	2.6	2.7
	4 or more times a week	0.9	0.3

**Table 2** Measurement model.

Factor	Item	Thailand	Singapore
		Std. factor loading	Std. factor loading
Trust	TR1	0.86	0.85
	TR2	0.85	0.86
	TR3	0.87	0.84
	TR4	0.89	0.85
	TR6	0.75	0.67
Visual appeal	VA1	0.89	0.89
	VA2	0.81	0.82
	VA3	0.85	0.81
	VA4	0.83	0.80
Country presence	CP1	0.73	0.72
	CP2	0.92	0.93
	CP3	0.90	0.86



**Table 3** Reliability and validity indices.

Factor	Thailand			Singapore		
	$\alpha$	CR	AVE	$\alpha$	CR	AVE
Trust	0.93	0.93	0.72	0.90	0.91	0.67
Visual appeal	0.91	0.91	0.72	0.90	0.90	0.69
Country presence	0.88	0.89	0.73	0.87	0.87	0.70

 $\alpha$  Cronbach's alpha**Table 4** Discriminant validity.

	Thailand		
	Trust	Visual appeal	Country presence
Trust	0.846		
Visual appeal	0.519	0.848	
Country presence	0.263	0.438	0.852

	Singapore		
	Trust	Visual appeal	Country presence
Trust	0.816		
Visual appeal	0.587	0.829	
Country presence	0.312	0.544	0.838

Values on the diagonal represent the square root of the AVE

factor, which should be higher than 0.5. Discriminant validity, whether the items of different constructs are not too highly intercorrelated [35], was evaluated by verifying that the square root of the AVE of a factor is higher than the absolute value of the correlations with all other factors [38]. The results show that all factors had good construct reliability and showed convergent and discriminant validity (Table 3 and Table 4).

#### 4.4 Structural Equation Model

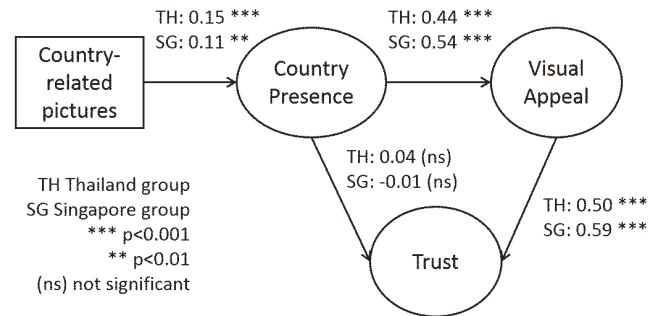
Structural Equation Modeling analysis was then conducted for both groups, using Amos v18 with a maximum likelihood function. A binary variable was used to represent the experimental conditions [39]: website with country-related pictures (value = 1) or the website with generic pictures (value = 0). The initial model, specified according to the hypotheses of the study, showed a good fit for both groups. For the Thai online store group:  $\chi^2(62) = 179.73$ ,  $\chi^2/df = 2.90$ , RMSEA = 0.05 ( $p = 0.80$ ), SRMR = 0.04, CFI = 0.99, TLI = 0.98. For the Singaporean online store group:  $\chi^2(62) = 178.99$ ,  $\chi^2/df = 2.89$ , RMSEA = 0.05 ( $p = 0.81$ ), SRMR = 0.04, CFI = 0.98, TLI = 0.98. All hypotheses were confirmed for both Thai and Singaporean online store groups, with the exception of the direct effect of country presence on trust (H2). The results are presented in Table 5, and the standardized path coefficients ( $\beta$ ) are represented in Fig. 4.

