A Study of Opacity in Web Design Practices

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Abstract That IS and IT practitioners should use best practice in information systems development is pretty much universally taken for granted. We expect systems to be developed that enhance the user experience and allow them to engage in a satisfying and productive interaction. The paper posits that all is not well with this hypothesis. It is suggested here that many firm in the Low-cost carrier (LCC) sector are using Web technologies to inhibit or avoid customer service and to construct IS-enabled barriers behind which firms profit from their distance. The emergence of the LCC model and the nature of the industry are explored before a study, conducted in Ireland, is presented that scrutinises their Web practices. Participants were found to be wary in their online interaction and cynical about problematic or omitted features. It is suggested that more extensive teaching of 'good' practice and ethics in IS design is merited, and that perhaps, the Faustian pact that delivers cheap flights for little service might have to be broken.

1 Introduction

That IS and IT practitioners should use best practice in information systems development is pretty much universally taken for granted. We expect systems to be developed that enhance the user experience and allow them to engage in a satisfying and productive interaction. The paper posits that all is not well with this hypothesis. It is suggested here that many firm in the Low-cost carrier (LCC) sector are using Web technologies to inhibit or avoid customer service and to construct

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IS-enabled barriers behind which firms profit from their distance. The emergence of the LCC model and the nature of the industry are explored before a study is presented that scrutinises their Web practices.

2 The Low Cost Model

The phenomenon of low cost travel has brought about tremendous benefits to passengers who had previously no choice but to pay exorbitant ticket prices for relatively short trips to fund an industry that was laden with the structural costs of full-service delivery. With respect to the operational management of LCCs, securing resources and developing competences in managing e-business tools have become crucial (Nucciarelli and Gastaldi, 2008). The LCCs' adoption of technology, in areas such as electronic ticketing and dynamic pricing, has become an important component in offering consumers more efficient flight options. Thus, the industry's increasingly competitive environment has favoured those "… customers who are now becoming more conscious of their needs. Furthermore, the Internet as an information and distribution channel with minor information and transaction costs intensifies these changes in customers' preferences and their behavior" (Teichert et al., 2008 pp 228).

Yet despite these advances, it appears a number of LCCs use their information systems in a conflicting manner when managing customer interactions, particularly when selling ancillary services and managing complaints. The Websites for many LCCs smoothly engage and facilitate customers through the self-service process to commit users to purchase tickets. However, after they have committed to where and when they wish to travel and received an initial quote, the Websites appear more opaque and difficult to traverse. This 'committal' point, identified by Barry and Torres (2009) would appear to be a pivotal point that separates trust-building on one side from distrust building on the other. Whereas most of the literature in IS suggests increasing trust building mediates distrust – the notion put forward here of co-existing trust and distrust is more in keeping with the two-process view of Komiak and Benbasat (2008).

3 IS Design and Online Trust

Various information system development approaches and human-computer interaction (HCI) have long held that an essential outcome is to improve the interaction between users and computer (Barry and Lang, 2001; Dix et al., 2004) and that IS professionals should adopt a benign and moral posture. The authors would argue this supposition has become unsafe. Poor Website practices are likely to

erode online trust between LCCs and their customers. The importance of online trust should not be underestimated in online environments (Wang and Emurian, 2003). It has been described as "a complex and dynamic phenomenon that cannot simply be 'produced' by applying adequate instruments" (Grabner-Kraeuter, 2006, pp 48). Given that many consumers are sceptical about the mechanisms of e-commerce, trust has become essential in the diffusion and acceptance of e-commerce. Firms that fail to recognise this and the importance of gathering intelligence from soliciting complaints, are likely to be disadvantaged. Indeed, complaints can be viewed as opportunities for service recovery that can turn angry, disgruntled customers into loyal, vocal advocates for the firm. Poor service recovery is an indication that a firm lacks commitment and diligence, which along with trust and earned reputation are indispensable to establishing enduring relationships in service and dot-com businesses (Murphy et al., 2007). Because many firms handle customer complaints poorly, those firms that do succeed in offering excellent service recovery may secure an unrivalled source of competitive advantage (Antón et al., 2007).

