The effect of ‘tone of dialogue’ on users’ interactions with self-service

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Effects of 'Tone of Dialogue' on Users' Interactions with Self-Service Interfaces

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This report details the results of an investigation into the effects of various tones of dialogue (TOD) used at the ATM and their effect on participants perceptions and satisfaction. The participants carried out a transaction with an unfamiliar services on a mock up ATM interface, the tones used were brief and business-like, instructional, personal and reassuring. Results showed that participants were aware of the TOD and perceived it as important. The brief tone was the most preferred and the personal tone was least preferred. The results suggest that the current TOD used at the ATM may benefit from accommodating a more reassuring and instructional tone. The personal tone tended to receive the lowest rating. This may indicate a reluctance to engage in a relationship with the ATM, the repercussions of this on the current trend in personalisation of services may be of interest.

Introduction

This investigation sort to explore the tone of dialogue (TOD) used by self-service interfaces which is a neglected area of HCI. Investigating whether the TOD used by self-service interfaces has an effect on the users' interaction. In particular the TOD used by automatic teller machines (ATM) a self-service interface used by many people throughout the world was investigated.

The TOD used by the ATM is defined as the attitude and character of the written instructions used. It is the style of the language employed to provide information to users in the form of written menus and instructions. The TOD used is important because it can affects the users satisfaction with the service provided. For instance, if an informal TOD was used by the ATM the customer may perceive this as the ATM being unnecessarily friendly. This could lead to the customer losing confidence in the bank that is looking after their money.

Due to the TOD used by self-service machines being a novel area of research there was a lack of definite information. Therefore, information had to be drawn from areas that could inform the understanding of the effect of the TOD on users. The guidelines for menu and interface design were consulted but failed to give any direct information
although they did give some general advice about keeping instructions brief and consistent Shneiderman (1992).

The current TOD used by ATMs varies from bank to bank because the dialogues are written by different groups including, design groups within the companies that make the ATM, teams from the bank themselves to specific third party companies such as Phoenix Interactive (Phoenix interactive design inc, 2004) and I-designs (i-design multimedia ltd, 2005). This had led to some variation between the dialogue used by ATMs.

The TOD used in general by ATMs is fairly formal with short statements and is personal to some extent using the personal pronouns "you," and "your,". The TOD also tends to be polite using "please," and "thank you," for the majority of screens. Although this is the general trend there is no common TOD that is used at all of the ATMs. Some ATMs use a requesting tone shown by the use of questions. While others have a more commanding TOD shown by the dialogues ordering the user to do something.

The factors affecting the use of ATMs in general were examined to ascertain whether the TOD could be used to address these concerns. Roger, Gilbert and Cabrera (1997) found that some users were not satisfied with the personal interaction that they experienced when using the ATM. Older users felt that there was insufficient feedback given. Security and trust are further factors that effect a person's use of the ATM. Roger (1992) found that the amount of control the person feels they have over the interaction affects their satisfaction with the service provided.

There is suggestions for related literature that the TOD is dependent on certain user characteristics. Gilly and Zeithaml (1985) found older people made more errors, were slower at using ATMs and were also less likely to use the ATM and if they did use it they used it less frequently than younger users. Familiarity with the ATM affects a persons use of the ATM and how they interact with it. The first time a person uses the ATM or a new service they experience anxiety (Belleau and Summers (1993).

The Media Equation (Reeves and Nass, 1997) and the literature related to this school of thought provides valuable information that can inform the design of the TOD at the ATM. The media equation examines human-computer interaction and compares it to human-human interaction. It suggests that the customer's personality will affect the TOD that they prefer (Moon and Nass, 1998). It is also suggested that social rules and cues that people expect will affect their satisfaction. If the TOD used by the ATM does not match these expectations then the user will not be satisfied by the service provided (Nass and Moon, 2000 and Reeves, 2002). The media equation also suggests that social intelligence of the human computer interface can impact on the user's interaction with the machine (Reeves, 2002).

Due to the lack of directly related literature it was considered important to get an experimental grounding on which to build upon.

Preliminary Investigation

A two level model of TOD was proposed, level one the purpose of the TOD and level two the style of the TOD. The purpose describes what the ATM should be, for example polite and instructional. The style is the character and attitude of the ATM which the user perceive when interacting with the ATM for example friendly and professional. It was
thought that both the purpose and the style influenced the construction and the perception of the TOD used at the ATM.

This model was tested using a small pilot experiment. A questionnaire was used to ascertain background information of participant and their use of the ATM. It sort their awareness and perceived importance of the TOD. The questionnaire also enquired about participant’s current perceptions of the TOD used at the ATM and how they would like the TOD to be, providing a justification for their choice.

