

The Effect of User Perceptions of System Features on ENS Assessment

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1. Background and Motivation

Electronic negotiation systems (ENSs) feature a wide range of capabilities for setting up and conducting negotiations between the parties (Kersten and Lai 2007). These capabilities include both communication facilities, as well as analytical features that help the negotiator to manage his/her preferences as well as inform decision making in constructing offers and assessing counter-offers. In this regard it would be valuable for the ENS designers to know which design features of these systems are being perceived as useful by the negotiators. This work aims at understanding how the user perceptions of ENS features influence the assessment of ENS.

As ENSs are a type of information systems (IS), it would be appropriate to begin with the well-known theoretical models related to user perceptions of IS. The two widely cited models in this respect include the technology acceptance model (Davis 1989) and the IS success model (DeLone and McLean 1992; DeLone and McLean 2003). The first one focuses on user perceptions of system, while the second one measures user satisfaction. More recently a model combining the two above-mentioned ones has been proposed (Wixom and Todd 2005). However, these models do not incorporate specific system features explicitly. In regards to ENS assessment the important feature categories include communication support (messaging), analytical support (preference modeling), and graphical support (offer history). This work

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looks to evaluate the influence of the ENS user perceptions of these features on important constructs used in theoretical IS models.

2. Research Model and Experiments

Our research model (Figure 1) includes the following independent variables related to system feature perceptions:

- Perception of messaging function (PMF)
- Perception of offer-history tables (POH)
- Perception of offer graph representations (POG)
- Perception of offer ratings (POR)

On the dependent side we have included perceived usefulness (PU) of the system and satisfaction with system, represented by two constructs: satisfaction with communication (SC), and satisfaction with information (SI) provided to the negotiator. According to Wixom et al. (2005) user satisfaction influences the perceived usefulness of the system. Thus, in our model both satisfaction constructs have an effect on usefulness. We also anticipate that all system features have their effects on all of the dependent variables.

In order to test the model we used experiments, which involved university students from five different countries. The total number of participants was 268, with useful responses collected from 174 subjects. The subjects use Inspire ENS implemented on the Invite negotiation platform. The negotiation case selected was “Cypress-Itex 2”, which features a scenario of negotiation between a part manufacturer and a bicycle builder. The experiment took three weeks to run.

