Examining Gender Differences in System Switch Behavior

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Abstract

When new technology is introduced through an upgrade from or a replacement of an existing system, switching costs can be an important factor influencing the adoption of the new system. Recent research has identified several categories of switching costs including: uncertainty costs, emotional costs, learning costs, reduced performance costs, and sunk costs. A substantial amount of literature suggests that there are gender differences which may impact the degree to which these switching costs are felt. In this study we look at gender differences in switching costs associated with the transition between two learning management systems. We find that females generally experience higher switching costs than males and this difference is statistically significant for emotional and sunk costs.

Keywords
IS adoption, switching costs, prior system impact, e-learning system transition

Introduction

Gender has always been an important factor to consider when designing, adopting, and evaluating an information system (Venkatesh et al. 2003; Igbaria and Chakrabarti 1990; Gilroy and Desai 1986; Ahuja and Thatcher 2005).

Modern companies and institutions tend to leverage new technology and systems to help improve task effectiveness and efficiency. Although new technology and systems can often provide better services and functions and potentially lead to better task performance, users may not always be willing to switch to them. To understand such phenomenon, researchers have investigated system transitions based on different types of switching costs (Kim 2011; Kim and Perera 2008). However, these studies did not examine gender differences in the extent to which these switching costs were experienced or look at how gender might moderate the effects of switching costs on system switch intentions.

In this study, we will examine the impact of gender on different types of switching costs. Specifically, we studied a system transition between two learning management systems, and compared user perceptions of uncertainty costs, emotional costs, learning costs, reduced performance costs and sunk costs between the two gender groups.

Switching Costs

In assessing users’ perceptions of the transition from a prior system to a new one, previous research has focused on switching costs (Kim 2011). Different types of switching costs have been identified, including uncertainty costs, emotional costs, learning costs, reduced performance costs, and sunk costs (Kim 2011; Kim and Perera 2008).
During system transition, uncertainty costs are expected when the performance level of the new system is unknown (Lam et al. 2004). Emotional costs refer to the psychological discomfort associated with replacing the prior system with the new one (Guilin, 1989). Learning costs include any costs that are needed for users to learn how to use the new system (Burnham et al. 2003). Reduced performance costs refer to the loss of benefits when switching to a new system (Jones et al. 2002). Sunk costs are about the time, effort, and money that had already been invested in creating and maintaining the prior system (Jones et al. 2002).

When studying system transition, prior research has investigated the impact of different switching costs on various types of systems. For example, Kim and Perera (2008) found significant impacts of reduced performance costs and emotional costs on user resistance to change to a new Web browser. Zhang et al. (2009) found that sunk costs could significantly influence bloggers’ intention to switch their blog services. Keil et al. (1995) found that sunk costs had a significant impact on the escalation of information systems projects. However, little research has been seen to examine gender differences on different types of switching costs during the system transition process.

**Gender Differences**

General studies of computer use by gender have shown mixed results. Early studies found women to have significantly higher computer anxiety than men with respect to computer use (Igbaria and Chakrabarti 1990; Gilroy and Desai 1986). However, a study of internet use found no gender difference in overall internet use and found that women were more likely than men to buy on-line (McElroy, et al. 2007). Awad and Ragowsky (2008) found trust to be a significantly more important factor in women’s intentions to shop online and that women tended to place more value on the responses of others than did men.

Studies specifically looking at gender differences in adoption of new technology have often focused on factors identified in the UTAUT2 model (Venkatesh et al. 2012) and its predecessors. Vankatesh and Morris (2000) found women’s intentions to use a new technology were more influenced (than men’s) by ease of use and by social norms (expectations of bosses and other respected authorities). A study of intentions to use chat rooms similarly found women’s intentions to be more influenced than men’s by normative pressure (Nysveen et al. 2005) and that study also found women to be more influenced than men by perceived enjoyment in using the product. Nel and Raleting (2012) found that ease of use was more important in affecting women’s intentions and perceived usefulness was more important in explaining men’s intentions to use cell phone banking services. Ahuja and Thatcher (2005) found that women were more negatively impacted than men by quantitative overload (work-life balance issues) when it came to willingness to innovate in the use of technology, and Ahuja (2002) noted that women are perceived by themselves and by other as having primary responsibility of child-rearing and housework, and thus may be more sensitive to overload.

A study of customer loyalty in the face of a service failure by a bank (DeMatos et al. 2007) did include a single instrument designed to capture switching cost, as well as, including gender as a moderating factor. This study found that higher perceived switching costs did positively influence loyalty to a customer’s current bank and found that women were statistically more likely than men to remain loyal to their current bank. However, no analysis of the relationship between switching cost and gender was presented. A study of bloggers’ switching behavior (Zhang et al. 2009) also included a single switching cost instrument as a moderating factor, but it was not found to influence intentions to switch and its relationship to gender was not examined. That study did find that women were more influenced by satisfaction with current service and less influenced by the attractiveness of alternative services than males. In addition, a recent study (Dolan and Stevens 2013) found female college freshmen to be more likely than their male counterparts to consider sunk costs (one of the factors in switching costs) in decision making. They found that both men and women became less influenced by sunk cost as they matured and had more exposure to economics and business instruction.

