Computer-Simulated Psychotherapy as an Aid in Teaching Clinical Psychology

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Eliza, a widely known computer program that reacts to the user by simulating the responses of a psychotherapist, can be used as a teaching aid in undergraduate clinical psychology courses. Students' interaction with the program can enhance their understanding of interviewing and psychotherapy, the contrasts between clinical interactions controlled by humans and computers, and the role computers may play in the mental health field. The methods for conducting the exercise, for integrating it into the course syllabus, and for evaluating its impact on students are discussed.

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In the 1960s, researchers at the Massachusetts Institute of Technology pioneered the development of an interactive computer program, which simulates the actions of a psychotherapist, now widely known as Eliza. In reaction to the user's questions and statements, the program's responses imitate the therapeutic techniques of reflection, focusing, clarification, and open-ended inquiry. Although these programs were never intended to serve as "real" psychotherapy, they can be useful heuristic tools for understanding the psychotherapeutic process. I have used a version of Eliza adapted for IBM microcomputers as a teaching aid in an undergraduate clinical psychology course. Students' interaction with Eliza provides them with an intensive, individualized learning experience that can highlight important concepts about interviewing, psychotherapy, and clinical psychology. It can also enhance their understanding of the role computers may play in clinical activities.

Method of the Exercise

Instructions for the exercise and for operating the Eliza program are described in a handout and discussed in class. On their own time, students interact with Eliza for approximately 45 min. The instructions emphasize that during this time they honestly present a personal problem and persist in seeking help, despite any inadequacies or therapeutic mistakes they perceive in the program. After this period of seriously engaging Eliza in a therapeutic interaction, the students are instructed to "experiment" with the program, perhaps even "trick" it into responding with erroneous or nonsensical statements—and by doing so, gain insight into how the program works.

After the students completed the exercise, we discussed it in class and they prepared a paper in which they analyzed their interaction with Eliza. The following themes were emphasized: (a) their personal reactions to Eliza, including their perceptions of it as their "therapist," their thoughts and feelings about Eliza, whether or not they felt helped; (b) an evaluation of Eliza's therapeutic techniques and effectiveness, how the program seems to work, its strengths and weaknesses; (c) an analysis of the advantages and disadvantages of computers in psychoanalytic, behavioral, and hu-

manistic therapies, and the types of problems and clients for which computers might be helpful; and (d) other possible applications in the field of mental health for computer programs that interact with clients.

Evaluation of the Exercise

After discussing the exercise and handing in their papers, one class (N = 19, 12 women, 7 men, M age = 21) answered a questionnaire consisting of rating scale items that assessed their reactions to the project. Their responses (see Table 1) indicated that the exercise had a substantial impact on them. A large majority agreed that the exercise was a valuable learning experience, and that it should be retained as part of the course. Ninety percent agreed that they better understood what is important for psychotherapy to be effective, and, in particular, what is important in the relationship between the therapist and client. These responses seemed to be related to the students' unanimous agreement that they had learned about the advantages and disadvantages of a computer conducting psychotherapy. In class and in their papers students covered important issues about human versus computerized therapy, such as (a) the role of empathy, warmth, identification, and "real" relationships in psychotherapy; (b) whether computers could be more objective and nonjudgmental; (c) whether fears about self-disclosure, expressing emotions, and confidentiality would be greater with humans or computers; and (d) the cognitive and perceptual advantages of computers vis-à-vis humans, including breadth and efficiency of memory, language abilities, and access to visual and auditory information from the client.

The exercise was useful in highlighting important themes about the major theories of psychotherapy. The students unanimously agreed that they better understood the advantages and disadvantages of a computer conducting psychoanalytic therapy. We discussed such issues as the effectiveness of computers for creating the atmosphere of ambiguity and neutrality recommended by classical theory, transference reactions to computers, whether computers have countertransference, collecting data for interpretations, and computers as "selfobjects" in terms of contempo-

Table 1. Percentage of Students Expressing Agreement and Disagreement With Questionnaire Items About Interacting With Eliza

Item	Agree	Cannot Say	Disagree
Was a valuable learning experience	80	10	10
Helped me with my problem	31	0	69
Learned something about myself	48	21	31
Future students should have this opportunity	95	5	0
Better understand what it would be like to be in therapy	43	14	43
Better understand what is important for therapy to be effective	90	5	5
Better understand what is important in client/therapist relationship	90	0	10
Learned about pros and cons of computerized psychotherapy	100	0	0
Better understand how computer programs are designed to interact with people	31	38	31
Learned about my own thoughts and feelings about psychotherapy	64	5	31
Better understand pros and cons of computerized psychoanalytic therapy	100	0	0
Better understand pros and cons of computerized behavior therapy	43	31	26
Better understand use of computers in mental health field	74	21	5

