Low-Cost Carriers and High-Tech Barriers: User Views on Questionable Web Design Practices in Ireland

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ABSTRACT

That information systems/information technology (IS/IT) practitioners should use best practice in information systems development is universally agreed. We expect systems to enhance the user experience and allow them to engage in a satisfying, productive interaction. This paper posits all is not well with this hypothesis and suggests many firms 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 is explored before a study is presented that scrutinises LCC web practices. Participants were found to be wary in online interactions and cynical about problematic or omitted features. Teaching of good practice is suggested and improved ethics in IS design is merited.

Key Words: usability; information systems; online trust; marketing; consumer protection; regulation

INTRODUCTION

That information systems (IS) and information technology (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. This paper posits that all is not well with this hypothesis. It is suggested here that some firms 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

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LCC model is explored before a study is presented that scrutinises the web practices of four carriers based in Ireland.

THE LOW-COST CARRIER MODEL

Southwest Airlines was the first carrier to successfully pioneer a low-cost model (Alamdari and Fagan, 2005). It drove growth with a relentless focus on cost reduction. The model has been widely duplicated across Europe and elsewhere (Button et al., 2007). With full deregulation in 1997 in the United States and the European Union airline carriers were permitted to raise and lower fares at will, as well as to enter and exit markets. Without these restrictions intense fare competition ensued, accompanied by new low-cost airports and industry expansion, which spurred airlines to seek improvements in efficiency through the development of hub-and-spoke route systems (Kahn, 2002). Indeed low-cost carriers (LCCs) now 'share a commitment to what Lawton (2003) terms the cult of cost reduction' by reducing unit costs, while simultaneously increasing output and productivity (Graham and Vowles, 2006: 106).

The phenomenon of low-cost travel has brought about tremendous benefits to passengers who previously had 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: 228).

Yet despite these advances, it appears a number of LCCs design 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 decided 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).

INFORMATION SYSTEMS DESIGN AND ONLINE TRUST

Various IS 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.

Indeed, from a business perspective, designing a good website is seen by organisations as a way of maximising profits (Lee and Koubek, 2010a), and so they would like to ensure users would choose their websites over those of their rivals. One way of achieving this consumer preference is to incorporate high levels of usability into their website, which can have a positive effect on the users' preference for a website (de Angeli et al., 2006; Lee and Koubek, 2010b). The International Organization for Standarization defines usability as:

> …the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use (ISO/ DIS 9241-11 (International Organization for Standardization, 1996)).

Given the importance of usability, educational institutions have been teaching the principles and methods of usability and HCI for some time. ACM SIGMIS (Association for Computing Machinery/Special Interest Group on Management Information Systems), IACIS (International Association for Computer Information Systems) and various other international bodies recommend that HCI be taught as part of graduate degree programmes in information systems (Gorgone et al., 2006).

A plethora of textbooks are available to students and practitioners to further their knowledge in the area of HCI and web design. An examination of widely used texts on the principles of web and interface design (Nielsen, 1999; Krug, 2000; Nielsen and Tahir, 2001; Sklar, 2006; Shneiderman and Plaisant, 2010) suggests the role of the user interface designer is to improve the computing experience of the user. Nowhere is it suggested that the design of the information system should be approached in such a way that the user could be prevented or discouraged from completing certain tasks easily and effectively. It is presumed the designer will adopt a user-centred approach that will result in an information system that makes the role of the user more effective, efficient and satisfying.

The authors would argue this presumption has become unsafe. Poor website design practices are likely to deter users from attempting tasks and result in an unsatisfactory user experience. In addition, they 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, 2002: 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 consumer scepticism and the importance of gathering intelligence by 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 in establishing enduring relationships in service and internet 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).