#### 4.5 Mediation Analysis

Mediation analysis was conducted to estimate the indirect effects on visual appeal and trust. We ran a bootstrap of the model with 2000 bootstrap samples, and the significance of the effects were calculated using 95% bias-corrected bootstrap confidence intervals [40]. The results showed that country-related pictures had a significant positive indirect

**Table 5** Structural model results.

Hypothesis	Path coeff.	Thailand		p	Singapore		p
		Std. error			Std. error		
H1: Country presence is higher for country related pictures	0.24	0.06	<0.001	0.17	0.06	<0.01	
H2: Country presence → Trust	0.03	0.03	0.23	-0.01	0.03	0.80	
H3: Country presence → Visual appeal	0.44	0.04	<0.001	0.54	0.03	<0.001	
H4: Visual appeal → Trust	0.39	0.03	<0.001	0.45	0.03	<0.001	

**Fig. 4** Result model with standardized path coefficients.

effect on visual appeal for the Thai online store and the Singaporean online store (0.07 ( $p < 0.01$ ) and 0.06 ( $p < 0.01$ ), respectively) but there was no effect on trust. On the other hand, the indirect effect of country presence on trust, mediated by visual appeal, was significant: 0.23 ( $p < 0.01$ ) for the Thai website and 0.33 ( $p < 0.01$ ) for the Singaporean website.

#### 4.6 Multiple Group Analysis

A multiple group analysis was conducted to compare the model between the Thai and Singaporean online store groups, using Amos v18. We first tested that the measurement model was invariant, that is, that the items measured the factors equally in both groups [35]. Three conditions are required for measurement invariance. First, the freely estimated model for both groups needs to have a good fit [35], which was confirmed ( $\chi^2(102) = 316.50$ ,  $\chi^2/df = 3.10$ , RMSEA = 0.03 ( $p = 1.0$ ), SRMR = 0.04, CFI = 0.99, TLI = 0.98). Second, the chi-square difference between the freely estimated model and the equal factor loadings model should be non-significant. This indicates that the fit of the model where the unstandardized factor loadings are equal across groups is not worse than the fit of the freely estimated model and so the equal factor loadings model can be retained [35]. The results showed that the difference was not significant ( $\chi^2(9) = 11.32$ ,  $p = 0.25$ ). Third, the equal factor intercepts model should also be retained [42]. The results showed that the difference in this case was also non-significant ( $\chi^2(12) = 13.43$ ,  $p = 0.34$ ). Therefore, we could conclude that there was measurement invari-

ance across groups and proceeded to compare the structural model.

The invariance of the structural model was tested in a similar way to the measurement model [35]. The freely estimated group structural model had a good fit ( $\chi^2(124) = 358.72$ ,  $\chi^2/df = 2.89$ , RMSEA = 0.03 ( $p = 1.0$ ), SRMR = 0.04, CFI = 0.98, TLI = 0.98) and the equal path coefficients model was retained ( $\chi^2(4) = 8.68$ ,  $p = 0.07$ ). These results show that the relationships between the factors in the model were equal for the Thai and Singaporean online store groups. A further chi-square difference test confirmed that none of the differences between path coefficients across groups were statistically significant.

#### 4.7 Mean Difference

In addition to the SEM analysis, we conducted t-tests on the means of country presence, visual appeal and trust, to compare these variables between the country-related pictures and generic pictures conditions for the Thai and Singaporean online store groups. The variables used for the t-test were obtained by adding up the items for each factor. The t-tests were conducted using SPSS v18. The results show that the mean of country presence was significantly higher for the website with country-related pictures for both groups. The mean difference was 0.68 ( $p < 0.001$ ) for the Thai online store group and 0.53 ( $p < 0.001$ ) for the Singaporean online store group. However, there were not significant difference in the mean of trust or visual appeal for either groups. Interestingly, the mean of the visual appeal of the generic condition was higher than for the country-related condition, for both groups. This is in contrast to the results for country presence and trust, where the means were higher for the country-related pictures conditions.

### 5. Discussion

The results of this study confirm that pictures which content is related to the country-of-origin of the foreign online store can have a positive influence on country presence. For both Thai and Singaporean online store groups, the presence of country-related pictures in the website design resulted in higher country presence compared to only including generic pictures. According to the standardized path coefficients, this effect was slightly higher for the Thai online store group than the Singaporean online store group, though the difference was not statistically significant.

These results were corroborated by the mean difference analysis, which showed a significantly higher mean of country presence for the conditions with country-related pictures. The difference was slightly larger for the Thai online store group, which, as with the standardized path coefficients, indicates that the effect of the country-related pictures was slightly stronger than in the case of the Singaporean online store group. These results contribute additional evidence of the effect that pictures can have in the perception of a website, and how the content of pictures can generate a sense of

presence in an online store [8], [10].

