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Creating Rapport and Intimate Interactions with Online Virtual Advisors

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ABSTRACT

Adopting the view that users perceive their interactions with technological artifacts as social and interpersonal, this paper offers a number of propositions regarding the expected effects of two relationship-level constructs, namely, rapport and intimacy, which have been shown to be influential antecedents to interpersonal relationship satisfaction and interaction quality. Both constructs are proposed to be salient beliefs within the context of users' interactions with virtual advisors, subsequently, affecting users' evaluations of these advisors. In addition to offering a conceptualization of these two constructs and their individual dimensions, we also offer a number of propositions in regards to how these two constructs can be influenced using a number of design characteristics that have been discussed in prior literature.

Keywords

Online shopping, online interactions, intimacy, rapport.

Introduction

The view advocating that users perceive their interactions with technological artifacts as social and interpersonal has gained prominence in the past several years. Consistent with the *Computers are Social Actors* (CASA, Moon, 2000) paradigm, a number of studies have shown that users of interactive technological artifacts tend to attribute human-like characteristics to these artifacts, and view their interactions with them as social and interpersonal.

With the advent of new e-commerce technological artifacts that are perceived to possess interactive and human-like characteristics, the utilitarian benefits users expect to achieve through using these artifacts (e.g., choosing an appropriate product) are now paralleled by benefits of engaging in satisfactory social interactions and trustworthy relationships, where these artifacts are viewed as social partners. Consequently, a number of studies have investigated the types of social characteristics that users are likely to attribute to e-commerce technological artifacts, such as, attributions of personality types to shopping assistants (Al-Natour, Benbasat and Cenfetelli, 2005), or attributions of gender and ethnicity to decision support aids (Nass, Isbister and Lee, 2000). Furthermore, a number of studies have also focused on investigating

some of the factors shown to affect the quality of social interactions. For example, users' perceptions of the personality similarity of an artifact to themselves has been shown to affect a number of evaluative beliefs, such as, trust and perceived usefulness (Al-Natour et al., 2005).

This paper complements these efforts by conceptualizing two constructs that have been shown to affect perceptions of the quality of social interactions in interpersonal contexts, and applying them to e-commerce. Firstly, we describe the two relationship-level constructs of *rapport* and *intimacy*, and offer a discussion regarding their role in affecting evaluations of e-commerce technological artifacts that function as virtual advisors (e.g., online virtual advisors). Secondly, we extend our discussion to investigating a number of design characteristics that are proposed to affect perceptions of rapport and intimacy.

Theoretical Background

This section offers an overview of two constructs that were shown to be influential predictors of interaction quality.

Rapport

Most definitions of rapport include in their descriptions the feeling of being "in sync" with the interaction partner. Tickle-Degen and Rosenthal (1990) suggest that people experience rapport when they "click" with each other or feel the good interaction is due to "chemistry" (p. 286). They further propose that the construct of perceived rapport has three components: 1) *mutual attentiveness*, which refers to feelings of mutual attention, focus, and involvement, 2) *positivity*, which refers to feelings of mutual friendliness, warmth, and caring, and 3) *coordination*, which refers feelings of balance and harmony.

Interpersonal coordination, which refers to the degree to which interacting individuals are able to align their behaviors with one another spontaneously in an efficient and effortless manner (Finkel, Campbell, Brunell, Dalton and Scarbeck, 2006), was shown to determine whether an interaction is perceived as high/low maintenance, where in a high-maintenance interaction, coordination on interpersonal tasks requires energy exertions beyond those required to perform the task itself. On the other hand,

positivity, which was proposed to have a declining effect on rapport as relationships develop and mature (Tickle-Degnen and Rosenthal, 1990), is often discussed in relation to non-verbal behavioral cues, such as, smiling and eye contact (Henr Dick, 1990). Finally, perceived mutual attentiveness was shown to be influenced by a number of non-verbal cues, such as, forward leaning and head nodding, as well as a number of verbal cues, such as tone and verbal resonance (e.g., Gremler and Gwinne, 2000).