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:

1. Establish whether users perceive airlines as using IS design practices that facilitate customer interaction in revenue generating areas but not when it comes to non-revenue generating services, such as making a complaint; and, if this the case,
2. To determine whether this approach has an impact on the users' perception of the websites' level of usability

It was also planned to explore the views of the users on ancillary charges and how favourably disposed users felt towards LCCs. Based on an examination of the literature and operations of the industry, it was decided to gather broad and specific data about how users perceive the usefulness and functionality of LCC websites. To reveal a rich picture, both quantitative and qualitative research methods were chosen. Three research techniques were used: usability testing, verbal protocols and focus groups. Usability testing was used largely to examine ease of use, verbal protocols to examine attitudes towards the websites and focus groups to explore in more detail issues and concerns arising from usability tests and verbal protocols.

In this study, a simple and focused usability test was conducted. Ninety-six student users completed a pre-test questionnaire, of which ninety-one completed three tasks (i.e. find a flight, book a flight and make a complaint) on two of the websites of four LCCs operating out of Ireland: Aer Lingus, Aer Arann, bmibaby and Ryanair. A key measure was the number of users who completed each of the tasks. Users were also instructed to abandon the task at any stage if this is what they would ordinarily do. After completing each task, they filled in a brief questionnaire in order to determine how easy the task was to complete. At the end of the test, users completed an additional questionnaire describing how easy they found the airline's website to use overall.

Verbal protocols are described using a variety of names in the literature. These include: 'thinking aloud', 'verbal reports' and 'after think aloud' (Nielsen et al., 2002). It involves an end user verbalising their thoughts while carrying out tasks on a system. This verbalisation helps the evaluator to understand the user's attitudes towards the system and to

identify aspects of the design that are problematic for the user (Holzinger, 2005). During the interaction, the user is encouraged to talk aloud by the evaluator asking appropriate open questions, such as, 'Why has the system done that?', 'What were you expecting to happen?' or 'What has the system done now?' The sessions are generally taped and a separate note taker may also take detailed notes of the comments and actions of the user (Monk et al., 1993). In this study, seven typical users of low-cost carrier websites participated in a series of verbal protocol evaluations. Each participant carried out three tasks (find a flight, book a flight and make a complaint) on each of two airlines' websites. While carrying out the tasks, the participant was prompted to talk aloud and describe the interaction.

Focus group discussions are highly suitable to complement other research methods where greater understanding is required (Bloor et al., 2001). Hence, focus groups were deemed suitable as a means of exploring further insights drawn from the usability tests and verbal protocols. Focus group participants were drawn from members of the usability test sessions. Five focus group discussions were held, with each group consisting of four or five participants. The sessions were guided by a facilitator, who prompted participants to talk freely and spontaneously about the issues presented for discussion (Macnaghten and Myers, 2004). Facilitators also took great care in ensuring the questions posed were presented in a neutral manner to avoid leading the participants in their responses. Similar to verbal protocols, the discussions were taped and a note taker was present to record pertinent comments. The main issues for discussion in the groups were the participants' experience of the booking process, their views of the ancillary charges, their experience in attempting to complain to the LCCs and the role they believe regulation should play in this industry, as well as their general perceptions of each carrier.

ANALYSIS OF FINDINGS

Participant Background

The usability testing was conducted over several sessions with 96 undergraduate and post-graduate students from a variety of disciplines, both technical and non-technical. There were 51 male and 45 female participants, ranging in age from 18 to 55 years, with a mean age of 23.5 years. These participants completed a pre-test questionnaire in order to gather demographic information and to determine attitudes towards purchasing products and services on the internet. It was established that 95 per cent of participants had purchased some type of product or service on the internet and a similar proportion had previously booked flights on the website of an LCC. The average number of flights purchased in the last year was 1.79 flights.