4 Regulatory Scrutiny of LCCs' Website Practices

Certain opaque Web features appear not to be accidental in design and are beginning to come under regulatory scrutiny. Hidden costs and the exclusion of charges that are unavoidable is becoming an increasingly contentious issue that has attracted the attention of national and EU bodies. The European Consumer Centre Network (ECC-Net) also recommends airlines to make available their contact details for complaints and a comprehensive breakdown of all the supplementary charges (ECC-Net, 2007).

A 2007 EU investigation found 'unfair and misleading' practices in more than 50% of the Websites for LCCs and other carriers. The investigation identified the most common unfair practices related to price indications, availability of special offers, and contract terms. Other unfair practices were found to include mandatory insurance or explicit opt-out of insurance or other optional services.

5 Research Approach

This study builds on an earlier study that employed heuristic evaluations to examine LCC Websites to determine how they conform to established usability principles (Barry and Torres, 2009). The purpose of this research is to establish if users believe airlines are using information systems design practices that facilitate customer interaction where and when it suits them but not when it comes to non-revenue generating services like complaining. To reveal a rich picture, both quan-

titative and qualitative research methods were chosen. Three research techniques were used: usability testing, verbal protocols, and focus groups. Usability testing, of ninety-six participants, was used largely to examine ease of use, seven verbal protocols to examine attitudes towards the Website and five focus groups to explore in more detail issues and concerns arising from usability tests and verbal protocols.

6 Analysis of Findings

6.1 Overall Ability to Complete Tasks

The percentage of participants able to actually complete the tasks varied, with 98% of participants completing the task of finding a flight, 96% completing the task of booking the flight and only 44% managing to complete the task of making a complaint (see Table 1). The contrast here is stark, as failure to complete the assigned task was only an issue for participants attempting to make a complaint. That more participants failed to make a complaint than those that were able to do so is alarming. This finding means the Websites are able to engage and support users easily in revenue-focussed activities, but fail in most cases to do so in a service-related matter.

Table 1. Total number of Attempted and Completed Tasks

	Find a Flight		Book a Flight		Make a Complaint	
	Attempted/ Completed Task	% Completed	Attempted/ Completed Task	% Completed	Attempted/ Completed Task	% Completed
Aer Arann	41/40	98%	43/43	100%	45/31	69%
Aer Lingus	49/48	98%	50/47	94%	47/12	26%
bmi baby	34/34	100%	34/32	94%	36/14	39%
Ryanair	44/43	98%	43/43	100%	44/18	41%
Overall	168/165	98%	179/165	96%	172/75	44%

6.2 Ease of Task Completion

Those who attempted each of the tasks were asked to rank the difficulty of the task on a 4 point scale, with 1 = very difficult and 4 = very easy. Those that completed the *Find a Flight* task had a mean rating of 3.41, while those who completed the *Book a Flight* task had a mean rating of 3.35 (see Table 4). Both tasks were deemed technically easy to complete by participants. In contrast, the mean rating assigned by those who completed the *Make a Complaint* task was 2.24

T-tests were carried out to determine whether there was a significant difference in terms of ease of completion between the different tasks (see Table 2). There was no significant difference between the *Find a Flight* and the *Book a Flight* tasks, whereas there was a significant difference between the *Make a Complaint* task and each of the other two tasks (i.e. $p <= 0.01$ in both cases). The similarity in values, and lack of significant difference, for the two tasks *Find a Flight* and *Book a Flight* suggests that both of these tasks are similarly easy to complete. This finding is supported by the high completion rate for both of these tasks (98% and 96% respectively). In practice, these tasks would most likely be connected in the mind of the user, as it is necessary to find a flight before booking one.

Table 2. Ease of Task Completion

	Find a Flight	Book a Flight	Make a Complaint
Aer Arann	3.45 (n=40)	3.43 (n = 42)	2.49 (n = 39)
Aer Lingus	3.38 (n=48)	3.30 (n = 46)	1.77 (n = 31)
bmibaby	3.24 (n=34)	3.31 (n = 32)	2.23 (n = 30)
Ryanair	3.53 (n=43)	3.35 (n = 43)	2.44 (n = 25)
Overall	3.41 (n = 165)	3.35 (n = 163)	2.24 (n = 125)

In contrast, the low mean value for the *Make a Complaint* task and its significant difference to the other two tasks suggests this task is considerably more difficult to complete than the others. This finding is supported by the low completion rates (i.e. only 44% overall) for the *Make a Complaint* task. As part of a pre-test questionnaire, participants were asked to indicate the importance of different factors (cost, ease of purchase, ease of navigation, ease of complaint and transparency of additional costs) when purchasing airline tickets. Of all of these factors, making a complaint easily was ranked as less important than all others. This finding suggests, although it was difficult to make a complaint on the airlines' Websites, this factor would be of less importance to the users than other factors, such as making a purchase easily. In practice of course, a user would make a complaint less frequently than other activities on a Website.

