Behavioral Correlates of Rapport in Survey Interviews

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Abstract: Studies of interviewer effects date back to the earliest days of research on survey interviewing. However, despite considerable attention from the survey research community, the effect of rapport between interviewer and respondent remains a topic of much debate. Some suggest that rapport is good for surveys because it motivates respondents to engage in the interview process, and makes them feel comfortable giving honest answers, even on sensitive questions. Others suggest that rapport is bad for surveys because it causes respondents to ingratiate themselves with interviewers, and motivates them to distort their responses in order to avoid embarrassment. Because of these contradictions, some have concluded that rapport is too difficult to identify and define, and they have called for the demise of rapport as a viable concept for study among survey researchers. However, we believe that contradictory findings are not based on the inadequacy of rapport as a concept for survey research, but rather on an incomplete operationalization of survey rapport. A detailed behavioral analysis of face-to-face survey interviews allows us to identify the verbal and nonverbal behaviors that correlate with survey rapport. In this presentation, we will discuss these behaviors and present preliminary results that describe how these behaviors manifest in high and low rapport interviews. We believe that this behavioral characterization of rapport will be useful for researchers interested in identifying different levels of rapport in survey interviews, and for operationalizing and manipulating it in future empirical studies of the effects of rapport on response behaviors. In future work, we hope to use this detailed understanding of rapport to conduct studies that resolve previous contradictions in the literature, and identify the true relationship between rapport and survey response.

Introduction

As Ken Prewitt, a political scientist and former director of the US Census, forcefully argued in a recent keynote address, modern democracy depends most centrally on information from citizens. Many believe that it is much more desirable for citizens to willingly provide information rather than have information collected from them without their consent (e.g., by tracking credit card usage, travel reservations, police and hospital records, etc.). While we once had to rely on face-to-face polling to collect public data, since the 1960s survey researchers have leveraged widespread telephone coverage and developed a variety of techniques to collect information via telephone polls. However, the modern proliferation of mobile telephones is making it increasingly difficult to depend upon telephone interviews to collect survey data. Telephone numbers no longer serve as a valid index of regional location and cannot be relied upon for survey sampling (Holbrook, Green, & Krosnick, 2003). As a result, survey researchers are turning to the HCI community for other alternatives, including web-based systems, to supplement or even replace more traditional data collection modes.

One such system may be virtual human survey interviewers. Currently, web-based surveys have low response rates, making it difficult to collect high-quality data via the Internet (Couper, 2000). However, new technologies, such as virtual human survey interviewers, may be the key to improving web-based data collection. Recently, several researchers have begun to investigate the use of virtual humans in survey interviewing (Conrad & Schober, 2008; Couper, Tourangeau, & Steiger, 2001; Tourangeau, Couper, & Steiger, 2003). Preliminary evidence suggests that these technologies increase the chances that respondents will agree to participate in and complete a survey, and increase the likelihood that they will give honest, accurate responses, even to sensitive questions (Foucault, Aguilar, Cassell, & Miller, 2008; Tourangeau et al., 2003).

However, in order for virtual human survey interviewers to be truly effective, much work must be done to understand how virtual humans should interact with real human respondents in order to ensure high quality responses. Previous research has shown that virtual humans fail when their behaviors do

not conform to social expectations (Bickmore & Cassell, 2005; Moon, 2000). Appropriate social behavior may be especially important in the case of survey interviewing, where there is considerable evidence that the behavior of an interviewer can affect whether or not respondents will consent to answer survey questions, and whether or not they will answer accurately and honestly once they consent (for a review see, Tourangeau, Rips, & Raskinski, 2000). Most importantly, rapport between interviewer and respondent is widely believed to have dramatic effects on response rates and quality. (Cassell & Miller, 2007; Holbrook et al., 2003). Surprisingly though, there is little consensus about exactly what survey rapport is, or how rapport between interviewers and respondents affects survey responding (Foucault et al., 2008).

Therefore, in order to create effective virtual human survey interviewers, we will:
1. Develop a detailed behavioral model of survey rapport by analyzing the verbal and non-verbal behaviors of highly trained real human survey interviewers;
2. Use that model to drive the performance of a virtual human interviewer in order to systematically test the effect of rapport survey response quality; and
3. Compare the performance of virtual human survey interviewers to other survey interviewing technologies, such as web forms, in order to understand how rapport, or elements thereof, may be used to influence response behaviors across a wide variety of platforms.

The current work focuses on the first step outlined above.

Theoretical Background

Among the oldest debates in survey research, the effect of rapport in survey interviews is notoriously ambiguous and difficult to study empirically. Broadly, rapport is described as a feeling experienced during an interaction that may be marked by a sense of connection, mutual comfort, and ease of conversational coordination (Capella, 1990). In survey interviews, where we focus mainly on respondent perceived rapport, it has been described by respondents as feeling "good chemistry" or being "in tune" with the interviewer (Gremier & Gwinner, 2000).

Because rapport may lead to increased coordination or cooperation between interviewers and respondents, it is considered to be important for survey interviews (Cassell & Miller, 2007; Holbrook et al., 2003). However, despite significant attention from the survey research community, the effect of rapport on response behavior remains a topic of considerable debate. Some researchers suggest that a sense of rapport between interviewer and respondent is good for survey interviews because it reduces response bias by motivating respondents to engage in the interview and give thoughtful, honest responses, even on sensitive questions (Benney, Riesman, & Star, 1956 1956; Holbrook et al., 2003; Schuman & Converse, 1971). But, others suggest that rapport is bad for survey interviews because it causes respondents to ingratiate themselves to interviewers and give biased answers, especially on sensitive questions (Hill & Hall, 1963; Weiss, 1968). Still others have found that it has no effect – respondents behave similarly with interviewers they feel rapport with and with interviewers they do not (Hensen, Cannell, & Lawson, 1977).