The results also indicated a positive effect of country presence on the perception of the website, though there were differences for trust and visual appeal. There was a positive indirect effect of country presence on trust, but the hypothesis of direct effect was not confirmed. The results showed that the influence on trust was completely mediated by the visual appeal of the website. This result contradicts previous findings about the effect of presence on the perception of trustworthiness of trust [7], [8], [10]. However, the previous studies did not include aesthetic elements [7], [10] or overall appeal of the website [8]. In contrast, we can see by looking at the standardized path coefficients (direct effects) and the standardized indirect effects that the total effect of country presence on visual appeal was higher than the effect on trust, which indicates the relevance of including visual appeal in the model. Also, no significant differences were found in the mean of trust either between the websites of the foreign countries or between the versions with or without country-related pictures for both countries. However, this result is in line with previous research on differences in trust between similar websites, which have also failed to find such differences [8], [25].

The results also show the value of considering country presence for improving the aesthetic perception of the foreign online store, as country presence had a positive influence on the overall visual appeal for both the Thai and Singaporean online store groups. On the other hand, the results showed that the mean of visual appeal was lower in the country-related pictures conditions than in the generic conditions, although the difference was not statistically significant. This is a surprising result considering the positive effect, direct and indirect, of country presence on visual appeal, and indicates that the evaluation of visual appeal of the website with country-related pictures can be less positive when not mediated by the sense of country presence. One possible explanation for this result is that the interaction between the pictures and website design was not positive, or that the information richness of the content in the higher country presence condition may have induced complexity [41] and therefore a negative perception when not mediated by the effect of country presence. Further research should be done to validate these possibilities.

Another important finding was the fact that the structural model remained invariant between the Thai and Singaporean online store groups. The successful corroboration of the proposed model on two countries indicates that the effect of pictures on country presence, and the effect of country presence on other factors, is not limited by country. These results give initial evidence to suggest that country presence is relevant for any foreign online store. However, further research should be conducted to take into account additional control conditions such as the familiarity or distance with the foreign country.

Finally, the results showed that the appeal or attractiveness of the visual design aspects of the website had a positive effect on trust, which is consistent with the findings of

previous research [26].

### 5.1 Limitations

There are some limitations to this study. First, regarding the sample used in the study, participants for the experiment were gathered using an online survey company, which limited the possible responses to Japanese people who could be reached through the invitation to participate in the survey. This non-probability sampling method somewhat limits the generalizability of the results to the Japanese population. Nevertheless, the method used allowed us to obtain a large sample recommended for structural equation analysis [39].

Second, regarding the experiment websites, using mock-ups meant that the response of the participants could not be assured to be the same as it would have been towards a real online store. Even so, the use of a mock-up website allowed us the flexibility to directly manipulate the desired visual content and at the same time avoid any possible brand reputation effects.

Third, regarding the pictures used, there was not an exact correspondence between the content chosen to indicate country presence for the Thai and Singaporean online stores. In principle, identical content for both countries was not possible because of the fact that the countries used in the experiment were different. However, care was taken to select close matches in terms of the content depicted in the pictures. In addition, the country-related pictures themselves were not directly compared to the generic pictures on aesthetic value independent of the website, nor was a pre-test conducted. Therefore, the picture's subjective aesthetic appeal was not controlled for, although they were considered in different contexts and participants only viewed one type. Future studies should consider measuring and controlling for aesthetic perception of the pictures themselves.

Fourth, regarding the countries used in the experiment, we chose only countries with a positive relationship with Japan. Therefore, the findings of this study might not be applicable to situations where there is a negative image of the foreign country. In that case, the negative perception itself may overwhelm any other consideration, in a similar way to the effect of brand reputation. Finally, the model did not include additional factors that could affect visual appeal or trust, as the objective was to validate the effects of the experimental manipulation rather than present a full consumer acceptance model. However, in a full model it is possible that country presence might have an effect on other factors, or that the estimated effects might change.

