

Chapter I

The Ape that Used E-Mail: An Evolutionary Perspective on E-Communication Behavior

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ABSTRACT

This chapter reviews theoretical research on e-communication behavior, identifying two main types of theories: technological and social. Based on this review, it provides the rationale for the development of a new theory that is neither technological nor social. The new theory is based on evolution theory, whose foundations were laid out by Darwin. Three theoretical principles are developed from evolution theory: media naturalness, innate schema similarity, and learned schema variety. The chapter concludes by illustrating how the theoretical principles can be used as a basis for the development of a simple predictive model in the context of an online broker.

INTRODUCTION

Given the title of this chapter, it is prudent to begin it with a clarification. This chapter is not about a chimpanzee or gorilla that used e-mail. It is about a much more modest (no chimpanzee

or gorilla has ever been shown to have been able to speak intelligently, much less send and receive e-mail) yet important topic, namely the multimillion-year development of our biological apparatus for communication and how it affects electronic communication (e-communication) behavior.

Defining E-Communication and E-Communication Behavior

The *e* in *e-communication* stands for *electronic*, so the term e-communication refers to, essentially, any form of computer-mediated communication plus more traditional forms of electronic communication, such as telephone communication (since the telephone is also an electronic device). The term e-communication includes computer-mediated communication over the Internet as well as over other computer network infrastructures, thus also including computer-mediated communication that takes place through group decision-support systems and local-area-network-based communication tools.

E-communication behavior refers to the behavior of users toward e-communication technologies. For example, it has been shown that individuals in groups engaged in knowledge-intensive tasks and interacting primarily over e-mail tend to take 5 to 15 times longer on average to prepare and make individual contributions (i.e., electronic postings) than if they were interacting face to face only (Kock, 1998, 1999, 2005). In this case, what could be called “decreased contribution speed,” with contribution speed being measured in words per minute, is a component of e-communication behavior, or the behavior of the users toward e-mail. Behavior toward e-communication tools is described in two main ways: (a) by contrasting the behavior of people using e-communication tools with the behavior of people in the absence of e-communication tools (i.e., interacting face to face), and (b) by contrasting the behavior of people using e-communication tools that incorporate different elements (e.g., asynchronous vs. synchronous electronic conferencing).

E-communication has its roots in the 1960s, when the first e-mail systems emerged, largely running on mainframe computers. In those early days, only a tiny minority, largely made up of people who spent their working days in front of a computer screen, used computers for communica-

tion (Sproull & Kiesler, 1991). For the majority of people, face-to-face (FtF) conversation, telephone calls, and paper-based documents were the communication media of choice.

The interconnection of mainframes, followed by desktop computers, through networks and the Internet, has changed the above picture dramatically, making e-communication an alternative choice for many business and social interactions. Significant technological innovations made this choice even more attractive, such as the group sense fostered by features of computer conferencing systems, the synchronicity and facilitation features of group decision-support systems, and virtual-presence features of video-enhanced media spaces, which were made feasible by extensive applied research as well as the advent of cheaper technology and increasing bandwidth and connectivity.

Increased use of e-communication media has led to demands from business and government for a better understanding of e-communication behavior. These demands were met by intensive empirical and theoretical research in the 1980s and 1990s, which have led to the development of several theories that can be classified into two main groups—technological and social—theories that have been essentially in a tug-of-war for many years. Technological theories have been traditionally deterministic in the sense that they have tried to provide a basis for predicting e-communication behavior based on a finite number of variables. Social theories have in many cases been developed to overcome limitations of technological theories, claiming that technological theories are oversimplified. Nevertheless, social theories have been, more often than not, unable to provide a useful basis on which to predict e-communication behavior. While technological theories provide a simplified view of e-communication, usually focusing on communication media and collaborative tasks as predictive factors, social theories try to understand e-communication as a social and very complex phenomenon, and often

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