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eTherapy (A Pilot Study)

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0. Abstract

This study explores the history and potential role for therapy delivered through eLearning. Problems with previous trials are discussed and the future role for blended therapy is examined. For purposes of this study the author created an online programme focussing on meta-therapy skills, i.e. a general problem-solving programme rather than a problem-specific approach. The programme content was based on established principles of Cognitive Therapy and is called "How to think, Solve Problems and Make Decisions, Part 1". A pilot study using this programme was conducted in a non-clinical population using both blended learning and face-to-face contact. Only 7 subjects were assessed due to time and resource constraints.

The study is subject to significant limitations. Firstly the number of participants does not allow for statistical analysis and results and conclusions are based on qualitative feedback rather than quantitative analysis. Secondly the content of both the face-to-face interviews and the online content were limited to what could be achieved over a time span of three weeks. Conclusions were based on a combination of the literature review, feedback given by participants in the study and the assessment of the author.

The conclusions reached are (1) that the potential for eTherapy would not be realised through a simple translation of existing therapy into online delivery. Instead etherapy offers the potential to develop an entirely new form of therapy that, when compared to traditional face-to-face treatment, would differ in the psychological effects and outcomes for the users. (2) Existing cultural barriers to the development of online therapy arise because of the misperception that it would replace "therapy by therapist" with "therapy by computer", thereby lacking the powerful component of empathy and human contact. However the potential for eTherapy would not be about replacing psychologists but could lead to their expanded role bringing about more effective delivery and new treatment methods.

1. Introduction

The first published computer therapy programme was produced in 1960's at MIT (Weizenbaum, 1966). The idea that computers could be used in mental health treatment therefore predates the development of the Internet by almost 20 years. Eliza (try it at <http://www-ai.ijs.si/eliza/eliza.html>) was called "A friend you could never have before" and consists of a computer programme based on principles of Rogerian analysis in which the computer "reflected" back to the user the thoughts that were typed in. Whereas initial use is interesting, continuing a conversation soon leads to circular and unhelpful questions.

Despite the passing of almost 40 years since the development of Eliza, and the subsequent development of the personal computer, the Internet and World Wide Web, it is the contention of this paper that for most of that time there is little evidence of advancement of the underlying theory as to why using computers should or could aid mental health problems. Only in recent months has some advance been made in matching the available technology to the patient need.

The focus of most research on this topic has been to develop stand-alone treatment packages and the assumption is that if computer packages replicating face-to-face treatment could be developed, and demonstrated to be effective, then they would then be able to entirely supplant the therapist.

Marks et al (1998) states this explicitly in a seminal review in which studies that do not involve "self-treatment" to some degree are excluded. The conclusion of that review stated "As yet few systems do all therapeutic tasks required from initial screening to the end of follow-up, are 100% independent of human contact, and are widely available commercially. This should change fairly soon" (p.167).

Computer technology has been applied to a wide range of mental health problems for assessment and diagnostic purposes and for programmes developed for treatment, which are reviewed in this paper.

Stand-Alone treatments

An early attempt to utilize 'new technology' in a clinical setting was the development of the "BT steps" programme for the treatment of Obsessive-Compulsive Disorder (see Greist et al 1998, or Bachofen et al, 1999 for follow-up studies). BT steps consisted of a computer-activated voice response system that could be accessed by patients at any time. This was an entirely new approach to treatment and its aim was to develop a 'stand-alone' treatment system for patients in the absence of therapists.

Cognitive Behaviour Therapy, a successful treatment for depression, has been effectively delivered by computer for a number of other disorders, (see Christensen and Griffiths, 2002).

In another study Panic Disorder was treated through use of a palmtop-computer-assisted programme of Cognitive Behavioural Therapy, (Newman et al, 1997). This was compared to face-to-face traditional treatment. In this case no long-term difference between the groups was found although the face-to-face group showed some greater improvement at intermediate follow-up.

In a flawed study, Clark et al, 1998, examined the efficacy of computer-aided exposure treatment for patients suffering from Obsessive-Compulsive Disorder (OCD).

Kenwright et al, 2001, make the point that exposure therapy is “lastingly effective” for phobia/panic but that “trained therapists are scare”. As a result they developed a computer-aided system for self-help of phobia/panic, called *FearFighter*, and assessed its effectiveness in a well-designed study. The conclusion was that computer-aided self-help can achieve results comparable to those of therapist-guided treatment for phobia/panic and that it can do so more conveniently and speedily and allow for access to treatment by a greater number of patients.

