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Electronic Commerce Acceptance: A Study Comparing the United States and the United Kingdom

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INTRODUCTION

The popularization of the Internet and the rise of Internet electronic commerce (e-commerce) has been one of the major social and business developments of the last few years. Much is made of the rapid development of, for instance, amazon.com and there seems to be an assumption that what has started to happen in the retail book trade will continue and spread with similar effect to all other sectors of the retail market.

Estimates vary as to the size of the business-to-consumer e-commerce market. The International Data Corporation (IDC) estimates that the total purchases made over the web were $10 billion in 1997 and will be more than $220 billion in 2001 (Oliveira, Amorim and Vilao, 1999). These large figures are put in a wider context by KPMG (1999) which reports that '*Direct sales are 5% of retail sales in the UK and 4% in the US. Of this total, 16% of US home sales and 1% of UK home sales are electronic.',* Forrester Research (Tagliabue, 1999) whose 1999 research showed online shopping accounted for $1.2 billion of Europe's $1.9 trillion in retail sales (0.06%) compared to $8 billion of $2.6 trillion (0.3%) in total sales in the U.S or by Galagher (1999) who writes that '*Estimates of the value of global internet commerce range from 1.3% to 3.3% of global gross domestic product by 2001. This is equivalent in size to the combined economies of Australia and the Netherlands*'. These quotes indicate not only the usual story that the volume of electronic commerce is large, is greater in the USA than in Europe and is growing rapidly but also that, as a proportion of overall retail activity, it is still small. (They also illustrate the large disparities between the statistics provided by various organizations). It is suggested that current growth trends can not be just projected into the future without serious examination of the factors that make some people shop online for some goods and services and, conversely, the factors that have to date failed to persuade so many consumers to become active participants in the 'e-commerce revolution'.

The main constraint to the growth of e-Commerce is typically given as the problem of security. Hoffman, Novak and Peralta (1999) found that there is fundamental lack of trust between consumers and web merchants. '*Consumers simply do not trust most Web providers enough to engage in "relationships exchanges" involving money and personal information with them*'. The underlying suggestion is that with the appropriate technical fixes, all will be right and the boom will continue. This concentration on the issue of e-Commerce security however ignores the many other factors that detract from the convenience of online shopping. These factors include visibility, delivery and after sales (Whiteley, 2000) and the rather old fashion notion that some people might actually like going shopping, selecting their own purchases and taking it home with them - there and then.

This paper reports on a survey carried out in both the USA and the UK aimed at discovering what people bought online, why they did or did not use internet e-Commerce, any differences in activity and attitude between the US and UK and what might persuade people to take part in online shopping in the future. The results of this survey are reported in the rest of this paper.

METHODOLOGY

Sample

This study sought to examine whether there were differences in e-commerce usage and attitudes for US and UK consumers. Identical questionnaires were distributed to undergraduate students, in selected classes, at universities in the US and the UK.

Measures

Respondents were asked a number of demographic questions, including gender, age and annual budget for consumer products. Internet access and usage at work and home was addressed with a number of questions. Additionally, respondents were asked to rate eleven statements concerning electronic commerce on a scale five-point scale from 1=strongly disagree to 5=strongly agree.

DATA ANALYSES

As indicated in Table 1, the respondents from the US and the UK were young (52% under the age of 20 in the US and 78% under the age of 20 in the UK) and predominately male (62% for both the US and UK samples). The US respondents, regardless of electronic commerce participation, reported spending more per year on consumer goods than the UK participants. US e-commerce participants reported spending the most per year ($2914) and UK e-commerce participants reported spending the least ($2158).

Of the 110 respondents from the United States, 51 (46%) reported that they had either browsed or purchased from an e-commerce site and 59 (54%) reported they had not. Electronic commerce participation was much higher in the sample of UK

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respondents, 117 (71%) reported they had browsed or purchased from an e-commerce site and 47 (29%) reported they had not.