Intimacy

Intimacy is “the product of a transactional, interpersonal process in which self-disclosure and partner responsiveness are key components” (Laurenceau, Barrett and Pietromonaco, 1998, p. 1238), where one person discloses personal information to a partner, and subsequently receives a communication from that partner that is perceived to be responsive (Reis and Shaver, 1988).

Researchers have distinguished between three types of self-disclosures when examining their impact on relational variables (Morton, 1978): descriptive (revealing facts and information that are not apparent, such as, marital status, place of birth, siblings), evaluative (revealing personal feelings, opinions, and judgments), and topical (revealing opinions regarding sensitive topics, such as, abortion and sexual orientation). The last two types of disclosures (together termed “emotional” disclosures) while considered riskier than descriptive disclosures, can generate greater levels of intimacy (Laurenceau et al., 1998). Nonetheless, for a self-disclosure to affect perceptions of intimacy, it has to be reciprocated and perceived as appropriate (Reis and Shaver, 1988). The disclosure-reciprocity norm suggests that for disclosures to be perceived as intimate, the target or the elicitor of a disclosure has to reciprocate the disclosure that is made, or initiate the request for a disclosure by self-disclosing (Berg and Derlega, 1987). The appropriateness of a disclosure relates to the type of disclosures made at any given point in time. When a self-disclosure is elicited from the target, then the sequence of disclosures norm suggests that disclosure are more likely to occur if requests for such disclosures gradually escalate, such that the relationship proceeds from casual exchanges to increasingly intimate ones over time (Moon, 2000). Furthermore, when a disclosure is made to reciprocate a disclosure that was received, then the reciprocated disclosure is expected to be of the same type or deeper than the one received (Davis, 1976).

Alternatively, partners are perceived to be *responsive* when their behaviors (e.g., disclosures, expressions of emotion) address the communications, needs, wishes, or actions of the person with whom they are interacting (Reis and Shaver, 1988). According to Reis and Shaver (1988), speakers are more likely to perceive an interaction

as intimate if they perceive their partner’s response to be *understanding* (i.e., accurately capturing the speaker’s needs, feelings, and situation), *validating* (i.e., confirming that the speaker is an accepted and valued individual), and *caring* (i.e., showing concern for the speaker).

Intimacy and Rapport in the Context of Interactions with Virtual Advisors

Both rapport and intimacy are proposed to apply to those types of e-commerce interactions in which the user is interacting with an interactive entity that can manifest social characteristics. In this paper, we illustrate how these two constructs can be applied to the study of users’ interaction with automated virtual advisors, such as, recommendation agents (Komiak and Benbasat, 2006) and shopping assistants (Al-Natour et al., 2005). Such artifacts typically perform the roles of a tutor educating customers about product attributes, a serviceperson that helps answer customers’ questions, and/or a recommender system offering specific recommendations based on predefined criteria. Within this context, and since we are more concerned with the user’s perceptions regarding its interaction with the advisor, we conceptualize perceived rapport as a second-order construct that refers to the user’s perception of being in-sync with the advisor, and of the degree to which her interaction with the advisor is marked by harmony, conformity, and mutual positivity and interest (Drolet and Morris, 2000). Consistent with Tickle-Degnen and Rosenthal (1990), we view the construct of perceived rapport with a virtual advisor to have the three distinct first-order dimensions of attentiveness (perceptions of mutual attention, focus, and involvement), positivity (perceptions of mutual friendliness, warmth, and caring), and coordination (perceptions of balance and harmony). On the other hand, perceived intimacy is defined as the user’s perception of her closeness with the virtual advisor, and has the two distinct dimensions of perceived responsiveness (the degree to which the advisor is perceived as understanding, caring and validating), and perceived degree of disclosures (perceived depth and breadth of disclosures communicated throughout the interaction).