A careful review of literature from across the debate suggests an explanation for these contradictory findings. Previous research has considered rapport to be a unified concept that has one effect on survey responding. That is, researchers have assumed that rapport is either "all good" or "all bad" for survey response rates and validity. We believe that there are at least two problems with this assumption. First, it appears as if different studies of rapport in the survey literature are rarely testing the same concept. Goudy and Potter noted that some studies see rapport as, "creating respondent motivation while others view rapport mainly as generating free and frank answers [and] still others see rapport as harmonious relations or friendliness" (Goudy & Potter, 1975). While they viewed these contradictory definitions as evidence of the inadequacy of rapport as a concept, we believe this is a reflection of researchers' incomplete understandings of rapport at that time. Drawing from literature on survey interviewing, as well as literature from related fields such as communication, linguistics,

psychology and behavioral studies, we have identified eight observable behavioral correlates of rapport that may be associated with survey response quality. Using a detailed behavioral analysis approach, we will analyze interactions between real human interviewers and respondents and identify which of these correlates affects response rates and quality. This approach will yield a definition of survey rapport that is significantly more detailed than ever before, offering insight not only into survey rapport as a concept, but also serving as the basis of a model of rapport that will be suitable for use with virtual human survey interviewers.

The second major gap in previous survey rapport research is a methodological one. Even in cases where researchers have studied the same rapport concept, until now, it has been nearly impossibly to reliably measure and manipulate rapport as an independent variable. Good studies of rapport rely on small verbal and non-verbal behavior manipulations - something that is very difficult for humans to execute consistently. In surveys, even the best-trained human interviewers may behave somewhat differently from interview to interview, making comparisons of the effect of rapport on interview outcomes unreliable. However, using virtual humans, we can precisely control interview behaviors, allowing for experimental manipulations that have never been possible before. Therefore, virtual human survey interviewers not only represent a promising new data collection opportunity, but also are an exciting new experimental research platform for the survey community.

Research Plans

Our research will take place in three phases. First, we are currently working with the University of Michigan's Institute for Social Research to identify two sets of professional interviewers who administer the National Survey of Family Growth (NSFG), a nation-wide survey that gathers information on family life, reproductive health, and sexual history. The first set of interviewers (n=2) consistently achieves high response rates and frequent reports of sensitive behaviors (such as having an abortion). The second set (n=2) achieves significantly lower response rates and infrequent reports of sensitive behaviors. We will make video tapes of these interviewers conducting NSFG interviews, and code the tapes for the following eight rapport correlates: demographic similarity, interactivity, interviewer's body position, postural mimicry, interviewer's gaze, smiling, positive feedback, smiling and laughter. Since it is widely assumed that interviewers who have "good" rapport with respondents achieve high response rates and sensitive behavior reports, while interviewers with "bad" rapport with respondents achieve low response rates and sensitive behavior reports (Holbrook et al., 2003), we expect that comparing the two sets of interviewers will allow us to distinguish which of these eight rapport correlates improve response rates and quality most significantly. Pilot results indicate that both sets of interviewers engage in the same types of behaviors, but with different frequencies. For example, the high response rate interviewers appear to spend more time facing and smiling at respondents, give more verbal and nonverbal feedback, and spend less time making eye contact, especially when listening to responses to sensitive questions.

Implications

The findings from this study will be critical for developing realistic and effective virtual human survey interviewers. Once a model of good survey rapport is fully elaborated, we can use that model to drive the behavior of a virtual survey interviewer. In the second step of our research, we will implement the model of good rapport behavior in a virtual human interviewer. There is considerable evidence in the social agents literature that people orient to virtual humans in much the same way they orient to real humans (Bickmore & Cassell, 2005; Cassell & Miller, 2007; Reeves & Nass, 1996). Therefore, when our virtual interviewer administers interviews, we expect that she will elicit similar response behaviors as the best real human interviewers on which she was modeled. If this proves true, it may be possible to deploy our virtual interviewer to collect high-quality survey data on many different topics from a wide variety of respondents. Moreover, in the future, we may be able to use virtual agents like ours to collect information from people in a variety of other domains including health care, education, and counseling.

In addition to informing the design of virtual human survey interviewers, the results of this study may also help resolve the theoretical debate over how rapport between interviewer and respondent affects survey response quality. Our research will provide a detailed utterance-by-utterance analysis of how rapport behaviors affect responses to specific survey questions, different types of questions, and surveys in general. Further, because it is easy to precisely manipulate the verbal and non-verbal behaviors of virtual humans, it will be possible to experimentally test how minor behavioral variations affect responding. So, this research will provide both correlational and causal evidence to inform a general theory of how interviewer behavior affects survey response.

Finally, fundamentally, this research is about how computing systems can be designed to develop rapport with humans. The third phase of this research, in particular, will offer insight into how models of rapport can be applied to many different computing platforms. Although our work will focus on the domain of survey interviewing, the results of this investigation may have implications the design of many different types of socially interactive computing systems.

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