Table 1 – Demographic Comparison of E-Consumers and Non-E-Consumers from the US and the UK

	US (N = 110)			UK (N = 164)		
	E-Consumers (N = 51)	Non E-Consumers (N = 59)	**Total**	E-Consumers (N = 117)	Non E-Consumers (N = 47)	**Total**
Age						
Under 20	23 (45%)	34 (58%)	**57 (52%)**	93 (79%)	35 (74%)	**128 (78%)**
20 – 24	25 (49%)	24 (41%)	**49 (45%)**	21 (18%)	10 (21%)	**31 (19%)**
25 – 29	1 (2%)	0 (0%)	**1 (1%)**	2 (2%)	0 (0%)	**2 (1%)**
30 – 34	0 (0%)	0 (0%)	**0 (0%)**	0 (0%)	1 (2%)	**1 (1%)**
Over 35	2 (4%)	1 (2%)	**3 (3%)**	1 (1%)	0 (0%)	**1 (1%)**
Gender						
Male	29 (57%)	39 (66%)	**68 (62%)**	70 (60%)	32 (68%)	**102 (62%)**
Female	20 (39%)	19 (32%)	**39 (35%)**	28 (24%)	11 (23%)	**39 (24%)**
Annual budget for consumer products ($US)	$2914 (£1994)	$2709 (£1854)	**$2809 (£1922)**	$2158 (£1477)	$2236 (£1530)	**$2179 (£1491)**

Please note that some respondents chose not to answer the demographic questions.
1.00 USD = 0.684400 GBP

As indicated in Table 2, very few of the respondents from both the US (25%) and the UK (10%) had internet access from work whereas many more had access from home. The majority of US (74%) and UK respondents (57%) reported that they have internet access from home. Not surprisingly, internet access is higher for those individuals who have participated in electronic commerce. Of those respondents who reported that they had either browsed or made a purchase from an electronic commerce site, 78% of the US respondents and 65% of the UK respondents have internet access from home

Table 2 – Internet Access for E-Consumers and Non E-Consumers from the US and UK

	US (N = 110)			UK (N = 164)		
	E-Consumers	Non E-Consumers	**Total**	E-Consumers	Non E-Consumers	**Total**
Internet access from work	Yes = 17 (33%) No = 31 (61%)	Yes = 11 (19%) No = 47 (80%)	**Yes = 28 (25%) No = 78 (71%)**	Yes = 14 (12%) No = 98 (84%)	Yes = 2 (4%) No = 43 (91%)	**Yes = 16 (10%) No = 141 (86%)**
Internet access from home	Yes = 40 (78%) No = 11 (22%)	Yes = 47 (72%) No = 18 (28%)	**Yes = 81 (74%) No = 29 (26%)**	Yes = 76 (65%) No = 41 (35%)	Yes = 17 (36%) No = 29 (62%)	**Yes = 93 (57%) No = 70 (43%)**

As indicated in Table 3, the purchase of entertainment goods, such as tickets to events and music, was the most common on-line purchase. Of those who had bought something on-line, 63% of the US respondents and 67% of the UK respondents reported purchasing an entertainment product.

Table 3 – Types of E-Commerce Activities

	US (N=51)	UK (N=117)
Books	26 (51%)	67 (57%)
Entertainment (tickets, music, etc.)	32 (63%)	78 (67%)
Software	13 (25%)	52 (44%)
Hardware or Electronics	11 (22%)	50 (43%)
Clothes	8 (16%)	6 (5%)
Travel	2 (4%)	6 (5%)
Cars	1 (2%)	1 (1%)
Flowers	0 (0%)	1 (1%)

Table 4 – E-Commerce Attitudes

		US	UK	t
1	On-line shopping is more convenient than conventional shopping.	3.29	3.35	.461
2	On-line shipping gives better value for money than purchases in a conventional shop.	3.02	2.90	1.109
3	Internet commerce is advantageous for the purchase of books and CDs.	3.47	3.88	3.964***
4	Internet commerce is advantageous for the purchase of clothing.	2.95	2.60	3.198***
5	Internet commerce is advantageous for the purchase of groceries.	2.44	2.39	.395
6	Internet commerce is advantageous for the purchase of travel tickets.	3.48	3.92	4.158***
7	Internet commerce is advantageous for the maintenance of a bank account.	3.05	3.45	3.566***
8	Credit card information sent via the internet is as secure as any other use of credit cards.	2.42	2.69	1.987*
9	Home delivery of e-commerce purchases is more convenient then collecting goods from a shop.	3.18	3.44	2.498*
10	Any problems with products bought from online vendors can be readily rectified.	2.80	2.62	1.890
11	Internet e-commerce is superior to other direct sales channels, such as catalogue mail order.	3.08	3.17	.723