### 6. Conclusions

In this study, we evaluated the effect of picture content on country presence, and the subsequent influence of country presence on visual appeal and trust in foreign online stores. In order to do this, we conducted an experiment comparing a design containing pictures with country-related content vs. generic content in websites from two countries, Thailand

and Singapore.

We found that including country-related pictures resulted in a higher feeling of country presence in the online store for both countries. In addition, an increase in country presence improved the perceived appeal of the website design. However, country presence did not directly improve trust in the online store; instead, the effect was completely mediated by the perception of visual appeal. Overall, the results of this study indicate that country-related pictures can improve consumers' evaluation of a foreign online store through country presence.

These results suggest that foreign vendors may be able to use visual content in the design of their website in order to provide the consumer a sense of their country-of-origin. Showing pictures or symbols of the country may act as a way of reminding the international customer where the website is coming from, strengthening the association of website and country and psychologically transporting the consumer to the foreign country. However, when choosing what visual content to use in order to improve country presence, it is important to also consider the impact of that content with regards to the overall appeal of the website.

Future research should consider investigating including different media elements, different levels of content or a combination of both, in order to induce country presence. The model should also be validated with participants from other countries besides Japan and with different countries for the foreign online stores, which would help identify any cultural differences in country presence and reaction to country-related visual content. In particular, combinations where participants may have a negative image of the foreign country should be considered, to validate how this negative perception could affect the evaluation of country-related content.

### Acknowledgments

This study is part of a research on Electronic Commerce Consumers' Behavior Studies, supported by the KDDI Foundation's research grant program 2011.

### References

- [1] E. Brynjolfsson and M.D. Smith, "Frictionless commerce? A comparison of internet and conventional retailers," *Manage. Sci.*, vol.46, no.4, pp.563–585, 2000.
- [2] P.A. Pavlou and L. Chai, "What drives electronic commerce across cultures? A cross-cultural empirical investigation of the theory of planned behavior," *J. Electron. Commer. Re.*, vol.3, no.4, pp.240–253, 2002.
- [3] U. Steinbrück, H. Schaumburg, S. Duda, and T. Krüger, "A picture says more than a thousand words: photographs as trust builders in e-commerce websites," *Proc. CHI*, pp.748–749, 2002.
- [4] S. Grabner-Kräuter and E.A. Kaluscha, "Empirical research in online trust: a review and critical assessment," *Int. J. Hum-Comput. St.*, vol.58, no.6, pp.783–812, June 2003.
- [5] J. Park, S.J. Lennon, and L. Stoel, "On-line product presentation: effects on mood, perceived risk, and purchase intention," *Psychology and Marketing*, vol.22, no.9, pp.695–719, Sept. 2005.
- [6] M. Lombard and T. Ditton, "At the heart of it all: the concept of