Participant Expectations at the Outset

As part of the pre-test questionnaire, the participants were asked to specify, on a five-point scale, how important each of the following factors were to them when purchasing a product or service other than a flight and when purchasing a flight: cost, ease of purchase, ease of navigation, ease of making a complaint and transparency of additional costs. In all cases, there was little difference in the mean level of importance (with 1 indicating very

unimportant and 5 indicating very important) for each factor when purchasing a product or service and when purchasing a flight (see Table 1). When *t*-tests were carried out, the only factor for which there was a significant difference was cost, suggesting that cost is slightly more important to consumers when purchasing flights than when they are purchasing other types of products or services via the internet. However, the difference between the mean values was small (4.80 versus 4.65) and so even though the difference is significant it is a small difference. As can be seen by the mean values in Table 1, four factors (cost, ease of purchase, ease of navigation and transparency of additional costs) are extremely important to participants. Furthermore, they are largely of equal importance to them. The one factor (for all products) that differs substantially is the 'ease of making a complaint', which, while still important, is less so. This finding most likely represents the position of online consumers generally, who are more conscious of cost and ease of securing purchase (all pre-sale activities) rather than complaining (a post-sale activity) about issues that have not arisen.

Table 1: Importance of Factors to Internet Consumers (Mean Values)

Task	Cost	Ease of Purchase	Ease of Navigation	Ease of Complaint	Transparency of Additional Costs
When purchasing a product or service other than flight	4.65	4.40	4.31	3.49	4.55
When purchasing a flight	4.80	4.45	4.26	3.48	4.60

The results indicate user expectations of purchasing flights (i.e. at the outset of the tests) are similar to purchasing other types of products or services via the internet. This finding about expectations is important, as it suggest consumers do not at the outset, and perhaps in some abstract sense, expect websites of LCCs to be less easy to navigate, less transparent in terms of charges or less easy to make a complaint. However, as will be shown later, the experience of participants deviates considerable from these expectations.

Overall Ability to Complete Tasks
The percentage of participants able to actually complete the tasks varied, with 98 per cent of participants completing the task of finding a flight, 97 per cent completing the task of booking the flight and only 44 per cent managing to complete the task of making a complaint (see Table 2). 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 were able to do so is alarming. This finding means the websites are able to engage and support users easily in revenue-focused activities, but fail in most cases to do so in a service-related matter.

Table 2: Total Number of Attempted and Completed Tasks

Airline	Find a Flight		Book a Flight		Make a Complaint	
	Attempted/ Completed Task	% Comp-leted	Attempted/ Completed Task	% Comp-leted	Attempted/ Completed Task	% Comp-leted
Aer Arann	41/40	98%	43/43	100%	45/31	69%
Aer Lingus	49/48	98%	50/47	94%	47/12	26%
bmibaby	34/34	100%	34/32	94%	36/14	39%
Ryanair	44/43	98%	43/43	100%	44/18	41%
Overall	*168/165*	*98%*	*170/165*	*97%*	*172/75*	*44%*

Ease of Task Completion

Those who attempted each of the tasks were asked to rank the difficulty of the task on a four-point scale, with 1 being very difficult and 4 being very easy. Those who 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 3). 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. There was no significant difference between the 'find a flight' and 'book a flight' tasks, whereas there was a significant difference between the 'make a complaint' task and each of the other two tasks ($p \leq 0.01$ in both cases). The similarity in values and lack of significant difference for the two tasks 'find a flight' and 'book a flight' suggest 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 per cent and 96 per cent 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 3: Ease of Task Completion

Airline	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 per cent 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 that, 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 completing other activities on a website.

Overall Ease of Use of 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 test was carried out to determine whether there were significant differences between the airlines regarding overall ease of use (see Table 4). 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 'make a complaint' task (69 per cent completed it on the Aer Arann website, whereas only 26 per cent, 39 per cent and 41 per cent completed it on the Aer Lingus, bmibaby and Ryanair websites respectively). This finding presumably is connected to the fact that participants ranked making a complaint 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 4: Overall Ease of Use of LCCs' Websites

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

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 2) and having a higher ease of task completion rating (see Table 3) than the other airlines. To determine whether there was a significant difference between Aer Arann and the other airlines, linear contrasts were used within a one-way ANOVA. A significant difference was found ($p < 0.05$), suggesting the 'make

a complaint' task was easier to complete on the Aer Arann website than on those of 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 email address in the customer relations section. However, participants were not wholly content with the website as finding this information was not easy; nonetheless, 69 per cent of usability test participants were able to complete the task on Aer Arann.