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

Figure 1 contains a graphical representation of the attitudes US and UK students have towards eleven statements about e-commerce. Perhaps the most striking outcome is that both groups of students reported agreement with only six statements. Both the US and UK students reported agreeing that electronic commerce is convenient and advantageous for the purchase of CDs and books, travel tickets and maintaining a bank account. Both groups were very near neutral (3.08 for the US and 3.17 for the UK) when asked whether Internet shopping is superior to other direct sales channels, such as catalogue shopping.

Figure 1 - Comparison of E-Commerce Attitudes by Usage and Country

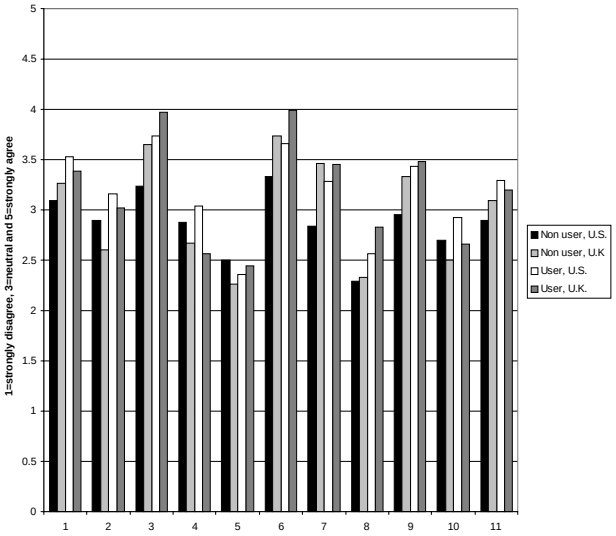

Table 4 shows the average response for both groups. There were some statistically significant differences between the US and UK respondents. The UK students were more positive concerning internet shopping for CDs and books and travel tickets, maintaining a bank account and the convenience of home delivery. Although both groups reported concern with the security of credit

card information on the internet, the UK respondents were less concerned. Both groups expressed that internet commerce is not very advantageous for the purchase of clothing. The UK respondents were less positive than the US respondents (2.60 vs. 2.95).

It is reasonable to expect attitudes concerning electronic commerce to differ for those who have participated in this form of shopping and those who have not. For this reason, these attitudes were examined separately for each sub-group, electronic commerce users and non-electronic commerce users. As graphically presented in Figure 2, both the US and UK respondents had an average rating that was positive on only three of the eleven statements. Both groups of non-ecommerce users reported agreeing that electronic commerce is convenient and advantageous for the purchase of CDs and books and travel tickets. The UK respondents were more positive on these issues and were positive concerning an additional three statements. The non-ecommerce users from the UK agreed that the internet is advantageous for the maintenance of a bank account (3.46) and that home delivery of e-commerce items is more convenient than collecting goods from a shop (3.33). Respondents were slightly above neutral (3.09) regarding the superiority of e-commerce compared to other direct sales channels. Both populations reported disagreement with the security of credit card on-line and electronic commerce being advantageous for purchasing groceries.