As part of the pilot participants had to construct their own ATM dialogues using a paper prototype from the TODs provided, for a cash withdrawal, error messages and a total novel cinema ticket purchasing service. The participants had the option to write their own dialogue. Participants were required to provide reasons for why they constructed the TOD in the way they did and for any dialogue that they wrote. A validation of the TODs provided was also carried out.

The findings revealed that participants were aware of the TOD and perceived it as being important. The results also showed that there was a difference in the current TOD perceived by the participants and the TOD that they would like to be used at the ATM. The findings did not support the two level model because it was found that the two levels were too interlinked to have separate influence on the TOD.

Main Experiment

From the literature search and results of the small pilot a decision was made to examine the instructional, brief/businesslike, reassuring and friendly TODs as they had been the most popular. This part of the investigation sort to establish if there was a general TOD that was suitable for all services or whether the TOD was specific to the service being used. Four novel services were developed, message sending, share trading, money transfer and train ticket purchasing. Novel services were used so that the participants would have to read and take notice of the dialogue being used.

A mixed subject design was used, a within subject design for the tones of dialogue and a between subjects design for the services. A convenience sample of 40 participants was used; the majority of the participants were non NCR employees. There were 14 females and 26 male participants and there age range was from under 16 to over 55. All participants were volunteers although a £50 prize draw was offered as an incentive.

An online questionnaire was devised to ascertain participant’s ratings for the individual TODs. The questions used probed the participant’s perceptions of the ease of use of the service, their satisfaction with the service and the TOD and how the tone affected there interaction with the services. Background information about the participant was collected and questions were used to validate the TODs developed. PowerPoint was used to create the ATM transaction screens with working buttons that would be used for the laptop prototype. A Dell Latitude LS laptop with internet connection and a two button mouse were used.

Participants answered the first part of the questionnaire which gathered background information about them and their ATM use. They then carried out the first transaction and answered questions on this transaction. This procedure was repeated for the other three transactions. Once these were finished there was a final questionnaire on the participants overall preference. The order of the TODs was counter balanced to ensure that there were no order affects, the orders were generated randomly.
Results

The majority of the participants were between the ages of 16-34 and were either professionals or students all of whom used the ATM in a fairly regular bases in the main for cash withdrawals and checking their balance. An assessment of the participants' perceptions of the current TOD used at the ATM revealed that participants perceive the current TOD to be first of all instructional followed by brief.

The overall preference of the TODs revealed that the brief (32.5%) TOD was most preferred followed by the instructional (22.5%) and reassuring (22.5%) TODs, with the brief (12.5%) TOD being preferred least with some participants having no preference at all (10%).

The rating scales in the questionnaire used a 1-5 Likert scale for the majority of questions with 1 being a low/poor rating and 5 being a very good rating. Participants rated their perception of the importance (M=3.25, SE=.18) of the TOD higher than their awareness (M=2.58, SE=.20) of the TOD. A pair sample t-test showed that the participants rated the importance of the TOD significantly higher than their awareness, t(39)=3.42, p<.001. This suggests that although the participants believe that the TOD is important their awareness of the TOD is not at the same level.

In depth analysis of the participants' responses for each question was conducted. The following points summarise the most important and interesting findings.

Participants rated their preferences for the brief, instructional and reassuring TODs to be used at the ATM higher than the personal TOD. A pair wise t-test on all the services combine together revealed that the participants rated their desire for the brief, instructional and reassuring tones to be used for all services at the ATM significantly higher than the personal tone, t(39)=3.33, p<.01, t(39)=2.53, p<.05, and t(39)=2.24, p<.05, respectively. This suggests that the personal tone is not desired as much as the other tones to be used by the ATM.

Participant ratings of their satisfaction with the transactions showed that the participants rated the instructional (M=4.18, SE=.12) and reassuring (M=4.20, SE=.13) TODs highest. A pair wise t-test for the services altogether revealed that participants were significantly more satisfied with the transaction when it used a reassuring tone and the instructional tone rather than a personal tone (M=3.78, SE=.17), t(39)=-2.43, p<.05 and t(39)=2.08, p<.05 respectively. These results imply that participants are more satisfied with transactions that use an instructional or reassuring tone.

Participants ratings of the appropriateness of the TODs to be used at the ATM revealed that the brief (M=3.98, SE=.15), reassuring (M=3.78, SE=.17) and instructional (M=3.78, SE=.17) TODs received higher rating for their appropriateness to be used at the ATM than the personal tone (M=2.95, SE=.23). A paired sample t-test revealed that the brief tone was rated significant more appropriate than the personal tone, t(39)= 4.03, p<.001, as was the instructional tone, t(39)= 2.98, p<.01 and the reassuring tone, t(39)=3.00, p<.01. These results strongly suggest that the personal tone used in this experiment is not appropriate for ATM services.