CARL (Computer Assisted Relaxation Learning) is a computerised, exposure based therapy program for treatment of dental injection fear and was developed by Coldwell et al, 1998. Its effectiveness was assessed in a study leading to flawed conclusions, although all subjects were able to receive two dental injections after using CARL.

Virtual Reality systems have been developed as stand-alone treatments for disorders such as Acrophobia, a fear of heights, and Arachnophobia, a fear of spiders.

Whereas in Rothbaums’s 1995 study of acrophobia the treatment group showed significant improvement, the control group remained unchanged. This however, left unanswered the question as to whether this treatment was similarly effective to standard face-to-face treatment. Emmelkamp et al, 2002, however, compared their virtual reality system for acrophobia to in vivo exposure (Real life face-to-face exposure) guided by Clinical Psychologists and found it to be as effective immediately after treatment and at 6-month follow-up as the In Vivo treatment.

A number of studies have examined the efficacy of Virtual Reality Treatment known as CAVE, Computer Aided Vicarious Exposure, on Arachnaphobics. In a related series of experiments, Gilroy et al, 2001, Fraser et al 2001, Heading et al, 2001 and Dewis et al 2001, assess variations of Virtual Reality exposure on groups of children and adults and for varying numbers of sessions. Overall the conclusions indicate that whereas a single session of CAVE was no more effective than waiting list control groups, once skills had been learnt over three sessions of CAVE, the benefits were comparable to live therapy and did not continue to increase with increasing numbers of sessions.

Osgood-Hynes et al, 1998, have assessed the efficacy of a self-help computer programme, COPE, for the treatment of depression. The design was somewhat flawed but nonetheless 64% of those completing the trial reported a 50% reduction in symptoms of depression.

Computer-Assisted therapy

Kobak et al, 1996 reviews a range of studies on computer administered rating scales and concludes that such methods “support the reliability, validity and equivalence of these scales”. Studies reviewed included measures of depression, anxiety, social phobia, obsessive-compulsive disorder and a multi-symptom rating scale.

Dolezal et al, 1998, distinguish between 'computer therapy' and 'computer-assisted therapy and carried out a controlled trial of a Therapeutic Learning Program (TLP) by Colby et al, 1986. A group of patients were referred for standard cognitive behaviour therapy and compared to those in the TLP group. After the initial part of each TLP session was completed the remaining time was spent "processing issues associated with the segment as a group". Whereas both groups improved similarly and this was maintained at 6-month follow-up, it is not clear how the computer assisted programme was of additional benefit to either the clients or the therapists.

New Developments

Proudfoot et al, 2003 and Proudfoot et al (a) 2003 have published initial results of a multi-media interactive programme called "Beating the Blues", which is a cognitive-behavioural programme for anxiety and depression in general practice. It is also described in Gray et al, 2000, and can be previewed at <http://www.ultrasis.com>. Proudfoot et al report that the programme uses "multimedia techniques to enhance patient engagement and motivation, including menus, advice, feedback and especially video vignettes of case study 'Patients' to act as models for the real patient". A group of users were compared to a group described as the "Treatment as Usual" group (TAU) in which those attending the GP could be prescribed anti-depressant or anxiolytic medication, referred for general counselling or referred to a Clinical Psychologist. On every measure the results for "Beating the Blues" demonstrated "significant and rapid improvement, relative to treatment as usual".

2. Problem Description

Although a research project of this scale could not hope to solve all of the issues but it can start with outlining the key questions that need to be answered. These are:

- Are clients willing to use elearning as a means of finding solutions to psychological problems?
- Can elearning/etherapy provide an effective solution to psychological difficulties?
- What are the constraints of etherapy?
- What are the wider implications/ benefits of etherapy?
- What are the barriers to etherapy?

In summary the aims of the study are to pilot a methodology that would add to the part answers that we already have to the above questions. To do so the study includes measures of utility and usability, along with psychological measures of the impact of a general problem-solving software package written for purposes of this study. The research was conducted on a non-clinical population who were experiencing current life difficulty. Some attempt is made to assess the wider impact of the programme on other life areas by comparing measures of psychological control and general problem solving attitudes taken before and after the study.

3. Methodology

For purposes of this study contact was made with a company called Career Transitions International, CTI, who provide recruitment and career services to individuals undergoing significant life change, in this case individuals who had been made redundant. A programme called "How to think, Solve problems and Make Decisions, Part 1" was written by this researcher and is described below.