Figure 2 - Comparison of E-Commerce Attitudes for Non E-Commerce Users

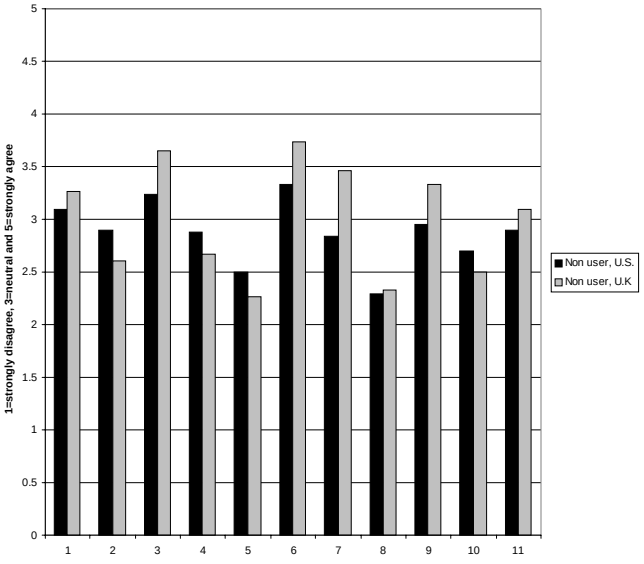

Table 5 contains the average responses for non-ecommerce users. There were significant differences in the attitudes of the US and UK non-electronic commerce participants concerning five statements. The UK non e-commerce users were significantly more positive concerning the convenience of home delivery of goods, and that e-commerce is advantageous for the purchase of CDs and books and travel tickets. The greatest difference between the US and UK respondents was regarding internet banking. Students from the US were more likely to be negative or neutral concerning managing a bank account on-line whereas the UK students were more positive (2.84 vs. 3.46).

Table 5 – E-Commerce Attitudes of Non E-Commerce Users

		US	UK	t
1	On-line shopping is more convenient than conventional shopping.	3.09	3.26	.863
2	On-line shipping gives better value for money than purchases in a conventional shop.	2.90	2.60	2.077*
3	Internet commerce is advantageous for the purchase of books and CDs.	3.24	3.65	2.566*
4	Internet commerce is advantageous for the purchase of clothing.	2.88	2.67	1.082
5	Internet commerce is advantageous for the purchase of groceries.	2.50	2.26	1.391
6	Internet commerce is advantageous for the purchase of travel tickets.	3.33	3.74	2.420*
7	Internet commerce is advantageous for the maintenance of a bank account.	2.84	3.46	3.491***
8	Credit card information sent via the internet is as secure as any other use of credit cards.	2.29	2.33	.174
9	Home delivery of e-commerce purchases is more convenient then collecting goods from a shop.	2.95	3.33	2.347*
10	Any problems with products bought from online vendors can be readily rectified.	2.70	2.50	1.177
11	Internet e-commerce is superior to other direct sales channels, such as catalogue mail order.	2.90	3.09	1.209

* p ≤ .05 ** p ≤ .01 *** p ≤ .001

Those individuals who have purchased items over the internet were more positive about electronic commerce. Figure 3 contains a graphical representation of their attitudes on eleven items. Both US and UK electronic commerce users reported positive attitudes towards seven of the items, compared to only three for non-ecommerce users. In addition to agreeing that electronic commerce is more convenient than traditional shopping and is advantageous for the purchase of books and music and travel tickets, the electronic commerce users were also positive about electronic commerce offering a better value, being beneficial for the maintenance of a bank account and being superior to other direct sales channels.

Figure 3 - Comparison of E-Commerce Attitudes for E-Commerce Users

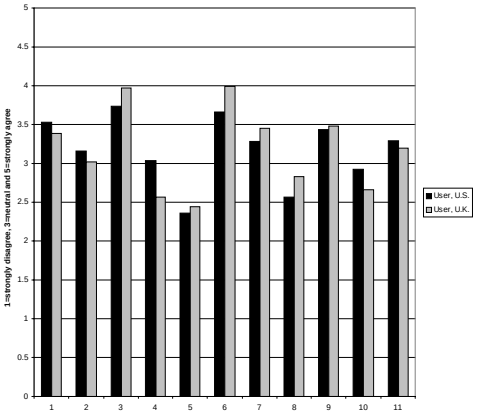

Table 6 contains the average response on each of the eleven items. US and UK respondents who have participated in an electronic commerce transaction reported significantly different attitudes on three of the items. The UK respondents were more negative concerning the advantages of purchasing clothing on-line whereas the US respondents were neutral (2.44 vs 3.04). Both groups were concerned with being able to readily rectify problems with products purchased on-line, however the US students were not as concerned as the UK students (2.92 vs. 2.66).

