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The Measurement Of Attribution Of Blame In The Self-Service Technology Context

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Abstract

It is argued that attribution of blame (AoB) will differ in the Self-Service Technology (SST) context versus the interpersonal services context, due to the inherent elements of the SST environment, thereby making it a construct worthy of further research in the SST setting. This paper presents a first step in this pursuit by validating a multiple-item instrument of AoB in the SST context, which, to the researchers' knowledge, has not been done previously. The paper comments on the surprising lack of valid, unidimensional instruments to measure each of the dimensions of AoB (locus, controllability and stability), even in the interpersonal services context. Preliminary results of a pre-test and pilot study support a three-dimensional measurement model of attribution of blame, in the SST setting.

Keywords: attribution of blame, self-service technologies, measurement

Introduction

Despite the growth in SST delivery and, therefore, the importance of understanding consumers' evaluation of SSTs, research is lacking with respect to the influence of SSTs on consumer behaviour constructs. The SST context is characterised by consumer participation in service production and delivery, independently of service personnel; a lack of interpersonal interaction between consumers and service personnel; and consumers being required to interface and interact with technology. These distinct aspects of the SST environment, compared with the interpersonal services setting, require researchers to determine whether the same conceptual factors and empirical findings established in interpersonal service encounter research are relevant in technology-based service settings. AoB is a consumer behaviour construct that has received some attention in the interpersonal services context, however, in the context of SSTs, AoB has been subject to very little conceptual or empirical scrutiny. In light of this, the purpose of this paper is two-fold. Firstly, it is intended to highlight briefly the worthiness of studying AoB in the SST context. Secondly, the dominant focus of the paper is on validating a measure of AoB in the SST environment.

Attribution of Blame in the Self-Service Technology Context

AoB refers to the assignment of causality to past events, and is well documented as comprising three dimensions, namely locus, controllability and stability. As the findings of this paper are part of a much larger study pertaining to consumer complaining behaviour in unsatisfactory SST encounters, AoB is discussed in the context of the causes that are inferred for service failure following an unsatisfactory encounter with an SST. The present researchers argue that AoB in the SST context versus the interpersonal services context differs, due to the inherent elements of the SST environment. Within the space limitations of this paper, some examples of the likely differences follow.

With the shift in the locus of control from service personnel to consumers, consumers' AoB is likely to be influenced. Increased consumer control changes the nature and flexibility of the
attributational process (Wathieu et al., 2002). Although causal locus would logically be thought of as intrapersonal rather than interpersonal because of the lack of interaction with service personnel, consumers are unlikely to attribute service failure to themselves, i.e., “self-serving” attribution. Furthermore, consumers’ failure to use SSTs effectively may be perceived by consumers as controllable by organisations because of the organisations’ failure to socialise consumers as “producers”. Consumers will also be influenced largely by the technology, which again is likely to be perceived as controllable by the organisation. Finally, in the interpersonal services setting, Bitner (1990) suggested that the behaviour of individual service workers was seen by consumers as unstable due to their variability. On the contrary, a “problem” SST is likely to be perceived as stable, e.g., consumers do not confront a different Web site on each encounter. Given some of the likely differences in consumers’ AoB in SST versus interpersonal services, it is a construct worthy of further research in the SST setting. Therefore, validating a measure of AoB in the SST context is a first step in this pursuit.

Measuring Attribution of Blame

Surprisingly, AoB, although an important consumer behaviour construct, has been relatively neglected in terms of its measurement in survey research. As previous studies investigating AoB have tended to utilise scenario-based manipulations to assess it (see, for example, Folkes, 1984; Wong and Weiner, 1981) there is a lack of multiple-item instruments available. Furthermore, although several studies have employed measures of AoB in survey research (see, for example, Au, 2001; Bebko, 2001; Diaz and Ruiz, 2002; Machleit and Mantel, 2001) they have used a single item to measure each dimension or have failed to measure all of its three dimensions. This is problematic because confirmatory factor analysis (CFA) has a dependence on multiple items to define a construct (Anderson and Gerbing, 1988; Little et al., 1999; Marsh et al., 1998). Furthermore, it is important to include all three dimensions of AoB to increase the precision in mapping the relationships between it and other constructs.