The aim of the programme was to teach general problem solving skills through an interactive program in which the user completed tasks on their personal thoughts or difficulties. Online feedback was available from the author, a Clinical Psychologist, along with an initial face-to-face contact at the outset of the study

An initial interview was arranged. It was made clear at the outset that this was only a pilot study due to time and resource constraints. A total of only 7 subjects were recruited to this pilot study because of time and resource constraints. Prior to initial interview participants were randomly allocated to either the online programme, 4 subjects, or to a face-to-face programme, 3 subjects.

At initial interview a number of questionnaires were administered. These consisted of:

1. A scale measuring attitudes, The Dysfunctional Attitude scale, Weismann and Beck 1978. (see appendix iv)
2. A measure of self-control skills, The Self Control Schedule, Rosenbaum, 1980.
3. In addition, a questionnaire was developed for the study on topics such as user's expectations for the course, users attitudes and beliefs about their own thinking style.

Unlike in previous studies, the face-to-face users were given the identical content to the online group.

The Programme "How to Think, Solve Problems and Make Decisions, Part 1" is based partly on principles of Cognitive Behaviour Therapy, Beck 1976. This form of therapy was developed as a treatment for depression. The underlying theory in Cognitive Therapy is that depressive thinking is the result of how one interprets the world and oneself, and not simply the result of the events themselves. Taking this principle a step further, this programme uses the ideas of cognitive therapy to develop a means of auditing one's thinking processes. The assumption is not that users of this programme will necessarily be those experiencing dysfunctional thoughts, but that auditing one's thinking helps one to make clearer decisions that focus on the link between ones interpretation of a situation and the eventual outcome. The programme contains a number of steps in this auditing process. The sections of the programme and aims are:

- Firstly the user analyses, at a superficial level, what they already know or think about themselves.
- Secondly the user is given a schema that helps them identify what are their common ways of interpreting a given set of situations
- In the third section the user is taught to modify their thinking and in this section the user can input situations from their own life and use the schema to audit their thinking about those situations and generate alternative outcomes.

The programme is available in both written form and on floppy disc with the full-length version of this paper and cannot be described adequately here.

4. Results

Due to pilot nature of the study statistical comparisons between the groups cannot be made. This is for a number of reasons:

1. The small numbers involved in the pilot study.
2. The content of the programme was relatively limited.
3. The length of time over which the study had to be conducted was insufficient to produce lasting or measurable change.

Results therefore are presented in raw form. The scores on the Dysfunctional attitude scale indicate that participants fell within the normal range. Whereas, as already stated no statistical analysis of the data would be valid, it is clear that there is no consistency in the direction of change of the score from before or after the programme.

On the Self-control scale the users appeared at first testing to fall below the mean for a non-depressed student population. Scrutiny of the data appears to indicate that after participating in the programme there was an increase in the perceived control ability for all participants on whom regular follow-up data was available, which then seems to place their scores above the expected mean

Utility and Usability were also assessed. Visual scan of the data seem to indicate that all users found the programme useful and effective but not to the extent they had expected. However, all users also rated positively the potential to apply the skills to other life contexts such as career related decisions, work situations and personal or social life. Whereas all those with follow-up data stated that they used the skills in their everyday life, they also seem to have a tendency to believe that they had already done so prior to using the programme. This has significant implications for commercial applications of this type of programme. When a psychological programme is effective it is likely that individuals will not attribute that change to the programme but will have a tendency to believe that the change would have come about anyway or was due to their own efforts. Whereas this tendency is easily explained by a theory in social psychology, Attribution theory (see Hewstone, 1989 for a review) it may result in commercial constraints unless it can be overcome.

Attribution theory is the idea that one attributes the causes of success and failure in different ways. It is most common for example that when we are successful at something, we attribute that success to personal or internal qualities in oneself. When we fail at something however we commonly have a tendency to externalise that failure and blame external events and situations for the failure. One of the constraints of e-therapy therefore may be, that the absence of a personal relationship may make it less likely that the user will attribute change to an impersonal software and attribute it to themselves and whereas this is not a difficulty in psychological terms, and may be a healthy response, it may also limit the commercial applicability. One way around this would be to highlight and increase the blended learning to a greater extent, and to give the user feedback after the initial assessment and prior to using the programme to indicate to them at the end how they have changed.

Overall results indicate that users are willing to utilise this type of programme to resolve psychological issues. It appears to be at least as effective as the face-to-face version. The constraints and barriers are discussed below.