Rapport and Intimacy Effects on Artifact Evaluations

Rapport has been shown to enhance the quality of social interactions. For example, LaBahn (1996) showed that rapport between a client and an advertising agency, determined by the perceived level of *cooperativeness* and *diligence*, positively impacts customers’ trust in the agency. Similarly, Drolet and Morris (2000) have shown that rapport fosters mutual cooperation in negotiation contexts.

Alternatively, intimacy has been shown to have positive effects on relationship satisfaction (Greeff and Malherbe, 2001), perceived social support (Hobfoll, Nadler, Leiberman, 1986), and happiness (Ryan and Deci, 2001). The effects of self-disclosure have been separately studied

in numerous contexts, where it has been shown to affect the liking and trustworthiness of disclosing individuals (Berg and Archer, 1983), whether the disclosure is communicated by a technological artifact (e.g., Moon, 2000), or towards a technological artifact acting as an interaction partner (e.g., Moon, 2003). For example, Moon (2000) showed that the disclosure-liking hypothesis holds in the context of user-computer disclosures, and that the number, depth and breadth of users' self-disclosure to a computer are governed by the social rules of disclosure-reciprocity and sequence.

In the context of interacting with an e-commerce virtual advisor, we believe that perceived rapport will have positive effects on a number of evaluative beliefs (e.g., perceived ease of use, trust, perceived enjoyment, social presence). For instance, given that a higher level of perceived rapport implies that the user perceives the advisor's actions to be well coordinated with her own, and consistent with findings regarding the negative relationship between coordination and interaction maintenance levels (Finkel et al., 2006), we propose that perceived rapport has a positive effect on perceived ease of use. Similarly, given the established effects of rapport on trust in the context of buying relationships (e.g., LaBahn, 1996) and interaction quality (e.g., Gremler and Gwinne, 2000), we propose that rapport has a positive effect on trust and enjoyment.

P1: Perceived rapport positively affects evaluations of virtual advisors.

Similarly, intimacy will have a positive effect on a number of evaluative beliefs. For instance, because intimacy has been shown to increase satisfaction and happiness (e.g., Ryan and Deci, 2001), we posit that it will have a positive effect on a number of emotional beliefs (e.g., flow).

P2: Perceived intimacy positively affects evaluations of virtual advisors.

Creating Rapport and Intimacy

Decisional guidance refers to "the *degree to which* and the *manner in which* a system guides its users in constructing and executing decision-making processes" (Silver, 1990, p. 57), and can be divided into *suggestive* guidance and *informational* guidance. Suggestive guidance proposes courses of action to the user, while informative guidance provides users with relevant information without indicating how the user should proceed (Silver, 1990). These types of decisional guidance can be communicated through the following three modes (Silver, 2006): 1) *predefined*, where the designer predefines the guidance, 2) *dynamic*, where the guidance is generated by learning dynamically over time, and 3) *participative*, where guidance is generated with the active participation of the decision maker. More recently, Silver (2006) added two new dimensions to his typology

of decisional guidance: 1) timing, where guidance can be *concurrent*, *prospective*, and *retrospective*, and 2) invocation style, where he differentiated between *automatic*, *on-demand* and *hybrid* invocation styles.

In the context of interacting with a virtual advisor, we propose that the mode of communication and timing of decisional guidance will have an effect on perceived coordination. More specifically, we propose that while concurrent guidance will increase users' perceptions of the advisor being in-sync with their informational needs, offering guidance prospectively or retrospectively will lead to perceptions of non-coordination. Similarly, we believe that when the dynamic or participative guidance is offered, the user is likely to exert less effort trying to contextualize the guidance than when predefined guidance is offered, thus, increasing the user's perceptions that the advisor's actions are better coordinated with hers. On the other hand, we also propose that a guidance that is invoked automatically will likely be perceived as more attentive and involved, thus, given rise to perceptions of attentiveness.

P3 (a): Concurrent guidance increases perceived coordination.

P3 (b): Dynamic and participative guidance increase perceived coordination.

P3 (c): Automatic guidance increases perceived attentiveness.