Note. N = 19. Agree = students responding "strongly agree" and "agree"; Disagree = students responding "strongly disagree" and "disagree."

rary theory. It was often necessary to clarify what computers nowadays can and cannot do, and to speculate about the computers of the future. The students also contrasted computerized therapy with humanistic therapies that emphasize "authentic" relationships. Although we discussed the applications of computers in behavior therapy (their use in behavioral assessments; shaping interpersonal, behavioral, and cognitive skills; conducting such procedures as systematic desensitization), not all students agreed that working with Eliza helped them better understand the role of computers in behavioral treatment. This result may have been due to the fact that Eliza takes an "insight" approach, or that we had not yet completed the section on behavior therapy in the course syllabus.

Nevertheless, most students did agree that they better understood how computers might be used in the mental health field. We discussed the cost-effectiveness of computers, their application according to different types of psychopathology, and their use for structured interviews, diagnostic assessments, and psychological testing. There was no consensus about whether they better understood how computer programs are designed to interact with people. This may be attributed to the wide differences in the students' previous exposure to computer programming.

The students' personal reactions to Eliza varied greatly. They were divided on whether they thought working with Eliza gave them a sense of what it would be like to be in therapy and whether they learned anything about themselves. As compared to the students who agreed, twice as many disagreed that Eliza had helped them with their problem. In class the students readily described their impressions of the program's deficiencies as a psychotherapist. However, twice as many students agreed as disagreed that they had learned about their own personal thoughts and feelings about psychotherapy. Therefore, Eliza generally does not supply students with an accurate experiential understanding of what therapy is like; nor does it resolve their problems. It was not intended to. But it can be used as a stimulus to help them explore their thoughts and feelings about psychotherapy.

The results suggest that methods for improving the exercise may include: (a) providing guidelines that maximize each student's ability to apply previous knowledge of computers and computer programming; (b) including readings about computers in clinical activities; and (c) adding other interactive computer programs that illustrate methods in structured interviewing, psychological testing, and behavioral treatments.

Software and Its Availability

There is a wide variety of software that may be used as teaching aids in clinical psychology courses. Programs that administer, score, and interpret psychological tests are available for standardized personality assessment inventories, including the Myers-Briggs Type Indicator, 16 Personality Factor Test, the Minnesota Multiphasic Personality Inventory, and the California Personality Inventory. Programs are also available for the Adjective Checklist and the Adaptive Behavior Scale. For conducting structured clinical interviews, there is software for intake evaluations and mental status exams (which involve assessments of presenting complaint, symptoms, current situation, cognitive and emotional characteristics) and programs for taking a history of social, psychological, and developmental functioning (e.g., family relations, occupation, education, and social relationships). Software for assessing specific problem areas includes eating disorder inventories, health problem checklists, test anxiety scales, stress evaluations, and alcohol assessment. More general assessment programs include personal problem checklists that assess the number, type, and hierarchy of personal problems.

Catalogs that describe these programs are available from various psychological resource services including: The Psychological Corporation, San Antonio, TX; Publishers Test Service, Monterey, CA; Projected Learning Programs, Chico, CA; Western Psychological Services, Los Angeles; Consulting Psychologists Press, Palo Alto, CA; Psychological Assessment Resources, Odessa, FL; Multi-Health Systems, Lynbrook, NY.

The Eliza program is widely available from local user groups, and often can be found in the software packages of college and university mainframe systems. Eliza diskettes are also available from various computer resource services (e.g., Pan World International, North Brunswick, NJ; Projected Learning Programs, Chico, CA). Versions of Eliza seem to differ only in slight modifications of the breadth and variety of responses the program offers to the user's statements and questions. Versions sold by services that market Eliza as a computer "game" may include modifications of the program that detract from its potential as a serious educational exercise. For more information about the history and descendants of Eliza, as well as other information about computer applications in clinical psychology, see Schwartz (1984).

Reference

Schwartz, M. D. (Ed.). (1984). *Using computers in clinical practice: Psychotherapy and mental health applications.* New York: Haworth.

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