To measure the AoB construct, the researchers sought an instrument that fulfilled various criteria. The instrument needed to have a reasonable theoretical base, use multiple items to measure each dimension of AoB, and have been shown to be unidimensional and valid (including reliable, of course) (Ping, 2004). Furthermore, all measures on the researchers’ overall questionnaire utilised seven-point scales for consistency to minimise respondent confusion, particularly because it was a self-completion questionnaire. Therefore, an instrument that used seven-point scales or one that could be adapted to this format was preferred. Following a review of the literature pertaining to AoB, the researchers discovered two instruments that fulfilled at least some of these criteria, namely instruments employed by Russell (1982) and Hui and Toffoli (2002). Russell’s (1982) causal dimension instrument assessed causal perceptions for the three dimensions of AoB in the context of students’ attributions associated with test scores. Three items were used to measure each of the dimensions, with the instrument being found to be valid, and factor analysis confirming the three-dimensional structure. However, the instrument required two adaptations for the researchers’ use. Firstly, the original instrument employed nine-point semantic differential scales containing a series of bipolar phrases, so each bipolar phrase was converted to a statement that could be responded to on a seven-point scale, to ensure consistency in the measurement format used throughout the entire questionnaire. Furthermore, the context of the study required that the items be adapted extensively to the consumer and SST context, and although the researchers found an adapted version of Russell's (1982) causal dimension instrument to the consumer context subsequently (Oliver 1997), to the researchers’ knowledge
it had not been tested previously. In the light of the various adaptations that would be needed to Russell’s (1982) instrument, the researchers chose to use Hui and Toffoli’s (2002) instrument. This instrument was much more applicable to the researchers’ study. It measured each of the consumer attribution dimensions (locus self, controllable by the organisation and stability) using multiple items on seven-point Likert scales, tested in the interpersonal services context. Factor analysis resulted in three dimensions, and Cronbach’s alphas of 0.89, 0.75 and 0.55 were obtained for the items measuring locus, controllability and stability, respectively. Given the poor reliability for the stability dimension, statements were created by the researchers to reflect Oliver’s (1997) adapted “consumer” items to measure stability (Russell, 1982). In addition to these items, another item was added as an intrinsic check of the locus self dimension. This item measured locus technology, adapted from Moon (2003) to measure attribution in the context of computer users. As the attributor and the researcher can perceive attributional statements quite differently (Russell, 1982), and because technology can be perceived as an extension of self, this item was designed to check that the respondent did not confuse locus self and locus technology. Furthermore, all items were adapted to the SST context, given that the Hui and Toffoli (2002) instrument was designed for interpersonal services. Table 1 presents the final AoB items. The stem was as follows: “The following questions reflect feelings that you might have about why the SST outcome turned out as it did. Please circle the number that best reflects your feelings about this.”

### Table 1: Final Attribution of Blame Instrument

<table>
<thead>
<tr>
<th>Original Item</th>
<th>Source</th>
<th>Final Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>The unpleasant experience was the outcome of my own deed (locus self)</td>
<td>Hui (2002)</td>
<td>My unsatisfactory experience was the outcome of my own doing</td>
</tr>
<tr>
<td>I did contribute to my unpleasant experience (locus self)</td>
<td>Hui (2002)</td>
<td>I did contribute to my unsatisfactory experience</td>
</tr>
<tr>
<td>I was responsible for my own unpleasant experience (locus self)</td>
<td>Hui (2002)</td>
<td>I was responsible for my own unsatisfactory experience</td>
</tr>
<tr>
<td>The computer contributed heavily to the overall outcome of this task (locus technology)</td>
<td>Moon (2003)</td>
<td>The technology was responsible for my unsatisfactory experience, e.g., did not work as intended, was not easy to use</td>
</tr>
<tr>
<td>The incident was controllable by this service organisation (controllability organisation)</td>
<td>Hui (2002)</td>
<td>My unsatisfactory experience could have been controlled by this organisation</td>
</tr>
<tr>
<td>Nobody in this organisation could have stopped the incident from happening (controllability organisation)</td>
<td>Hui (2002)</td>
<td>Nobody in this organisation could have stopped my unsatisfactory experience</td>
</tr>
<tr>
<td>Little could be done by this organisation to stop what happened in the incident (controllability organisation)</td>
<td>Hui (2002)</td>
<td>Little could be done by this organisation to stop my unsatisfactory experience</td>
</tr>
<tr>
<td>Outcome will always happen this way / not sure that the outcome will happen this way again (stability)</td>
<td>Oliver (1997)</td>
<td>The cause of my unsatisfactory experience will always happen this way</td>
</tr>
<tr>
<td>Expect the outcome to be the same over time / expect the outcome to vary over time (stability)</td>
<td>Oliver (1997)</td>
<td>The cause of my unsatisfactory experience is expected to be the same over time</td>
</tr>
<tr>
<td>Reason for the outcome will never change / reason for the outcome will always be different (stability)</td>
<td>Oliver (1997)</td>
<td>The cause of my unsatisfactory experience will never change</td>
</tr>
</tbody>
</table>