**Impact of Gender on Switching Costs**

While the gender differences observed above were not directly linked to switching costs, they do appear to generally support the hypothesis that women will experience greater switching costs than men. The
factors of greater computer anxiety and greater focus on perceived ease of use by women is likely to affect their perceptions of uncertainty costs, learning costs and reduced performance costs. The greater quantitative overload experienced by women is likely to lead to greater uncertainty, learning and reduced performance cost. The factors of greater loyalty to the existing system, greater influence of satisfaction with the current system, and greater importance placed on trust in the current system would be expected to lead to women having greater emotional costs than men. Finally, the Dolan and Stevens (2013) study would suggest that women may be more influenced than men by sunk costs. Thus, we hypothesize that women will experience more of each type of switching cost than their male counterparts.

**Research Method**

**Systems**

The systems we used in this study are the learning management systems adopted by a major public university in the western part of the United States. At the time of the study, the university was in the middle of adopting a new learning management system - Blackboard Learn, to replace its previous version - Blackboard Vista. The two systems provide similar functions to assist students’ learning activities with certain improvements claimed in the new system. The overall design and user interfaces of the two systems are different. The move to the new system is mandatory, however, individual students do have considerable choice with regard to the extent to which they utilize the new system.

**Survey**

We used the survey method in this study. We invited students who had the experience of using both systems to participate in the study. Their participation was voluntary. Extra credit was given as the incentive. Participants were asked to fill in a questionnaire with measurement items about different types of switching costs. The measurement items were adopted from Kim and Perera (2008) with wording changes to fit the context of this study. The 7-Likert scale was used for all items. In total, there are 138 participants in the study, 93 males and 45 females. The average age of participants was 22.7. Variations in age and ethnicity among the participants was not sufficient to allow assessment of the impact of these demographic factors on perceptions of switching costs.

**Analyses and Results**

Independent group t-tests were conducted to compare between male and female participants. Table 1 shows the descriptive statistics. Table 2 lists the comparison results. For each type of switching costs, the mean value for male was lower than that for women. The T-test results indicate that female participants perceived significantly higher levels of emotional costs and sunk costs than male participants. The differences on uncertainty costs, learning costs, and reduced performance costs were not statistically significant.

<table>
<thead>
<tr>
<th>Switching Costs</th>
<th>Male Mean/Std Dev.</th>
<th>Female Mean/Std Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty Costs</td>
<td>3.89/1.12</td>
<td>4.03/0.88</td>
</tr>
<tr>
<td>Emotional Costs</td>
<td>3.38/1.79</td>
<td>4.04/1.96</td>
</tr>
<tr>
<td>Learning Costs</td>
<td>3.73/1.80</td>
<td>4.13/1.85</td>
</tr>
<tr>
<td>Reduced Performance Costs</td>
<td>3.55/1.78</td>
<td>3.86/1.73</td>
</tr>
<tr>
<td>Sunk Costs</td>
<td>3.67/1.72</td>
<td>4.23/1.64</td>
</tr>
</tbody>
</table>

Table 1. Descriptive Statistics
Table 2. T-Test Results

<table>
<thead>
<tr>
<th>Switching Costs</th>
<th>Comparison</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uncertainty Costs</td>
<td>Male&lt;Female</td>
<td>0.225</td>
</tr>
<tr>
<td>Emotional Costs</td>
<td>Male&lt;Female</td>
<td>0.026*</td>
</tr>
<tr>
<td>Learning Costs</td>
<td>Male&lt;Female</td>
<td>0.112</td>
</tr>
<tr>
<td>Reduced Performance Costs</td>
<td>Male&lt;Female</td>
<td>0.174</td>
</tr>
<tr>
<td>Sunk Costs</td>
<td>Male&lt;Female</td>
<td>0.037*</td>
</tr>
</tbody>
</table>

* significant at the level of 0.05

Conclusion and Future Research Plan

Conclusion

Understanding factors affecting system switch decisions is important and crucial for success system adoption and replacement. However, little research has been done to specifically examine gender differences in system switch behavior and intentions. To address the gap, this study compared user perceptions on five dimensions of switching costs between the two genders, including uncertainty costs, emotional costs, learning costs, reduced performance costs, and sunk costs. Overall, we found a general pattern that women tended to perceive a higher level of switching costs than men in all five dimensions. This pattern was statistically significant on emotional costs and sunk costs. Based on the results of this study, we would recommend that, in order to make a smooth and successful transition to a new system, system developers and managers need to take switching costs and gender differences into consideration. For example, different strategies and proper training, especially focusing on female users, could be developed and leveraged to help ease the transition process. It should be expected that women could be emotionally more loyal to the prior system, and less willing to switch to the new one because of all investments already made to be proficient in using the prior system. More effort may need to be made to help female users to deal with emotional costs and sunk costs during system transition.

Future Research Plan

In this study, we presented our preliminary results examining gender differences in switching costs associated with a system switch. Our statistical results suggest that there are gender differences in perceived switching costs which may impact system switch decisions. To gain a deeper understanding of these factors, we plan to conduct a qualitative study using the interview method in the future as an extension of the current study. In that study, we aim at finding out the reasons why women experience higher levels of switching costs in general and why such differences are more significant on emotional costs and sunk costs. The following is a preliminary set of our interview questions:

- Have you experienced a high level of switching costs during the system transition process? If so, what leads to such significant amount of switching costs?
- Among the following types of switching costs, which one(s) have you experienced during the system transition process? Uncertainty costs, emotional costs, learning costs, reduced performance costs, and sunk costs (definitions of these costs will be provided)
- Can you rank the following types of switching costs according to the amount you’ve experienced (if any) from the largest amount to the smallest amount?
- Do you have any suggestions to system developers, managers, or any other related personnel about what they could do to help reduce the switching costs you’ve experienced during the system transition process?
REFERENCES


