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Analysis of the therapeutic interaction provided by a humanoid robot serving stroke survivors as a therapeutic assistant for arm rehabilitation

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Objective: To characterize a socially active humanoid robot's therapeutic interaction as a therapeutic assistant when providing arm rehabilitation (i.e., arm basis training (ABT) for moderate-to-severe arm paresis or arm ability training (AAT) for mild arm paresis) to stroke survivors when using the digital therapeutic system Evidence-Based Robot-Assistant in Neurorehabilitation (E-BRAIN) and to compare it to human therapists' interaction.

Methods: Participants and therapy: Seventeen stroke survivors receiving arm rehabilitation (i.e., ABT [$n = 9$] or AAT [$n = 8$]) using E-BRAIN over a course of nine sessions and twenty-one other stroke survivors receiving arm rehabilitation sessions (i.e., ABT [$n = 6$] or AAT [$n = 15$]) in a conventional 1:1 therapist-patient setting. Analysis of the therapeutic interaction: Therapy sessions were videotaped, and all therapeutic interactions (information provision, feedback, and bond-related interaction) were documented offline both in terms of their frequency of occurrence and time used for the respective type of interaction using the instrument THER-I-ACT. Statistical analyses: The therapeutic interaction of the humanoid robot, supervising staff/therapists, and helpers on day 1 is reported as mean across subjects for each type of therapy (i.e., ABT and AAT) as descriptive statistics. Effects of time (day 1 vs. day 9) on the humanoid robot interaction were analyzed by repeated-measures analysis of variance (rmANOVA) together with the between-subject factor type of therapy (ABT vs. AAT). The between-subject effect of the agent (humanoid robot vs. human therapist; day 1) was analyzed together with the factor therapy (ABT vs. AAT) by ANOVA.

Main results and interpretation: The overall pattern of the therapeutic interaction by the humanoid robot was comprehensive and varied considerably with the type of therapy (as clinically indicated and intended), largely comparable to human therapists' interaction, and adapted according to needs for interaction over time. Even substantially long robot-assisted therapy sessions seemed acceptable to stroke survivors and promoted engaged patients' training behavior.

Conclusion: Humanoid robot interaction as implemented in the digital system E-BRAIN matches the human therapeutic interaction and its modification across therapies well and promotes engaged training behavior by patients. These

Therapeutic Interaction Volume 2

Robert Langs



Therapeutic Interaction Volume 2:

The Therapeutic Interaction Robert Langs, 1976 *The Therapeutic Interaction* Robert Langs, 1976 **Hidden Conversations** David Livingstone Smith, 2018-05-08 Hidden Conversations introduces Robert Langs radical reinterpretation of psychoanalysis by presenting and expanding his ideas in new and accessible ways. It is the first clear account of the theories underlying Langs' approach, placing them within the context of the history of psychoanalysis and showing, for example, that Freud nearly discovered the communicative approach in the late 1890s and that in the 1930s Ferenczi also anticipated the method. David Livingstone Smith illustrates this communicative approach with a wealth of practical detail and clinical examples, including verbatim accounts of communicative psychoanalytical sessions with a commentary on the unconscious processes underlying them.

Relational Psychoanalysis, Volume 2 Lewis Aron, Adrienne Harris, 2013-04-15 The relational turn has transformed the field of psychoanalysis with an impact that cuts across different schools of thought and clinical modalities. In the six years following publication of Volume 1 *Relational Psychoanalysis: The Emergence of a Tradition*, relational theorizing has continued to develop, expand, and challenge the parameters of clinical discourse. It has been a period of loss with the passing of Stephen A. Mitchell and Emmanuel Ghent, but also a period of great promise marked by the burgeoning publication of relational books and journals and the launching of relational training institutes and professional associations. Volume 2 *Relational Psychoanalysis: Innovation and Expansion* brings together key papers of the recent past that exemplify the continuing growth and refinement of the relational sensibility. In selecting these papers, Editors Lewis Aron and Adrienne Harris have stressed the shared relational dimension of different psychoanalytic traditions, and they have used such commonalities to structure the best recent contributions to the literature. The topics covered in Volume 2 reflect both the evolution of psychoanalysis and the unique pathways that leading relational writers have been pursuing, and in some cases, establishing.

Science, Systems and Psychoanalysis Robert Langs, 2018-05-30 This book has been written for a broad audience. It is addressed to anyone who is at all concerned with a scientific grounding for the art of psychotherapy and psychoanalysis and for the understanding of the human mind and its outputs via emotionally charged communication. The book begins by establishing the need for a formal science of psychoanalysis and then presents the distinctive features of the communicative approach that moved it towards the creation of that science.

Manufacturing Insanity - Vol. 2 - Dangerous Knowledge / The Next Religious War Eva Moser, 2013-06-01 The treatment of transsexuals turns medicine into a system of well-organized prejudice, cruelty, and mistreatment. Patients are abused while the perpetrators are convinced that this is necessary good treatment. In volume II of *Manufacturing Insanity*, Eva contrasts generally accepted views of transsexuality with her own and interprets both views on the background of current medical practice. Eva then proposes a new model for gender and transsexuality and examines why any better or reasonable approach must be unacceptable to current medical practice. In the last part, Eva proposes a better system for the delivery of medical services, one that does not

leave anybody behind one that does not accept the death of a patient just because that patient doesn't fit the expectations of the system

