The lab versus the virtual lab and virtual field—An experimental investigation of trust games with communication

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ABSTRACT

We study trust games in a virtual world environment and contrast results with laboratory studies, with and without personal interaction enabled by the virtual world platform. Particular attention is given to the motives that drive behavior in the various environments and to issues that are context dependent, particularly communication and social distance. We find that allowing for personal interaction through a virtual world interface increases the amount sent relative to laboratory results, but that subjects recruited in the virtual world give and return less than the laboratory control group with the same virtual world interface.

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1. Introduction

Academic debates on the merits of the laboratory versus the field have contrasted the relatively greater control in the lab with the better realism and context of the field (e.g., Harrison and List, 2004; Levitt and List, 2007a,b, 2009). The emergence of the virtual world as an environment where tens of thousands of residents interact provides a possible compromise in that it gives the researcher reasonable control while allowing for interaction in an environment familiar to virtual world residents (Bainbridge, 2007; Bloomfield, 2007; Castronova, 2001). In particular, it might be useful to replicate known experiments in a virtual environment (e.g., Chesney et al., 2007; Spann et al., 2008) while taking advantage of environmental features not previously available in laboratory experiments (Bainbridge, 2007). A particularly important feature of virtual worlds in our view is the ability to have virtual face-to-face communication without compromising real-world anonymity.

We study trust games in such an environment and contrast results with lab studies, with and without the virtual world platform. Particular attention is given to issues that are context dependent: communication, both personal and impersonal,

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and social distance as measured by group orientation and perceptions. We find that allowing for personal interaction through the use of a virtual world interface increases both the amount sent and the percentage returned relative to a faceless lab study. We further find that subjects recruited in the virtual world give and return less than subjects sitting in the lab and interacting through the virtual world interface. Particular attention is given to the motives that drive such behavior—including trust, reciprocity, cooperation, and utilitarian motives.

A persistent state virtual world is a computer-mediated environment which simulates the real-world, in which human participants interact, but which continues to exist independent of the human players (Bloomfield, 2007). In this work, we use a virtual world known as *Second Life* for our experiments. Second Life is not the largest virtual world. To date, *World of Warcraft* is the largest virtual world (for a nice dictator game study in World of Warcraft, see Spann et al., 2008). Second Life may be better suited for some types of research (Bainbridge, 2007; Bloomfield and Rennekamp, 2008). According to Bainbridge (2007), Second Life is especially ideal for experiments in social and cognitive sciences, because the researcher can construct a facility comparable to a real-world laboratory and recruit research subjects. Bloomfield (2007) argues that Second Life is ideal for research due to its rich economy, naturally evolving markets, and active commerce. The first economic study of virtual world economies and markets is by Castronova (2001), involving the virtual world of Norrath. At the time, Norrath was the most market-oriented virtual environment. Today, Second Life is the most widely covered virtual world in the business press, with numerous S&P500 companies, including IBM, Sun, and Nike establishing presence online. Other examples of business applications in virtual worlds are hotels that allow their customers and business partners to walk through the virtual hotel, thus providing useful and inexpensive feedback, clothing companies that enable customers to try out clothes and furniture based on their avatar's specifications, as well as intercultural sensitivity simulations (Piller and Salvador, 2007).

Over 150 educational institutions own land, hold events or collaborate in Second Life. Companies and universities use it to test concepts and designs, conduct work meetings, seminars, lectures, recruiting, advertising and any kind of collaborative activity. It has a functioning and active stock exchange and numerous businesses that sell virtual and real products and services to residents. Second Life users come from all walks of life and are there for various reasons, including socializing and role play. Many of the residents spend a sizable portion of their time in the virtual world, own or rent virtual real estate and many have virtual jobs.

According to Linden Lab (2008), of the 500,000 active users 41 percent are female and 59 percent are male. Active users reside in over 100 different countries with approximately 60 percent from the United States, United Kingdom, Germany, Japan and France, combined. The largest age group (34 percent) of active users is in the 25–34 years old range, but 20 percent of all in-world hours are spent by the people over 45 years old. Thus Second Life offers a participant pool with a wider range of demographic characteristics as well as more experience with virtual face-to-face communication than the average college student subject pool.

Virtual worlds are ideally suited to the study of communication and social distance since individuals can communicate and conduct interpersonal exchanges in an interactive communication environment. It is possible to create a wide range of verbal and nonverbal interpersonal messages which offer more possibilities for sending social cues than other electronic communication without compromising anonymity (Biocca, 1996). There is virtually no academic research on the effects of avatar-based communication on strategic behavior in games or comparing lab participants and virtual world residents. The purpose of the present work is thus to investigate the effects of avatar-based strategically irrelevant cheap-talk communication on behavior in the trust game, taking into account the influence of social distance and different subject pools.

Cheap talk has been shown important for economic behavior—particularly in increasing the incidence of cooperative outcomes (Charness and Dufwenberg, 2006). Few studies look at the impact of strategically irrelevant communication on behavior in games and the findings are mixed. Dawes et al. (1977) find hardly any effect, but Roth (1995), in bargaining games, Buchan et al. (2006) and Fiedler (2009), in trust games, find that strategically irrelevant cheap talk has a positive effect on cooperation.

A related line of research concerns anonymity and social distance. Charness and Gneezy (2008) show that anonymity can increase selfishness, whereas Dufwenberg and Muren (2006) suggest that anonymity may at times reduce selfishness. The main effect of anonymity, according to both of these works, is to increase social distance, which in turn impacts behavior and preferences towards others. With avatar-based interaction, real-world anonymity is maintained in that participants do not know the real-world identities of those they interact with. Moreover, with participants recruited in the virtual world, they are likely to be from geographically distant locations, hence farther increasing social distance (Charness et al., 2007).

In the present study, participants communicate face-to-face, where the faces are virtual. To the extent that virtual faces matter, social distance may be reduced. Face-to-face interaction seems to be important to collaborative interpersonal relationships (Jarvenpaa and Leidner, 1999; Nardi and Whittaker, 2002; Nohria and Eccles, 1992; O'Hara-Devereaux and Johansen, 1994). Although computer-mediated communication leads to higher cooperation levels than no communication, it usually produces weaker cooperation than that of face-to-face communication (Bochet et al., 2006; Brosig et al., 2003; Duffy and Feltovich, 2002; Frohlich and Oppenheimer, 1998; Jensen et al., 2000). Other works have argued that computer-mediated communication may help individuals to communicate more clearly than face-to-face communication since the interference of many stigmatized features can be reduced (Sheeks and Birchmeier, 2007). The concept of computer-mediated face-to-face interaction via a virtual world may provide a hybrid that allows for features from both environments.