6.3 Overall Ease of Use on LCC Websites

Usability test participants were asked to rate the overall ease of use of each airline's Website on a scale of 1 to 5, with 1 = very difficult and 5 = very easy. A one-way ANOVA was carried out to determine whether there were significant differences between the airlines for overall ease of use (see Table 3). No significant linear trends were apparent. This finding suggests participants perceived no difference in the overall ease of use of the different airlines. The finding is somewhat surprising given the marked difference in the participants' ability to complete the task *Make a Complaint* (69% completed it on Aer Arann whereas only 26%, 39% and 41% completed it on Aer Lingus, bmibay and Ryanair respectively). This finding presumably is connected to the fact participants ranked making a complaint easily as less important in the pre-test questionnaire than other factors such as ease of purchasing. If they attribute less importance to this task, they may well not weight the difficulty in completing the task as highly as the other tasks when determining the overall ease of use of the Website.

Table 3. Overall Ease of Use

Airline	Mean	N
Aer Arann	3.91	44
Aer Lingus	3.80	49
bmibaby	3.86	37
Ryanair	3.90	41
Total	3.87	171

6.4 Experiences Complaining

The analysis shows it is significantly harder to secure complaint information than it is to find or book a flight. However, this varied by airline with Aer Arann having a much higher completion rate (see Table 1) and having a higher ease of task completion rating (see Table 2) than the other airlines. In order to determine whether there was a significant difference between Aer Arann and other the airlines, linear contrasts were used within a one-way ANOVA. A significant difference was found ($p < 0.05$), suggesting the task *Make a Complaint* was easier to complete on Aer Arann than on any of the other airlines. These findings are further supported by verbal protocols and focus groups where it was clear Aer Arann provided the most complete contact information, including both a phone number and an e-mail address under 'Customer Relations'. However, participants were not

wholly content with the Website as finding this information was not easy; nonetheless, 69% of usability test participants were able to complete the task.

None of the other airlines provided an e-mail address for complaints. They required customers to complain via fax or the postal system, and to include a copy of their ticket or boarding card. Even finding the postal address and fax number proved difficult with all of the airlines. In fact, contact details appeared to be deliberately hidden in some cases.

On the Aer Lingus website, no direct link was provided and the customer must scroll deeply down the Webpage. On the bmibaby website, several verbal protocol participants stated that bmibaby's customer relations page does not state it has anything to do with complaints.

Trying to contact Ryanair to complain was perceived as being more awkward than for the other airlines. The link to 'Contact Customer Service' is only found by scrolling down the page, rather than being included in the Customer Feedback or About Us links. The decision not to provide consumer contact information via either an 'About Us' or 'Contact Us' link is either exceptionally poor design or deliberately enacted.

Participants generally felt that the airlines were acting deliberately in order to deter customers from complaining. Participants were cynical about the reasons why the task was at times impossible to complete within a reasonable time frame. They cited: contact details were hidden on purpose; navigation was constructed to deliberately throw users off; the Websites were designed to increase the time it takes to get the information. They believed that such design was deliberate, not accidental or unintended. As one focus group participant put it: *"they don't want you to complain, as they might have to do something about it."*

One participant from the verbal protocol, who attempted to complain to Aer Lingus, said: *"this [process] makes you think I'll just go away and won't bother as it's too much hassle [to complain]"* and that "*when you complain [the airlines are] going to have to do something about it. Airlines just want to take your money"*. Another participant felt it was well known that "*Ryanair makes it very difficult to make a complaint*".

It was observed by several participants that the provision of a fax number was a crude attempt to create distance between the airline and the customer. One participant summed up a common observation – "*how many have a fax machine at home*"? The temporal dimension of complaining was discussed by most focus groups. One comment was: "*I would never complain in reality; it takes too much time,*" while another observed "*if it was an e-mail I'd complain, but I wouldn't write a letter*". The view was commonly expressed that LCCs were fully aware that removing spontaneous communication channels would minimise contact around complaints and dissuade users from taking pen to paper.