None of the other airlines provided an email 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' websites. 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 noted 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 on the Customer Feedback or About Us pages. The decision not to provide consumer contact information via an 'About Us' or 'Contact Us' link is either exceptionally poor design or deliberately enacted.

Participants generally believed 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 were of the opinion that contact details were hidden on purpose, navigation was constructed to deliberately throw users off, and 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 [people] 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.

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 'find a flight' and 'book a flight' tasks. 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 purchasing flights. 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 allows 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, the ease of use masks demanding experiences later during the process, which surfaced in focus groups and verbal protocols where participants expressed a range of emotions from irritation and frustration to cynicism and resignation. Once users move beyond the committal point (i.e. they have chosen when and where they wish to travel and have received an initial quote), each LCC has design features that adversely affect usability and trust, discussed below.

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' (which 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), 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 cynically 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.

 The inconsistency of the application of charges between LCCs and constantly changing airline policies leave 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 return 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 lay out all charges upfront instead of incrementally releasing the charges as users move towards a final card payment. The consensus on why this pricing approach is not pursued is because 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.

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 implement sophisticated web technologies to develop functionality with a high level of usability. In contrast, non-sales related activities, such as a complaint facility, are 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 services that did not involve a revenue stream. They suspected that technologies were being used as a barrier to consumers adequately and promptly finding contact information and making a complaint.

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 (Smyth, 2007) on the supply of contact information. This compliance was reflected in users' views that it was much easier to make a complaint with Aer Arann than with the other airlines.

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 a flight advertised 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, as noted above, 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 of 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.

It might be expected that the websites of those airlines that make it most difficult to complete customer service tasks such as making complaints would be rated as less usable than those where the task was achievable. On the contrary, the overall ease of use does not appear to be impacted by the poor ease of use in the complaints function, which would suggest that web designers need only concentrate on those features that are of high importance to the user in order to ensure that the user perceives the website overall as having high usability. As usability and user preference have been shown to be correlated (de Angeli et al., 2006; Lee and Koubek, 2010b), user preference may only require usability in certain key aspects of the website, rather than the website as a whole. Thus airlines can continue to design in such a way that discourages non-revenue generating activities while maximising revenue generating activities.

While LCCs have proven their ability to design well, if our 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 Conduct* (Association for Computing Machinery, 2008: 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 and barriers.

There is assumed ethicality in how information systems 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 of 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.

Limitations and Further Research
Aspects of the research design limit the findings' generalisability. For example, this study examined four LCCs operating out of Ireland. Hence, the findings may not pertain to all LCCs operating globally. Further, although the researchers sought participants to represent a range of age cohorts (i.e. students in their early 20s to late 50s), the participants were drawn from a student population. Consequently, their responses may not reflect the broad spectrum of passengers who choose to travel with LCCs.

This study has identified a number of areas for further research. User preference for the individual websites was not measured in this study. However, website usability and user preference have been shown to be correlated in previous studies (de Angeli et al., 2006; Lee and Koubek, 2010b). In this study, poor usability in aspects of the website design that were less important to the user did not negatively impact the users' perception of the usability

of the website overall. Whether or not this disparity in usability levels within the websites impacts on user preference could be investigated further.

 A second area for further study is to determine if regulation will resolve the issues identified as problematic by users. Regulation was discussed during the focus groups, with one participant stating:

> There will always be regulation, but [LCCs] will always find a way around it.

The European Commission has implemented legislation (Article 23(1) of Regulation 1008/2008) that requires clarity in pricing by airlines. Whether the airlines are compliant with the legislation or have found innovative ways around it using questionable web design techniques could be investigated.

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