Double Bind Situations in Man-Machine Interaction under Contexts of Mental Therapy

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Abstract. This paper suggests some potential negative effects resulting from the application of artificial intelligence to mental therapy. In particular, it focuses on the relations between cultural trends of mental health and the clients’ personal traits in mental therapy, and considers the therapeutic effects of robots and software agents based on the theory of double bind situations. Moreover, it reports a current research plan.

1 Introduction

Recently, the application of artificial intelligence (AI) to mental therapy has been studied [1,2]. The ultimate goal of this research is the substitution of therapeutic animals in animal therapy with pet robots, autonomous self-control learning by clients through interaction with intelligent software agents, construction of novel therapeutic methodology, and so on. In Japan, in particular, the decreasing worker population, increasing number of elderly, and the recognized necessity for more sufficient welfare and mental health support have been referred to as the background for these studies.

Our previous research suggested that the artificial emotions of therapeutic robots and software agents may impact negatively on clients of mental therapy from the perspectives of social psychology, sociology of emotions, narrative therapy, and sociology of health and illness [3,4]. However, the use of computers and robots in the context of mental therapy itself can influence some clients in the modern cultural trend of mental health, regardless of the existence of emotional systems in the therapeutic agents and robots.

This paper deals with the deeper relations between the cultural trends of mental health and the clients’ personal traits in mental therapy using software agents and robots, that is, the relations between “psychologism” and anxiety traits for computers and robots. We then suggest that clients of mental therapy using artificial intelligence may be forced into a kind of double bind situation [5]. Finally, we introduce our current research plan to investigate our assumption on the double bind situations of mental therapy clients.
2 Anxiety for Computers and Robots

The concept of computer anxiety means anxious emotions that prevent humans from using and learning computers in educational situations and daily life \[6,7\]. Anxiety can generally be classified into two categories: state and trait anxiety. Trait anxiety is a kind of personal characteristics that is stable in individuals. State anxiety can be changed depending on the situation and time, and computer anxiety is classified into this category. From the perspective of education, computer anxiety in individuals should and can be reduced by educationally appropriate programs, and several psychological scales for its measurement have been developed \[6,7\].

On the other hand, from the perspective of mental therapy, computer anxiety can influence the therapeutic effect of software therapy using artificial intelligence. If the client’s computer anxiety is high, it can prevent interaction with the therapeutic software agents even if the agents are designed based on theories of mental therapy. Of course, communication anxiety should be considered even in therapy with human therapists \[8\]. However, it can be reduced during the therapy process by the therapist’s careful treatment. It is not clear whether computer anxiety can be reduced during the therapy processes by software agents. Thus, anxiety should either be reduced before therapy proceeds or another person should assist clients in interacting with the software agents during the therapy process.

Similar emotions of anxiety should also be considered in robotic therapy. Robotic therapy may be different from therapy using software agents in the sense that robots have concrete bodies and can influence client’s cognition. Thus, anxiety with robots may be different from computer anxiety. However, it should be considered that anxiety may be caused by highly technological objects and communication with them. In this sense, anxiety with robots is a complex emotion of computer anxiety and communication anxiety \[9\].

3 Psychologism

The cultural trend called “psychologism” refers to a trend in modern society where psychiatric symptoms in individuals are internalized although they may be caused by social structures and cultural customs, and, as a result, the root social and cultural situations that need to be clarified are concealed. The Japanese sociologist S. Mori focused on psychologism in discussing the extreme self–control of people in modern society \[10\]. His theory is based on the theory of feeling rules by Hochschild \[11\] and the theory of McDonaldization of Society (rationalization) by Ritzer \[12\].

The theory of feeling rules argues that people in modern society control not only outer expression but also inner evocation and suppression of their emotions according to specific rules corresponding to given social situations, and extreme emotion management in service industries causes the alienation of workers, such as flight attendants \[11\]. Moreover, the theory of McDonaldization of...