When interacting with online virtual advisors, perceived personalization refers to the extent to which the advisor understands and represents the user's personal needs (Komiak and Benbasat, 2006), and has been shown to be affected by the use of needs-based elicitation mechanisms, where the advisor asks the customer specific questions about the particular types of use she will have for the product instead of asking her to directly specify the desired product attributes. Needs-based elicitation of preferences will increase perceptions of personalized attention and focus, as well as perceptions of the advisor's level of involvement in the interaction, thus, increasing perceptions of its attentiveness. Furthermore, using needs-based elicitation will further increase perceptions of being in-sync with the needs of the customer. Because eliciting the customer's needs is likely to induce the perception that the advisor is attempting to satisfy these needs, the actions of the advisor are likely to be perceived as better coordinated with those of the customer, or the customer's wishes.

P4: Needs-based elicitation of preferences increases perceived coordination.

P5: Needs-based elicitation of preferences increases perceived attentiveness.

The ability of virtual advisors to manifest non-verbal cues has received some attention in HCI research. To do so, the

advisors are typically given a humanoid embodiment ranging from a simple 2-dimensional avatar facial representation (Al-Natour et al., 2005), to a full-bodied 3-dimensional representation (Qiu and Benbasat, 2005). In the latter case, a number of non-verbal behavioral cues can be manifested, such as, head nods, hand and body gestures, as well as different facial expressions. Given the positive effects of smiling and head-nodding on perceptions of positivity and attentiveness, respectively (Hendrick, 1990, Drolet and Morris, 2000), we posit that a virtual advisor that uses smiles and head-nods during its interaction with a user will be perceived as more positive and involved.

P6 (a): Head-nodding increases perceived attentiveness.

P6 (b): Smiling increases perceived positivity.

Non-verbal cues are also hypothesized to affect perceptions of the advisor's responsiveness to self-disclosures that users make when their needs and preferences are elicited. As discussed previously, speakers are more likely to perceive an interaction as intimate if they perceive their partner's communication to be responsive. Responsive communication is understanding, validating, and caring (Reis and Shaver, 1988). In the context of interacting with a virtual advisor that can manifest non-verbal cues, we propose that matching the manifested non-verbal cues to the emotions conveyed through the user's self-disclosures (e.g., sadness, concern, worry), will increase perceptions of the advisor's understanding and validation, and thus, its responsiveness. Furthermore, non-verbal cues can also be used to manifest concern for the user, and thus, increase perceptions of the advisor's caring. For example, if the customer sought advice on which shoes to buy while disclosing that she was diagnosed with a *pes planus* condition (flat foot), the advisor can express concern using a number of non-verbal cues, such as, facial expressions.

P7: Matching non-verbal cues to the emotions conveyed in users' self-disclosures increases perceived responsiveness.

In addition to manifesting non-verbal cues, virtual advisors can be designed to use voice communication (e.g., Al-Natour et al., 2005). When doing so, the virtual advisor will communicate a number of verbal cues, such as, tone of voice and pitch, as well as verbal style, which includes the "choice of words and types of sentences and fluidity of speech" (Isbister and Nass, 2000, p. 253). Such verbal cues have been shown to serve as the basis on which users can form perceptions of an automated advisor's extroversion and friendliness (e.g., Isbister and Nass, 2000). Consistent with these findings, we propose that the verbal cues manifested, namely, verbal style and voice tone and pitch, will affect perceptions of the advisor's friendliness and warmth, and thus, its perceived

positivity. Furthermore, given that voice tone and pitch can be used to manifest certain emotions (Brave and Nass, 2005), such as excitement or concern, which can be matched to the emotions conveyed in the user's disclosures, we also propose that verbal cues affect perceived responsiveness via increased validation and understanding.

P8 (a): Verbal cues affect perceived positivity.

P8 (b): Matching verbal cues to the emotions conveyed in self-disclosures increases perceived responsiveness.