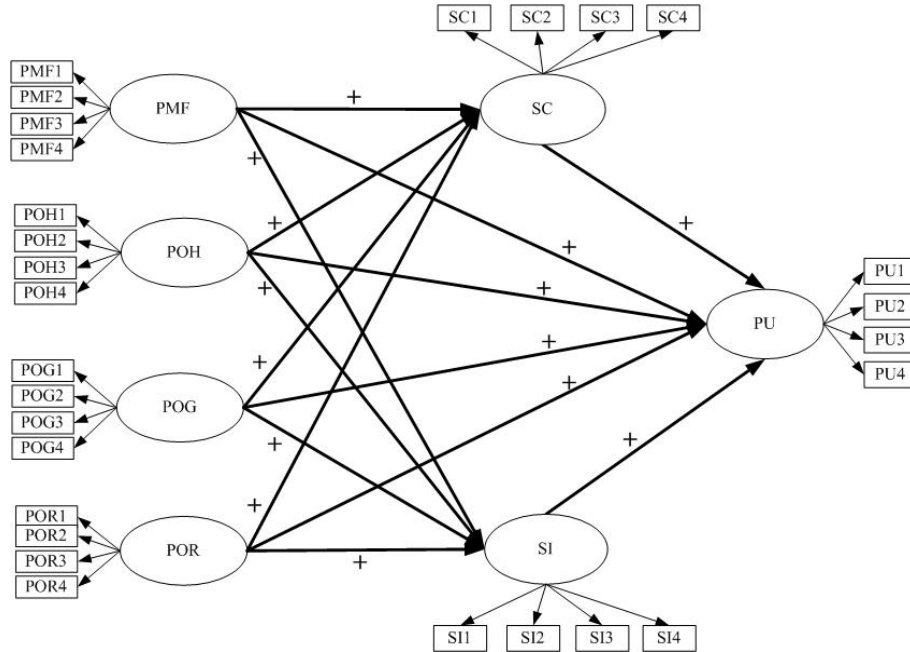


Fig. 1. Research model

3. Data Analysis and Results

We have performed confirmatory factor analysis and structural modeling using the partial least squares method. The constructs as measured by items have exhibited a high level of reliability (Chronbach’s alpha > 0.75, item loadings > 0.7). The analysis of the patterns of item loadings have shown adequate levels of convergent and discriminant validities. Therefore, our measurement model has been adequate.

The analysis of the structural model has shown that not all of our expected effects of the independent variables have been found to be strong. Perception of messaging function has weak direct effect on perceived usefulness, but strong indirect effect via satisfaction with communication, and moderate effect via satisfaction with information. Perception of offer ratings has moderate direct effect on perceived usefulness and moderate indirect effect via satisfaction with information. Perception of offer graph representation had a weak direct effect on usefulness. Perception of offer history table had no effects. The R-square values for the satisfaction with communication, satisfaction with information, and perceived usefulness were 0.21, 0.12, and 0.51 respectively (Figure 2).

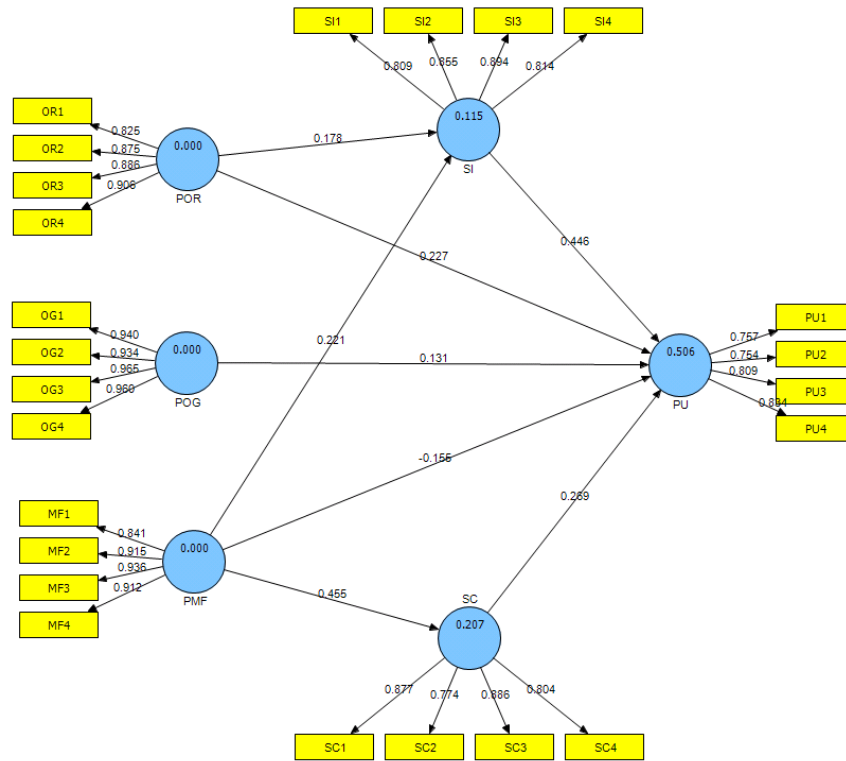


Fig. 2. Final structural model (PLS)

4. Conclusions

The purpose of this work was to assess the impact of ENS feature perceptions on the system assessment by the users. The findings suggest that some of the features do have effects on perceived usefulness and satisfaction constructs. The perception of offer history table seems to have no impact on system evaluation. The findings could help the designers of ENS to focus on the essential types of system features for promoting user acceptance.

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