Welcome to Manufacturing Insanity *Antimicrobial Drug Resistance* Douglas Mayers, 2009-07-06 This first edition of *Antimicrobial Drug Resistance* grew out of a desire by the editors and authors to have a comprehensive resource of information on antimicrobial drug resistance that encompassed the current information available for bacteria, fungi, protozoa, and viruses. We believe that this information will be of value to clinicians, epidemiologists, microbiologists, virologists, parasitologists, public health authorities, medical students, and fellows in training. We have endeavored to provide this information in a style which would be accessible to the broad community of persons who are concerned with the impact of drug resistance in our clinics and across the broader global communities. *Antimicrobial Drug Resistance* is divided into Volume 1 which has sections covering a general overview of drug resistance and mechanisms of drug resistance first for classes of drugs and then by individual microbial agents including bacteria, fungi, protozoa, and viruses. Volume 2 addresses clinical, epidemiologic, and public health aspects of drug resistance along with an overview of the conduct and interpretation of specific drug resistance assays. Together, these two volumes offer a comprehensive source of information on drug resistance issues by the experts in each topic.

Psychodynamic Treatment Approaches to Psychopathology, vol 2, An Issue of Child and Adolescent Psychiatric Clinics of North America Rachel Z. Ritvo, Schuyler W. Henderson, 2013-04-28 *Psychodynamic Psychotherapy in Child and Adolescent Psychiatric Clinics* covers topics in three major categories in two volumes of this series: 1. Approaches to Specific Conditions, 2. Special Features in Working with Children, 3. Research Presented for the Clinician. Specific conditions covered are Anxiety, Trauma, Depression, Eating Disorders, Incipient Borderline Personality Disorders, and the Medically Ill Youth. Special Features include the various therapies in Psychodynamic psychotherapy: Play Techniques, Use of Boardgames, Perspectives on Psychotropic Medications for Children, Parent Work, Family Therapy, and Dyadic Therapies. Research for Clinicians includes Neuroscience Evidence Base and Developmental Perspectives.

Catalog of Copyright Entries. Third Series Library of Congress. Copyright Office, 1978 *Current Catalog* National Library of Medicine (U.S.), *Denial & Defense in the Therapeutic Situation* Theodore L. Dorpat, 1985 **A Primer of Psychotherapy** Robert Langs, 1988 **Therapeutic agents and procedures** Alfred Martinet, 1928 *Short-term Pastoral Counseling* Brian H. Childs, 1990 **Empirical Studies of Psychoanalytical Theories** Joseph M. Masling, 1983 *The Synthesis of Self* R.M. Mendelsohn, 1987-11-30 **State of Illinois V. Madej**, 1995 *The Nurse-patient Relationship in Psychiatric Nursing* Janet A. Simmons, 1969 *Reference Services Review*, 1973 *The Bipersonal Field* Robert Langs, 1976-06 This volume introduces a new era for the techniques of psychotherapy and psychoanalysis. The bipersonal field and the therapist at the other end view them as interacting along an interface within the frame of the field. Dr. Langs meticulously examines the contributions of both participants investigating their influence on the therapeutic potential of the field and on the nature and meaning of their own interaction. This book is based on the transcription of five detailed case

presentations made to Dr Langs in a seminar on the technique of psychoanalytic psychotherapy In his running commentary Dr Langs finds ample opportunity to demonstrate the pathology placed into the field by the participants as well as their respective conscious and unconscious curative endeavors He brings many new and important perspectives to the therapeutic process Among his most original ideas are the following The vast clinic importance of the management of the ground rules and boundaries of the bipersonal field The appropriate and pathological aspects of the therapist s containing functions his metabolism of the patient s projective identifications These are illustrated clinically as are misuses of the patient as an inappropriate container for the therapist s pathological inner contents The concepts of therapeutic misalliances and bastions These refer to unconscious collusion by the patient and therapist designed for pathological gratification and defense and for temporary symptom relief without insight or adaptive inner change Temporarily successful efforts of this kind are termed misalliance cures while framework cures refers to their achievement through an alteration in the ground rules and boundaries The importance of unconscious perception along with unconscious fantasy as the key intrapsychic factors in the therapeutic and in the patient s psychopathology and the role of projective and introjective identification as the central interactional processes within the bipersonal field The distinction between transference and non transference reactions within the patient and its crucial technical implications The concept of interactional syndromes and resistances These are symptoms and defenses in the patient to which the therapist has significantly contributed They represent the pathology of the bipersonal field and can only be modified through rectification of the therapist s contributions and interpretation of their unconscious meanings for the patient The utilization of dreams in psychotherapy including the function of dreams as a means of communicating both unconscious fantasies and unconscious perceptions A special group of dreams ins identified as designed unconsciously to cure the pathology of the bipersonal field The patient s introjective identification of the therapist s pathological projective identifications which are generated by errors in intervening and mismanagements of the frame Based on his introjections the patient unconsciously attempts to cure the sick therapist within himself and thereby both the therapist and himself In this connection Dr Langs describes the patients and other unconscious therapeutic endeavors on his behalf In all this is a landmark book that opens many new avenues for understanding the therapeutic interaction and for redefining the basic techniques needed for the insightful resolution of the patient s psychopathology Dr Langs s work is founded on a distinctive psychoanalytic methodology and on repeated use of the validating process He works predictively and adheres closely to the material from the patient Never before has a psychoanalyst so exquisitely demonstrated the patient s unconscious perceptiveness and astonishing creativity Here is an opportunity to become involved in a clinical study that will prove a most memorable learning experience Publisher

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