A validation of the TODs created revealed that they were being perceived as they should be. For the validation participants were required to rate each tone on how instructional, brief and businesslike, reassuring and personal they thought the tone was. The results of the validation can be seen in table 1.
Table 1. Participant's Overall Mean (Standard Errors) Ratings of how instructional, brief and reassuring they perceived the Tone to be.

<table>
<thead>
<tr>
<th>Tone</th>
<th>Perceived Brief</th>
<th>Perceived Instructional</th>
<th>Perceived Personal</th>
<th>Perceived Reassuring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief</td>
<td>4.03 (.16)</td>
<td>3.60 (.20)</td>
<td>2.55 (.23)</td>
<td>3.13 (.21)</td>
</tr>
<tr>
<td>Instructional</td>
<td>3.55 (.20)</td>
<td>4.18 (.15)</td>
<td>2.80 (.18)</td>
<td>3.63 (.21)</td>
</tr>
<tr>
<td>Personal</td>
<td>2.50 (.20)</td>
<td>3.10 (.20)</td>
<td>3.98 (.17)</td>
<td>3.28 (.20)</td>
</tr>
<tr>
<td>Reassuring</td>
<td>3.28 (.20)</td>
<td>4.13 (.16)</td>
<td>2.88 (.21)</td>
<td>3.93 (.18)</td>
</tr>
</tbody>
</table>

The tones were all rated significantly higher for their own dimensions than the other TODs except for the reassuring and instructional TODs for which their ratings were not significantly different from each other although they did receive the highest ratings for their respective TODs. These results suggest there may be some overlap between the reassuring and instructional tones.

Examination of the user characteristics revealed no significant differences between gender. Some effect of the frequency of use of the ATM was found, with low frequency user rating their satisfaction with the reassuring tone significantly higher than the other TODs. The age of the participant also affected the rating of the TODs with the older age group rating the personal and instructional tones higher than the younger age groups.

Discussion

From the results it can be seen that the TOD does affect the participants' interaction with the ATM services. The brief tone was overall the most preferred TOD and was often rated most favourable. The personal TOD was the least preferred and it was rated least favourably by the participants. From the result it appears that there is no clear service dependent TOD. This suggests that a brief TOD should be used for ATM services and a personal TOD should not be used. Although it is important to note that the ratings and preferences were not drastically different and the use of the personal TOD can not be discounted totally. The reassuring and instructional TODs should definitely be considered in the construction of ATM dialogues because the brief TOD was never rated significantly better than these tones.

An explanation of these results can be provided by the media equation and the social rules that people apply to their interactions with the computers (Fogg, 2002). Users apply the social rules that they expect in a banking situation to their interaction with the ATM. Therefore expect the interaction to be formal and professional. The personal TOD used in this experiment was informal which may be the reason for the low ratings that it received. Therefore a personal TOD that was more formal may be more appropriate for use at the ATM. This may also help to explain why the brief TOD received higher ratings as it fitted more with the social rules of banking.

In this experiment the reassuring TOD received a fairly high ratings which would suggest that this is a possible avenue for further investigation especially as the participant did not perceive the current TOD used at the ATM to be reassuring. It was also commented on by some of the participants that they liked the reassuring and instructive TODs because the services that they were using were unfamiliar and they required the more detailed dialogue. But they also commented that it was likely that they would prefer
the brief TOD once they became more familiar with the service. This suggests that familiarity could affect the TOD that should be used by the ATM. A dynamic TOD could be used that adapted to the user's familiarity with the service. This suggests that a social intelligent TOD could be beneficial to improving the user's interaction with the ATM (Reeves, 2002).

It is clear that participants perceived the TOD as important but the ratings of their awareness of the tone were not as high as the ratings that they gave for its importance. This suggests that further investigation should be conducted into the participant's awareness of the TOD to ascertain how much awareness the user actually has of the TOD, this could be done with the use of eye tracking technology.

From the validation questions it was found that the participants perceived the TODs as they were supposed to be perceived; this helps to support the interpretation of these results. While the age of the participant appeared to influence the participant's ratings for the TODs and would be interesting to explore further especially as the number of participants in the older age group was relatively small.

Conclusions and Further Research

Satisfaction with the services provided by the ATM is affected by the TOD used and needs to be explored further. From the results if only one TOD was to be used by the ATM then it would be a brief tone. But from the results it is suggested that multiple TODs may be more beneficial for improving the users satisfaction with the ATM. This would require extensive research into which TOD is most suitable for each part of the transaction and how user characteristics affect TOD preference. Further points that are likely to impact on the TOD used at the ATM are: the user's cultural background due to the different social rules that exist in different cultures. Also the user's personality could impact upon their interaction with the ATM and the TOD that they prefer (Moon and Nass, 1998).

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