Persuasion Theories and IT Design

Marja Harjumaa and Harri Oinas-Kukkonen

Department of Information Processing Science, University of Oulu
Linnanmaa, FIN-90570 Oulu, Finland
{Marja.Harjumaa,Harri.Oinas-Kukkonen}@oulu.fi

Abstract. A growing number of information technology systems and services are being developed for persuasive purposes, i.e. to change users' attitudes or behaviour or both. This paper proposes a taxonomy of general persuasive approaches, with interpersonal, computer-mediated and human-computer persuasion as the key types. It also recognizes and briefly describes related theories from social psychology, namely information processing theory, cognitive consistency theory, the elaboration likelihood model and Cialdini's influence techniques.

Keywords: Design, human factors, persuasive technology, persuasive systems, information systems, human-computer interaction.

1 Introduction

Persuasion may be defined as an attempt to change attitudes or behaviours or both without using coercion or deception [3]. Attitude has been described as the single most important concept in social psychology [5], and as one of the fundamental concepts of persuasion. Theories basically suggest that a person's attitudes towards behaviour and subjective norms indicate how that person will act in a situation [4].

A key element in *attitude change* is *persuasion*. Persuasion has traditionally been regarded as a communication process in which a persuader sends a persuasive message to a persuadee or audience with the intention of changing the recipient's attitudes or behaviour, although always leaving the persuadee with the power of decision [4]. The most intensively studied aspects of traditional persuasion have been the source, message and receiver features that are likely to bring about such a change in the receiver's attitudes. The persuasion process can lead to three possible behavioural outcomes [5]: a response-shaping outcome, a response-reinforcing outcome, and a response-changing outcome. It is important to recognize these outcomes, because different goals may imply the use of differing persuasion strategies, although this source-oriented research tradition has been criticized as being too simple and narrow [6].

As persuasion tries to alter the way others think, feel, or act, it is a form of attempted *influence*. There are also other forms of attempted influence, however, like material *inducements* and *coercion* (see Fig. 1), which differ from *persuasion*. Material inducements are exchanges of money or other such things for actions by the person being influenced [4], while coercion implies force and economic sanctions,

Y. de Kort et al. (Eds.): PERSUASIVE 2007, LNCS 4744, pp. 311–314, 2007.

whereas persuasion relies on the power of verbal and non-verbal symbols and allows people voluntary participation in the persuasion process [3], [5]. Pop-up windows that always lead to the same outcome (e.g. downloading a file) whether you choose "ok" or "cancel" can be considered coercive rather than persuasive.

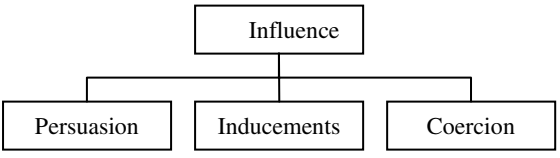

Fig. 1. Forms of influence

Since persuasion is defined as changing the attitudes and/or behaviour of others, the persuader is often trying to convince the persuadee of something. Drawing the line between convincing and persuasion may be difficult in practice. A rule of thumb is, however, that persuasion relies primarily on symbolic strategies that trigger *emotions* in persuadees, while conviction relies primarily on strategies based upon logical proof that appeal to persuadees' *reason and intelligence* [5].

2 Types of Persuasion

There are differences between interpersonal persuasion, computer-mediated persuasion and human-computer persuasion (see Fig. 2).

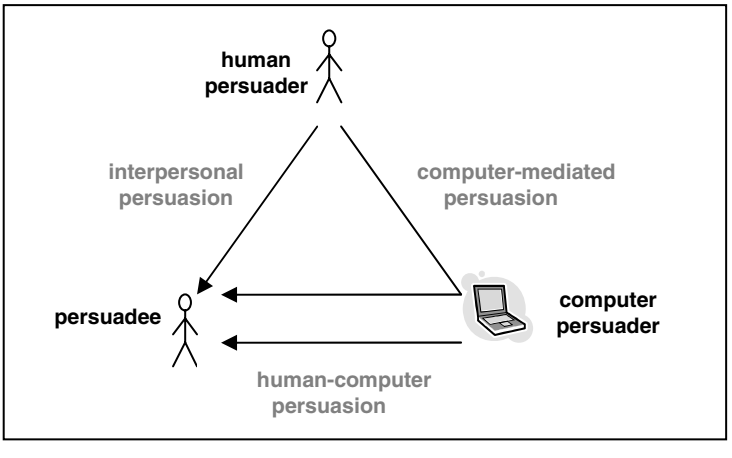

Fig. 2. Three types of persuasion.

Interpersonal persuasion occurs when two or more people interact with each other. Interpersonal communication involves verbal and non-verbal forms of behaviour, personal feedback, coherence of behaviour and an intent to change the attitudes and/or behaviour of other(s) [7].