6.5 Experiences Finding and Booking Flights

As noted earlier, the Websites of LCCs achieved a high ease of use result from the usability tests. Few had any problem in completing the tasks of *Find a Flight* and *Book a Flight*. Since airlines raise much of their revenues from this activity it is perhaps unsurprising they would design their Websites so these tasks are as easy as possible for users. It is good business sense to engage customers through the self-service process so they commit to purchase flights. However, the ease of use masks demanding experiences during the process, which surfaced in focus groups and verbal protocols where participants expressed a range of emotions from irritancy and frustration to cynicism and resignation.

In finding a flight, there are many design features that accelerate the process, from giving users the closest dates around the selected date (by default and when that date is unavailable) to retaining user dates and details. For example, Aer Lingus even allow the consumer to select departure and return flights for specific dates, where a screen is presented for which the priced flight is, in fact, the cheapest of a selection of other flights. Additionally, all of the LCCs afford advanced design features such as 'hub and spoke' route maps that superbly assist users in visualising what would otherwise be complex flat information. However, once users move beyond the committal point (i.e. they have chosen when and where they wish to travel and received an initial quote), each LCC have design features that adversely affect usability and trust.

6.5.1 Pricing Flights

All airlines quote an initial price that suggests it is either 'Final' or 'Total' whereas, in fact, it is neither. In focus groups, participants were unanimously of the opinion that this tactic was a stratagem for users to become psychologically committed to booking a flight. One participant voiced her annoyance in saying: "*don't tell me it's the total price and then keep on adding things to it*". Once you have "*bought into the idea of buying the flight*" (i.e. the 'committal' point identified above), a number of additional avoidable and unavoidable charges and 'services' are drip-fed to the user. On the addition of charges, a participant remarked: *"I knew there would be charges, but I didn't think they would be so high"* and another noted it was fairly standard practice "*but it's still annoying because you never really know until you get to the very end how much you are going to pay*. When asked whether this purchasing process was reasonable, a participant responded: "*I've come to accept it is part of the [airlines'] tactics*".

One verbal protocol illustrates the opaque nature of Ryanair's booking procedure. Once the participant had clicked on 'Confirm Flights' (that specifies the 'Total Cost of Flight'), seven different choices have to be negotiated before *finally* securing the flight. Five of these involve charges: for baggage (opt-in), priority

boarding (opt-out), airport check-in (opt-out on airport check-in), travel insurance (opt-out) and credit card charges (unavoidable). The remaining are personal information retention (opt-in) and newsletter (opt-in). Other airlines have similar, if fewer, obstacles to overcome. One participant perceptively noted Ryanair designed their pre-selected travel insurance charge "*to get people to buy by mistake*". On why he is asked a second time by Ryanair's system if he wants travel insurance, a participant answers: "*to make money, it's not illegal; if they can get away with it, why not?*" A similar view ("*you'd have chosen it without knowing*") was expressed regarding bmibaby's travel insurance. Several focus groups felt LCCs designed their Websites in such a way that novice or older users would get 'caught' with additional charges and also speculated that they would still perceive LCC systems to be benign and not devious.

The inconsistency of the application of charges between LCCs and constantly changing airline policies leaves participants continuously wary and cautious. For example on credit cards, Aer Arann charges per booking, Aer Lingus and bmibaby charge per passenger, while Ryanair charges for each passenger for each flight segment. In the latter case, a family of six pays twelve credit card charges for a single booking. Participants speculated that consumers would never tolerate credit card charges being added on to a garage bill or when buying groceries and broadly concluded it simply represents revenue generation and is not related to the administrative cost of processing cards as some LCCs claim.

Such lack of clarity in design camouflages the nature of the real price of a flight for users. Many participants felt there was ostensible transparency where headline prices including taxes and charges are quoted since there are so many other revenue-generating choices that need to be negotiated before a 'final' price is achieved. Furthermore, special offers that are widely promoted can be difficult and sometimes impossible to find, often involving trial and error with dates and airports. A strong view emerged that the LCCs could easily layout all charges up front instead of incrementally releasing the charges as users move towards a final card payment. The consensus on why this is not done is that LCCs do not want consumers to know the final price at the outset to dissuade users from reversing out of the process and also to avoid valid price comparison.