Speech act theory postulates that to communicate is to perform an act (Searle, 1969). For example, by making the statement, "I will call you tomorrow," the speaker commits to a future course of action, which in turn affects the "hearer" (Searle, 1969, p. 24). Hence, by uttering the sentence the speaker says something, does something by speaking, and affects the hearer by what is said (Janson, Woo and Smith, 1993). Speech acts are performed to make factual statements (assertives), to request someone to do something (directives), to make promises and commitments (commissives), to effect change (declaratives), and to express a personal feeling (expressives) (Searle, 1969).

While prior research has investigated how directive speech acts can be used to increase perceptions of a virtual advisor's dominance (Al-Natour et al., 2005), it is proposed that certain types of speech types acts can also be used to affect perceptions of responsiveness. More specifically, we propose that expressive speech acts, which are used to express a certain psychological state by the speaker of the message (Janson et al., 1993), such as apologizing or expressing concern, can be used by the virtual advisor to manifest understanding and caring, and thus, increasing perceptions of the advisor's responsiveness.

P9: The use of expressive speech acts increases perceived responsiveness.

The last design characteristic that we will discuss is that of eliciting and reciprocating disclosures. As discussed earlier, an interaction is more likely to be perceived as intimate when deeper disclosures are made. In the case of interacting with a virtual advisor, we propose that both the frequency and the type (i.e., descriptive, evaluative, or topical) of disclosures made by the advisor will affect the customer's perception of the degree of disclosure, thus, affecting her perceptions of intimacy. However, for such disclosures to affect perceived intimacy, they need to be perceived as appropriate. Thus, we also propose that the perceived appropriateness of the disclosures made (i.e., whether they follow the sequence and reciprocity norms) will moderate the effects of disclosure type and frequency on perceived degree of disclosure.

P8 (a): The type and frequency of disclosures made affect perceived degree of disclosures.

P8 (b): The perceived appropriateness of disclosures moderates the effects of type and frequency of disclosure on the perceived degree of disclosures.

Concluding Remarks

Adopting the view that users perceive their interactions with technological artifacts as social and interpersonal, this paper offers a number of propositions regarding the expected effects, and the design antecedents, of two constructs, namely, rapport and intimacy, within the context of users' interactions with online virtual advisors.

Despite considerable research over the years into both the adoption antecedents of virtual advisors on one hand, and intimacy and rapport on the other, there has yet to exist an intersection of these two streams. Marking a timely attempt to investigate how to create rapport and intimate interactions with virtual advisors, this paper represents a pertinent contribution to theory building in HCI research.