### Pre-Test and Pilot Study

Initially, a pre-test was conducted with seven marketing academics who were requested to complete and comment on the overall questionnaire. The academics had expertise in the subject matter and/or expertise in questionnaire design. Furthermore, four of the seven academics were enrolled in postgraduate studies at the time of the pre-test, thereby being...
representative of the student sample that was used in the pilot study. Some amendments were made to the instrument based on the results of the pre-test. Firstly, two items were omitted because they were perceived to be too similar to other items. This was deemed important because items that are too similar can be annoying to respondents and inflate falsely the reliability of the instrument (DeVellis, 1991). Secondly, another item was reworded slightly because it was felt to be unclear. Following the pre-test, a pilot study was conducted using a convenience sample of undergraduate and postgraduate business students. Students were invited to participate in the survey if they could recall a recent (within the last six months) unsatisfactory encounter with an SST. Students were recruited via both class announcements and announcements made via an online teaching and learning environment. A “closed” Web-based questionnaire was employed. Free access to the Web made it attractive for surveying students, and Web-based administration is consistent with the study context. Potentially to improve the response rate, an incentive was offered to respondents in the form of a random drawing for five $100 online gift vouchers from www.wishlist.com.au. A total of 111 questionnaires were completed, this being 42 per cent of all those who looked at the front page of the questionnaire. Missing data were not an issue as a forced answering approach (Zikmund, 2000) was used, whereby for the key constructs, of which AoB was one, respondents were “forced” to respond to their respective items before moving on to the next page. However, four cases were omitted based on their questionable nature, as these cases had reported not encountering dissatisfaction with an SST, yet had still completed the questionnaire, which was required to relate to an unsatisfactory SST experience.

Analysis

As some of the items used to measure AoB were taken from multiple sources, and because the instrument had not been tested previously in the SST context, it was deemed important to conduct exploratory factor analysis (EFA) prior to confirmatory factor analysis (CFA). Bartlett’s test of sphericity (<0.05) and the Kaiser-Meyer-Olkin test (>0.6) were used to ensure that factor analysis was appropriate. The EFA was performed using maximum likelihood with a direct oblimin rotation, which provides results most similar to AMOS, which was to be used for the CFA. Factors with latent roots (eigenvalues) greater than one were considered significant, and the scree plot was also examined (Hair et al., 1988). Following EFA, CFA, which is equivalent to the measurement model in structural equation modelling, was carried out using AMOS 5.0 to confirm the results obtained. Although the sample size was small, Bentler and Chou (1987) reported that a minimum of five cases per parameter was sufficient, and as the measurement model included 17 distinct parameters, the sample of 107 respondents was adequate. Through factor loadings and goodness of fit measures, CFA provides an assessment of convergent and discriminant validity. Each of the items was constrained to load on only its associated factor, as per the literature and the results of the EFA, and the three dimensions were permitted to correlate. In assessing the measurement model, goodness of fit and the estimation of parameters of the model were the primary goals (Hu and Bentler, 1999). An acceptable model is one where the p-value for chi-square is greater than or equal to 0.05. However, reliance on the chi-square statistic as the only measure of fit is not recommended because of its reliance on sample size. Therefore, the chi-square statistic is supplemented with other fit statistics including: Goodness-of-fit (GFI); Adjusted goodness-of-fit (AGFI); Root mean square residual (RMR); Root mean square error of approximation (RMSEA); Tucker-Lewis index (TLI); Normed fit index (NFI); Comparative fit index (CFI); and Akaike Information Criterion (AIC). Hu and Bentler (1999) advocated values greater than 0.95 for GFI, AGFI, CFI, TLI and NFI as a minimum threshold.
that can be used to conclude that there is a relatively good fit between the hypothesised model and the data. RMSR and RMSEA values of 0.08 or less indicate adequate fit, but more recently, values of less than 0.05 have been advocated as showing good fit.

Results, Discussion and Future Research

As was anticipated, poor correlations were found with the item, “The technology was responsible for my unsatisfactory experience”. After this item was excluded from the analysis, only two items remained to reflect locus. Cronbach’s alpha is meaningless when there are only two items (Verhoef, 2003). Therefore, for the locus dimension, the correlation coefficient should be reported (Verhoef, 2003) which is high at 0.82. After two negatively phrased items were recoded, the three items used to measure controllability produced a Cronbach’s alpha of 0.79. Finally, only two items were used to measure stability, with a correlation coefficient of 0.73. In line with the researchers’ expectations, three factors were extracted with eigenvalues greater than one (2.8 for locus, 1.6 for stability and 1.2 for controllability). The percentage of variance extracted per dimension was 40, 24 and 17 for locus, stability and controllability, respectively. The final measurement model is shown in Figure 1. All of the fit statistics, with the exception of the RMR, met the acceptable cut-off criteria, and all of the critical ratios were significant. There was discriminant validity for each of the dimensions, with the average variance extracted from stability (0.73), locus (0.82) and controllability (0.57) being greater than the square of any of the loadings on the paths between them. Therefore, this preliminary study presents a valid and unidimensional instrument to measure each of the dimensions of the higher order multidimensional construct of attribution of blame in the SST context. However, further research is needed to develop additional items to reflect other potential dimensions of locus and controllability in the SST context. For example, as self is the primary internal factor of attribution of blame, technology can be conceptualised as the primary external factor (Moon 2003). Qualitative research would be useful in exposing the various factors consumers can blame for failure in the SST context. Following such additional development and testing, this instrument will be useful in advancing empirical research in the SST setting.

![Figure 1: Final Measurement Model](attachment:Figure1.png)
References