6.6 Role of Regulation

All focus groups agreed that regulation should be increased to provide greater transparency in prices and charges. One participant observed: *"there should be similar rules for all airlines"* in the presentation of prices and charges so meaningful comparisons between airlines could be made. At present, participants felt this kind of price comparison was extremely difficult and only possible after a great deal of effort on the part of the consumer. Several participants felt optional

services or charges should all be opt-in and, therefore, opt-out implementations should be prohibited.

Participants had little awareness that the European Commission had identified unfair and misleading practices on the Websites of many LCCs, but were pleased some effort was being made at a European level to monitor the industry. Some were cynical about such efforts, remarking: *"there will always be regulation, but [LCCs] will always find a way around it"*. Focus groups had divergent views on regulation. A number of participants did not want too much regulation in case the industry became *"tied up in red tape"* and, as a result, become less competitive.

7 Conclusions

LCC self-service Websites work well in moving customers through the booking process and toward completion. In this regard they were deemed easy to use. It would appear that LCCs have the capacity to avail of sophisticated Web technologies to develop functionality with a high level of usability. In contrast, non-sales related activities, such as a complaint facility are strangely inaccessible to most users in this study and, for those who did find the information, it was difficult to do so. Furthermore, participants considered the contact information as woefully inadequate, and concluded most LCCs simply did not want to be contacted for customer service that did not involve a revenue stream. Consumers have been advised to question the reputation of firms if they cannot find full contact information (Kassler, 2002). Indeed, of the four LCCs evaluated, only Aer Arann has complied with the European Commission's recommendations on the supply of contact information. Even if all airlines do comply, it may be inadequate since opaque design practices offer an infinite variety of methods to obfuscate and deflect consumers. The Commission may have to advise on specifics of IS design implementations. For example, to make mandatory the placement of a 'Contact Us' link visible on the top or left side navigation panel on the homepage with phone, fax, email, web form, postal and office details for each service, that leads directly to the full span of customer services. Given the view of the users in this study, rigorous enforcement of this type is required as well as the monitoring of how effectively LCCs are dealing with consumer complaints and issues. In this way, regulation can be used as a means to improving customer service. Indeed, a significant number of participants in this research strongly confirmed they would pay more for their flight if they thought it would improve customer service.

Some of the features programmed into LCCs systems are the antithesis of good design principles. For example, it becomes problematic in navigating towards a 'real' final price, necessitating the users to side-step a series of options. The eccentricities of LCC pricing may mean an advertised flight for €5 may cost more than €100, once the extra charges are calculated and the booking process is complete, resulting in consumers feeling deceived and 'ripped off' (Coles, 2007;

Clark, 2006). Moreover, the Websites seem awkward and sluggish in facilitating customer complaints and concerns, and make it challenging for the users to contact the airlines. These difficulties and omissions are contrary to the ethos of designing a 'good system' to facilitate the full spectrum of customer service. It appears that in the LCCs' focused pursuit towards lean, cost efficient operations customer service has declined in importance, whereby the justification given for neglecting meaningful customer service (i.e. managing complaints and concerns) are the low fares they offer customers.

While LCCs have proven their ability to design well, if suspicious study participants are correct, LCC managers intentionally instruct developers to design certain features poorly or perhaps neglect to instruct developers in these areas at all. Indeed, some IS/IT managers would appear to be in violation of their own Software Engineering Code of Ethics and Professional Practice (ACM, 2008 pp 1), which states software engineers and software engineering managers should act in the public interest and "subscribe to and promote an ethical approach to the management of software development and maintenance". The authors believe a more sophisticated professional code of ethics needs to be developed that explicitly recognises the capacity of technologies to produce questionable system features.

There is assumed ethicality in how IS are designed and conducted. In respect of the case of LCCs discussed in this study and more generally, such assumptions need to be challenged. Educators must recognise some college graduates who become practitioners are choosing to use opaque design practices; it would appear there is malpractice about. The authors believe educators should not be neutral on this matter; they should be advocates for transparency and ethical design. On this key issue a discussion amongst stakeholders is required; more extensive teaching of 'good' practice and ethics in IS design is also merited. Perhaps, the Faustian pact that delivers cheap flights for little service might have to be broken.

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