References

- Al-Natour, S., Benbasat, I. and Cenfetelli, R. "The Role of Similarity in e-Commerce Interactions," *Proceedings of the Fourth Annual Workshop on HCI Research in MIS*, Las Vegas, December 2005, 70-74.
- Benbasat, I. and Zmud, R. W. "The Identity Crisis Within The IS Discipline: Defining and Communicating the Discipline's Core Properties," *MIS Quarterly* (27:2), 2003, 183-194.
- Berg, J. H. and Archer, R. L. "The Disclosure-Liking Relationship: Effects of Self-Perception, Order of Disclosure, and Topical Similarity," *Human Communication Research* (10:2), 1983, p. 269.
- Berg, J. H. and Derlega, V. J. "Themes in the Study of Self-Disclosure," in *Self-Disclosure: Theory, Research, and Therapy*, ed. Valerian J. Derlega and John H. Berg, New York: Plenum, 1987, 1-8.
- Brave, S. and Nass, C. *Wired for Speech*. MIT Press, Cambridge, MA, 2005.
- Davis, J. D. "Self-disclosure in an acquaintance exercise: Responsibility for level of intimacy," *Journal of Personality and Social Psychology* (33), 1976, 787-792.
- Drolet, A. L. and Morris, M. W. "Rapport in Conflict Resolution: Accounting for How Face-to-Face Contact Fosters Mutual Cooperation in Mixed-Motive Conflicts," *Journal of Experimental Social Psychology* (36), 2000, 26-50.
- Finkel, E. J., Campbell, W. K., Brunell, A. B., Dalton, A. N., and Scarbeck, S. J. "High-Maintenance Interaction: Inefficient Social Coordination Impairs Self-Regulation," *Journal of Personality and Social Psychology* (91:3), 2006, 456-475.
- Greeff, A. P. and Malherbe, H.L. "Intimacy and marital satisfaction in spouses," *Journal of Sex and Marital Therapy* (27:3), 2001, 247-57.
- Gremler, D. D. and Gwinner, K. P. "Customer-Employee Rapport in Service Relationships," *Journal of Service Research* (3:1), 2000, 82-104.
- Hendrick, C. "The Nature of Rapport," *Psychological Inquiry* (1:4), 1990, 312-315.
- Hobfoll, S. E., Nadler, A., Leiberan, J. "Satisfaction with social support during crisis: Intimacy and self-esteem as critical determinants," *Journal of Personality and Social Psych.* (51:2), 1986, 296-304.
- Isbister, K. and Nass, C. "Consistency of personality in interactive characters: verbal cues, non-verbal cues, and user characteristics," *International Journal of Human-Computer Studies* (53), 2000, 251-267.
- Janson, M., Woo, C. and Smith L. D. "Information systems development and communicative action theory," *Infor. and Management* (25), 1993, 59-72.
- Komiak, S. and Benbasat, I. "The Effects of Internalization and Familiarity On Trust and Use of Recommendation Agents," *MIS Quarterly* (30:4), 2006, 941-960.
- LaBahn, D. W. "Advertiser Perceptions of Fair Compensation, Confidentiality, and Rapport," *Journal of Advertising Research* (36), 1996, 28-38.
- Laurenceau, J., Barrett, L. F., and Pietromonaco, P. R. "Intimacy as an Interpersonal Process," *Journal of Personality and Social Psych.* (74:5), 1998, 1238-51.
- Moon, Y. "Don't Blame the Computer: When Self-Disclosure Moderates the Self-Serving Bias," *Journal of Consumer Psychology* (13:1-2), 2003, 125-137.
- Moon, Y. "Intimate exchanges: Using computers to elicit self-disclosure from consumers," *Journal of Consumer Research* (26), 2000, 324-340.
- Morton, T. L. "Intimacy and reciprocity of exchange: A comparison of spouses and strangers," *Journal of Personality and Social Psychology* (36), 1978, 72-81.
- Nass, C., Isbister, K., and Lee, E. J. "Truth is Beauty: Researching Embodied Conversational Agents," in J. Cassell, J. Sullivan, S. Prevost and E. Churchill (eds.) *Embodied Conversational Agents*, MIT Press, 2000, 374-402.
- Qiu, L. and Benbasat, I. "Online Consumer Trust and Live Help Interfaces: The Effects of Text-to-Speech Voice and Three-Dimensional Avatars," *Intl J. of Human-Computer Interaction* (19:1), 2005, 75-94.

23. Reis, H. T., and Shaver, P. "Intimacy as an interpersonal process," In S. Duck (Ed.), *Handbook of personal relationships* (367-389). Chichester, England: Wiley, 1988.
24. Ryan, R. M. and Deci, E. L. "On happiness and human potentials: a review of research on hedonic and eudaimonic well-being," *Annual Review of Psychology* (52), 2001, 141-166.
25. Searle, J. R. *Speech Acts*, New York, NY: Cambridge University Press, 1969.
26. Silver, M. S. "Decision Support Systems: Directed and Nondirected Change," *Information Systems Research* (1:1), 1990, 47-70.
27. Silver, M. S. "Decisional Guidance: Broadening the Scope," in P. Zhang and D. Galletta *Human-Computer Interaction and Management Information Systems: Foundations* (90-119), Armonk, NY: M. Sharpe, 2006.
28. Tickle-Degnen, L. and Rosenthal, R. "The Nature of Rapport and Its Nonverbal Correlates," *Psychological Inquiry* (1:4), 1990, 285-293.