DISCUSSION AND DIRECTIONS FOR FUTURE RESEARCH

Regardless of culture, it appears that security is a concern for on-line shoppers. Both the US and UK respondents, regardless of e-commerce participation, reported that they did not agree that credit card information sent via the internet is as secure as any other use of credit cards. This concern has been found by other researchers (Hoffman, Novak and Peralta, 1999; Pitkow and Kehoe, 1996) and is of critical importance. Future research should continue to address the security of on-line shopping. Are there true

Table 6 – E-Commerce Attitudes of E-Commerce Users

		US	UK	t
1	On-line shopping is more convenient than conventional shopping.	3.53	3.39	.839
2	On-line shipping gives better value for money than purchases in a conventional shop.	3.16	3.02	.936
3	Internet commerce is advantageous for the purchase of books and CDs.	3.74	3.97	1.672
4	Internet commerce is advantageous for the purchase of clothing.	3.04	2.57	3.264***
5	Internet commerce is advantageous for the purchase of groceries.	2.36	2.44	.477
6	Internet commerce is advantageous for the purchase of travel tickets.	3.66	3.99	2.368*
7	Internet commerce is advantageous for the maintenance of a bank account.	3.28	3.45	1.115
8	Credit card information sent via the internet is as secure as any other use of credit cards.	2.57	2.83	1.389
9	Home delivery of e-commerce purchases is more convenient then collecting goods from a shop.	3.43	3.48	.362
10	Any problems with products bought from online vendors can be readily rectified.	2.92	2.66	2.053*
11	Internet e-commerce is superior to other direct sales channels, such as catalogue mail order.	3.29	3.20	.577

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

security concerns or is it the perception that e-commerce is not secure?

Not far behind security there is also some concern with the process of after sales service. Participants in the survey, on average, thought online shopping would be convenient, give reasonable value and that home delivery would be helpful but there was less confidence in the process of rectifying any problems with products that were bought online. As discussion has concentrated on the payment issues that arise in e-commerce this area has arguably been neglected. It is inherent in the process of direct selling that goods bought remotely can't be inspected by the customer prior to purchase and can not be returned as easily or securely as is the case with (most) conventional shopping. The issue or returns, 'money back guarantees' and the like, is one that the traditional mail order operations have given much attention and the new, online direct sellers will need to establish similar reputations (in what seems likely to be a much more fragmented market).

A further differentiation is identifiable in the attitude of participants to the five 'commodity' groupings sampled in the survey. Books, CDs, travel and banking (despite security concerns) were each seen as areas where online transactions would be advantageous (particularly by the e-commerce users). These ratings were in some contrast with those achieved for clothing and groceries where arguably the ability to inspect the product before purchase is more important (not tested in the survey) and the issues of returning unsatisfactory or unsuitable merchandise would be more likely to arise.

Turning to the issue of cultural differences, it has been reported that although e-commerce acceptance is growing in Europe, it is not as widely accepted as it is in the US Bellman, Lohse and Johnson (1999) reported that among online shoppers, the median number of transactions in a six-month period was 2 for Americans and 1 for Europeans. European adoption of online shopping is expected to continue to grow from 11% in 1998 to 25% by 2002. Usage is Western Europe is expected to grow even faster to 35%, the same level of usage that exists in the US today (McGrath, 1999). Yet the results of this study seem to indicate that e-commerce acceptance and adoption among students in the UK exceeds that of the US This was a very surprising finding. One possible explanation is that while overall acceptance levels of e-commerce are relatively low in the UK, acceptance by computer literate young people (such as the students that were surveyed) is relatively higher.

Finally on the issue of future research. It is intended that the survey will be repeated again, in a similar form, with US and UK students in the 2000, 2001 cohorts. The continuation of the survey will facilitate the checking of the results reported in this paper and provide a basis for identifying trends in e-commerce awareness and e-commerce acceptance.

PRACTICAL IMPLICATIONS

Approximately 70% of the US companies selling on-line do not accept international orders (Stedman, 1999). The complexities of accepting and shipping international orders can be daunting. However, these results should serve as a wake up call to those organizations that are neglecting to develop an international web presence.

Organizations wishing to reach a global market via the web will face a number of challenges. Capturing the global on-line market will require additional considerations, such as calculation engines to correctly calculate tariffs, duties and cross border shipping fees (Stedman, 1999). Additionally, as internet availability and electronic commerce acceptance continues to grow worldwide, language will become more of an issue. English is the dominant online language, but to truly have a worldwide internet presence, companies will have to have multi-language sites. Practical issues for multi-language sites include finding in-country translators who have experience with your industry' jargon, buying software that can handle Arabic, Hebrew and Asian languages and listing your site on the 500+ non-English search engines (Betts, Sliwa and DiSabation, 2000).

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