5. Discussion

The greatest focus of research on computers in mental health treatment over the last 40 years has been to replicate existing therapy methods by replacing the therapist with a computer. Computer assisted therapy has not received the same degree of attention or technical advancement as in stand alone treatments and is seen by some authors as an interim step before computers can fully carry out the assessment and treatment process (Marks 1999). This viewpoint may fundamentally underestimate the potential for the use of computers in mental health care. Even the most recent developments of multi-media programmes, despite being a considerable advance on previous efforts, remain conceptually fixed in the realms of traditional therapy. For example, programmes are divided into “sessions” lasting approximately one hour each. Clients, at least in the research studies, have had to travel to the location of the computer for fixed appointments rather than access the programmes over the Internet at times most suitable to them. Programmes also appear to remain largely instructional, with control remaining in the computer programme, rather than allowing flexible symptom control, accessed by the clients on an as-needs basis. Even when programmes are described as interactive, it appears that interactivity is confined to describing symptoms.

This study has a number of new features. The programme was available online and could be accessed whenever and from wherever the user decided within the time limits of the study. The content was fully interactive in that the user could input their own situations and either use the schema to analyse them, or do so and submit these for further analysis. This combination of blended therapy along with full interactivity was not found in any of the other programmes reviewed.

Prensky, 2001, has convincingly discussed how learners of the computer-games generation have changed. They are more games oriented while remaining an “intellectual-problem-solving-oriented generation”. The

implications for this generation of clients is that solving problems through “logic, challenging puzzles, spatial relationships and other complex thinking tasks”, which is what Prensky advocates as a means of solving business problems, would be the appropriate future direction for etherapy. A movement away from the traditional paternalistic environment of traditional psychological techniques to one where the user is accessing and utilising their existing skills to their optimal potential is to be advocated.

At present we aim to treat psychological problems only when they emerge in a clinical setting, either through presentation at the GP, or ultimately at a psychologist or psychiatrist. But perhaps we should consider that the potential of the Internet is to help the individual at a point in the development of problems long before they present clinically.

What could the Internet or etherapy offer in the prevention and treatment, for example of depression, that existing treatment modes do not offer? Firstly, the aims of treatment could be significantly enlarged from current aims of treating individuals such that it would, for the first time, be possible to imagine the Internet as a mass “inoculation” device for reducing depression. Why? Because at least partial control of depression has been well demonstrated to result from correcting underlying thinking errors (for example see Fennell et al, 1987) and the effective treatment, Cognitive Therapy, is readily amenable to computerisation. Consider an analogy to elaborate on the idea. The aim of using technology for psychological conditions should be to produce an effect similar to the one that low cost airlines brought to the travel industry. The aim was not just to have the same people travel more frequently and more cheaply but to introduce travel to a wider audience of people who didn't use it before and did not know they needed or wanted it. In such a scenario, returning to psychology from travel, the impact would be on people who do not currently access treatment but whom nonetheless suffer from low self-esteem, low mood and unrealised potential. The impact of low cost airlines has been wider than simply changing travel habits. There has been an effect on local economies where budget airlines start to use airports and social effects on families who would previously have been separated as a result of geographical distance for work now can maintain regular contact for all sorts of reasons that would not previously have been considered viable. Similarly, widely available, convenient and effective help with psychological conditions through the right sort of multi-media packages would alter thinking in a wider audience than those who currently access individual formal treatment in a clinical setting.

If some of the personal service of individual therapy has to be sacrificed to achieve that goal, then it is probably a reasonable exchange for most individuals. Those that still want such a personal service remain with the option of consulting individually, but at much higher cost.

It is likely that such a technology-based service would ensure that users think and feel differently about how they resolve problems and may resolve problems more speedily.

Some of the benefits could be:

- Greater feeling of control over therapy process
- Better ability to manipulate symptom level and frequency
- Enhanced perception of cause and effect through multi-media presentation
- Reduction in “learned helplessness” and dependency engendered by the therapy process.
- Increased willingness to access problem-solving programmes earlier in the development of problems
- Earlier intervention could lead to lower severity
- Better generalisation of skills learnt in one setting to another

These benefits would not exclude the therapist/ psychologist as is feared by many therapists and which is the aim of most commercial developers, but would alter their role from one of all-powerful “psychological surgeon” to one of educator. In summary the future for eTherapy lies in educating more psychologists about the potential for eTherapy so that the current feared monster becomes the most used tool in effective therapy and so that the current development trend become less driven by technical experts and more by expert psychologists who are focussed effective content.

References and Resources

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Resources

<http://www.ex.ac.uk/cimh/cutter.htm>

<http://www-ai.ijs.si/eliza/eliza.html> (Eliza: A friend you could never have before)

<http://www.ismho.org> (International Society for Mental Health Online)
<http://www.ultrasis.com> (see Beating the Blues)
<http://www.mysmartforce.com>
<http://www.skillssoft.com>