- presence," *J. Comput.-Mediat. Comm.*, vol.3, no.2, p.20, 1997.
- [7] D. Cyr, K. Hassanein, M. Head, and A. Ivanov, "The role of social presence in establishing loyalty in e-service environments," *Interact. Comput.*, vol.19, no.1, pp.43–56, Jan. 2007.
  - [8] D. Cyr, M. Head, and H. Larios, "Exploring human images in web-site design: a multi-method approach," *MIS Quart.*, vol.33, no.3, pp.539–566, 2009.
  - [9] K.-S. Suh and S. Chang, "User interfaces and consumer perceptions of online stores: the role of telepresence," *Behav. Inform. Technol.*, vol.25, no.2, pp.99–113, 2006.
  - [10] K. Hassanein and M. Head, "Manipulating perceived social presence through the web interface and its impact on attitude towards online shopping," *Int. J. Hum-Comput. St.*, vol.65, no.8, pp.689–708, Aug. 2007.
  - [11] D. Gefen, I. Benbasat, and P. Pavlou, "A research agenda for trust in online environments," *J. Manage. Inform. Syst.*, vol.24, no.4, pp.275–286, April 2008.
  - [12] F.P. Karimov, M. Brengman, and L. Van Hove, "The effect of web-site design dimensions on initial trust: a synthesis of the empirical literature," *J. Electron. Commer. Re.*, vol.12, no.4, pp.272–301, 2011.
  - [13] J. Steuer, "Defining virtual reality: dimensions determining tele-presence," *J. Commun.*, vol.42, no.4, pp.73–93, 1992.
  - [14] W.A. Ijsselstein, J. Freeman, and H. de Ridder, "Presence: where are we?," *Cybersychol. Behav.*, vol.4, no.2, pp.179–182, 2001.
  - [15] W.A. Ijsselstein, H. de Ridder, J. Freeman, and S.E. Avons, "Pres-ence: concept, determinants, and measurement," *Proc. SPIE: Human Vision and Electronic Imaging V*, pp.520–529, 2000.
  - [16] D.H. McKnight, V. Choudhury, and C. Kacmar, "Developing and validating trust measures for e-commerce: an integrative typology," *Inform. Syst. Res.*, vol.13, no.3, pp.334–359, Sept. 2002.
  - [17] D. Gefen, "Reflections on the dimensions of trust and trustworthi-ness among online consumers," *ACM SIGMIS Database*, vol.33, no.3, pp.38–53, 2002.
  - [18] D. Gefen, "E-commerce: the role of familiarity and trust," *Omega*, vol.28, no.6, pp.725–737, Dec. 2000.
  - [19] P.A. Pavlou, "Consumer acceptance of electronic commerce: inte-grating trust and risk with the technology acceptance model," *Int J. Electron. Comm.*, vol.7, no.3, pp.101–134, 2003.
  - [20] R.C. Mayer, J.H. Davis, and F.D. Schoorman, "An integrative model of organizational trust," *Acad. Manage. Rev.*, vol.20, no.3, pp.709–734, 1995.
  - [21] R.L. Daft, R.H. Lengel, and L.K. Trevino, "Message equivocality, media selection, and manager performance: implications for infor-mation systems," *Mis. Quart.*, vol.11, no.3, pp.355–366, 1987.
  - [22] E.T. Loiacono, R.T. Watson, and D.L. Goodhue, "WebQual: a mea-sure of website quality," *Marketing educators' conference: Market-ing theory and applications*, vol.13, no.3, pp.432–438, 2002.
  - [23] T.L. Childers, C.L. Carr, J. Peck, and S. Carson, "Hedonic and utili-tarian motivations for online retail shopping behavior," *J. Retailing.*, vol.77, no.4, pp.511–535, Dec. 2001.
  - [24] T. Lavie and N. Tractinsky, "Assessing dimensions of perceived vi-sual aesthetics of web sites," *Int. J. Hum-Comput. St.*, vol.60, no.3, pp.269–298, March 2004.
  - [25] D. Cyr, C. Bonanni, J. Bowes, and J. Ilsever, "Beyond trust: web-site design preferences across cultures," *J. Glob. Inf. Manag.*, vol.13, no.4, pp.25–54, 2005.
  - [26] D. Cyr, "Modeling web site design across cultures: Relationships to trust, satisfaction, and E-loyalty," *J. Manage. Inform. Syst.*, vol.24, no.4, pp.47–72, April 2008.
  - [27] B.J. Fogg, C. Soohoo, D.R. Danielson, L. Marable, J. Stanford, and E.R. Tauber, "How do users evaluate the credibility of Web sites?: a study with over 2,500 participants," *Proc. Designing for User Expe-riences*, pp.1–15, 2003.
  - [28] J. Riegelsberger, M.A. Sasse, and J.D. McCarthy, "Shiny happy peo-ple building trust?: photos on e-commerce websites and consumer trust," *Proc. CHI*, pp.121–128, 2003.
  - [29] G. Lindgaard, G. Fernandes, C. Dudek, and J. Brown, "Attention web designers: You have 50 milliseconds to make a good first impression!," *Behav. Inform. Technol.*, vol.25, no.2, pp.115–126, 2006.
  - [30] D. Robins and J. Holmes, "Aesthetics and credibility in web site design," *Inform. Process. Manage.*, vol.44, no.1, pp.386–399, 2008.
  - [31] A. Vance, C. Elie-Dit-Cosaque, and D.W. Straub, "Examining trust in information technology artifacts: the effects of system quality and culture," *J. Manage. Inform. Syst.*, vol.24, no.4, pp.73–100, April 2008.
  - [32] Japan Tourism Marketing Co., *Japanese Overseas Travellers by Des-tination (Visitor Arrivals From Japan)*, 2013.
  - [33] Ministry of Foreign Affairs of Japan, *Japan-Thailand Rela-tions*, 2014. Retrieved from <http://www.mofa.go.jp/region/asia-paci/thailand/index.html>
  - [34] Ministry of Foreign Affairs of Japan, *Japan-Singapore Rela-tions*, 2012. Retrieved from <http://www.mofa.go.jp/region/asia-paci/singapore/index.html>
  - [35] R.B. Kline, *Principles and Practice of Structural Equation Modeling*, Guilford Press, 2011.
  - [36] S. Taylor and P.A. Todd, "Understanding information technology usage: a test of competing models," *Inform. Syst. Res.*, vol.6, no.2, pp.144–176, 1995.
  - [37] D. Hooper, J. Coughlan, and M. Mullen, "Structural equation mod-elling: guidelines for determining model fit," *EJBRM*, vol.6, no.1, pp.53–60, 2008.
  - [38] D. Gefen, D.W. Straub, and M. Boudreau, "Structural equation mod-eling and regression: guidelines for research practice," *Communica-tions of AIS*, vol.4, no.7, p.76, 2000.
  - [39] R.C. MacCallum and J.T. Austin, "Applications of structural equa-tion modeling in psychological research," *Annu. Rev. Psychol.*, vol.51, no.1, pp.201–226, 2000.
  - [40] P.E. Shrout and N. Bolger, "Mediation in experimental and nonex-perimental studies: new procedures and recommendations," *Psy-chol. Methods.*, vol.7, no.4, pp.422–445, 2002.
  - [41] E. Michailidou, S. Harper, and S. Bechhofer, "Visual complexity and aesthetic perception of web pages," *Proc. SIGDOC*, pp.215–224, 2008.
  - [42] T.A. Brown, *Confirmatory Factor Analysis for Applied Research*, Guilford Publications, 2015.
  - [43] J. Kim and J.Y. Moon, "Designing towards emotional usability in customer interfaces—trustworthiness of cyber-banking system inter-faces," *Interact. Comput.*, vol.10, no.1, pp.1–29, 1998.