People may persuade also others through e-mail, instant messages, or other computer technologies, i.e. through computer-mediated communication, so that this may be called *computer-mediated persuasion*. Social scientists have been particularly interested in studying the impact of the Internet and other computer technologies on social behaviour [8]. An example of this would be if someone reads a blog (weblog) and is persuaded by arguments that it presents.

Persuasive technology is not about computer-mediated communication, but rather about human-computer interaction, defined as the study of how people are persuaded when interacting with computer technology [3]. This is referred to here as *human-computer persuasion*. Human-computer persuasion also differs from other persuasion types in that it is not always clear who is the persuader. As computers do not have intentions of their own, those who create, distribute, or adopt the technology have the intention to affect someone's attitudes or behaviour. These intentions can be described as endogenous, exogenous or autogenous [3]. Although computers cannot communicate in the same way as humans, recent studies suggest that some patterns of interaction similar to social communication are possible in human-computer interaction [9], [10]. For example, the interaction between a personalized Web agent and a user can be considered persuasive communication [1]. However, as persuasive technology products are purposely designed in order to persuade [3], the use of e-mail and instant messages, which may well be involved in computer-mediated persuasion, is not part of human-computer persuasion.

3 Related Theories

According to McGuire [11], the basic approaches to the persuasive communication process are information processing theory, consistency theory, the perceptual approach and the functional approach, of which the first two have given rise to many studies and theoretical advancements. Information processing theory treats the persuadee as an information processor, and the basic idea is that to be persuaded, a person has both to receive and understand the message and to accept or yield to it [6]. The key idea of cognitive consistency is that people like their views about the world to be organized and consistent, while psychological inconsistency disturbs people and they feel obliged to reorganize their thinking and restore consistency [4], [6].

In addition to the information processing and cognitive consistency theories, the Elaboration Likelihood Model and the influence techniques suggested by Cialdini belong to promising approaches. Elaboration Likelihood Model [2] is a general theory of attitude change, in which the fundamental idea is that there are two routes to persuasion, a central and a peripheral route. An individual who carefully evaluates the content of the persuasive message may be persuaded by the central route, while an individual who is less thoughtful and uses a simple cue (e.g. the source or length of the message) or a rule of thumb (e.g. "more is better", "experts can be trusted", "consensus implies correctness") for evaluating the information may be persuaded through the peripheral route. Cialdini [12] identifies six influence techniques that explain people's tendencies to comply with a request: reciprocation, commitment and consistency, social proof, liking, authority and scarcity.

4 Conclusions

This paper has proposed a taxonomy of persuasion approaches. In addition to traditional interpersonal persuasion, two types of computer-based persuasion are described: computer-mediated and human-computer persuasion. Persuasive technology refers to the latter. We have also recognized attitude change theories from social psychology which can be applied to information systems design, including information processing theory, cognitive consistency theory, the Elaboration Likelihood Model and Cialdini's influence techniques. The application of theories from social psychology to systems design seems a very promising research area, but directly applicable theories and conceptualizations will be needed.

References

1. Tam, K.Y., Ho, S.Y.: Web Personalization as a Persuasion Strategy: An Elaboration Likelihood Model Perspective. Information Systems Research 16(3), 271–291 (2005)
2. Petty, R.E., Cacioppo, J.T.: Communication and Persuasion: Central and Peripheral Routes to Attitude Change. Springer-Verlag New York Inc, New York (1986)
3. Fogg, B.J.: Persuasive Technology: Using Computers to Change What We Think and Do. Morgan Kaufmann Publishers, San Francisco (2003)
4. Simons, H.W., Morreale, J., Gronbeck, B.: Persuasion in Society. Sage Publications, Inc, Thousand Oaks London, New Delhi (2001)
5. Miller, G.R.: On Being Persuaded: Some Basic Distinctions. The Persuasion Handbook: Developments in Theory and Practice, edited by Dillard, J.P., Pfau, M.(2002)
6. Fraser, C., Burchell, B., Hay, D.: Introducing Docial Psychology. Polity, Cambridge (2001)
7. Wilson, E.V.: Perceived Effectiveness of Interpersonal Persuasion Strategies in Computer-Mediated Communication. Computers in Human Behavior 19(5), 537–552 (2003)
8. Guadagno, R., Cialdini, R.: Online Persuasion and Compliance: Social Influence on the Internet and Beyond. In: Amichai-Hamburger, Y. (ed.) The Social Net: Understanding Human Behavior in Cyberspace, Oxford University Press, Oxford (2005)
9. Nass, C., Steuer, J., Tauber, E.R.: Computers Are Social Actors. In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems: Celebrating Interdependence, Boston, Massachusetts, United States, April 24-28, pp. 72–78 (1994)
10. Fogg, B.J., Nass, C.: Silicon Sycophants: the Effects of Computers that Flatter. International Journal of Human Computer Studies 46(5) (1997)
11. McGuire, W.J.: Persuasion, Communication, language, and meaning. Psychological Perspectives, edited by Miller, G.A. Basic Books, New York (1973)
12. Cialdini, R.B.: Influence - Science and Practice. HarperCollins Publishers, New York (1988)