## Appendix: Measurement Items

Response Scale: 1: Strongly Disagree - 5: Strongly Agree

### Trust [16]

- TR1 This online store is truthful in its dealings with me.  
 TR2 I can trust this online store site to process and deliver my shopping correctly.  
 TR3 This online store would keep its commitments.  
 TR4 This online store is sincere and genuine.  
 TR5 This online store is competent and effective in selling products online.  
 TR6 This online store performs its role of selling products online very well.  
 TR7 Overall, this online store is a capable and proficient on-line store.  
 TR8 In general, this online store is very knowledgeable about shopping online.



**Visual appeal [22]**

VA1 The design of the website is appealing.

VA2 The website has a good and well-realized design.

VA3 I like the design of the website.

VA4 The design of the website is interesting.

**Country presence [10]**

CP1 The online store brings the image of [country].

CP2 The online store has a feeling of [country].

CP3 The online store conveys a sense of [country].



**Vanessa Bracamonte** is a Ph.D. candidate in Informatics at SOKENDAI (The Graduate University for Advanced Studies), Japan. She holds a BSc in Informatics from Pontificia Universidad Catolica del Peru. Before undertaking her Ph.D., she worked as an analyst and project manager in the development of electronic commerce stores. Her research interests include consumer behavior in electronic commerce, with a focus on the cross-border context, trust and risk factors and their antecedents.



**Hitoshi Okada** is an Associate Professor at the National Institute of Informatics (NII), Japan. He got his Bachelor of Public Law (LLB) and Bachelor of Private Law (LLB) from the University of Tokyo, Japan. He completed his MA at the Osaka School of International Public Policy (OSIPP) at Osaka University, Japan. He got his Ph.D. in International Public Policy from Osaka University, Japan. His current research topic is the consumers' acceptance of IT enabled services, especially the electronic commerce services and the virtual currency systems.