
COMPUTER-SUPPORTED PSYCHOTHERAPY SHOULD PAY ATTENTION TO E-LEARNING

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ABSTRACT

Computer supported psychotherapy (CSP) is an innovative development of psychotherapy aiming to match the needs of the market and the new attitudes of help seekers in our digital era. We claim that theories and data from e-learning, in particular those from instructional design and multimedia learning can be successfully transferred to improve CSP. E-learning may become an illuminating metaphor for effective CSP. We argue for a re-conceptualization of psychotherapy as a series of learning experiences taking place in the mind of the patient, with the contribution of various resources, the psychotherapist being only one of them.

KEYWORDS: *computer supported psychotherapy, e-learning, multimedia learning, instructional design.*

INTRODUCTION

The psychotherapy of emotional disorders is presently forced to reconsider its basic principles and forms of delivery. At least two high-pressure factors may be mentioned in this context. First of all, the incidence of mental disorders has dramatically increased in the last decades. The present data show, for example, that approximately 29% of the adult population has had an anxiety disorder over his/her lifetime, while in the case of adolescents the threshold has exceeded 10% (European Commission, 2005; Cunningham, Rapee, & Lyneham, 2006). On the other hand, the limited number of certified therapists, as well as the traditional format of therapy (face-to-face encounters, approximately once a week), have

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created a huge imbalance between the need to psychotherapeutical services and the available offer. In Great Britain or USA, for instance, 84% of the individuals with anxiety disorders or depression remain untreated, while the waiting lists are for 1-2 years (Marks, 2004). Secondly, because of the impact of information technology, the attitudes of those who seek information and/or help for their mental health problems has substantially changed. Recent surveys show that internet search for self help resources has become a typical behavior for approximately 50% of internet users; moreover, 91% of the respondents have stated that the internet is their first option when they search for information and help regarding their health problems (Risk & Petusen, 2002; Bessell, Anderson, Sansom, & Hiller, 2003). Information regarding mental health is the most demanded, and 42% of these searches refer to anxiety problems, depression, and bipolar neurosis (Proudfoot, 2004). The generation of digital natives (i.e., people who grew up interacting daily with digital technology) is just reaching the age of maturity, meaning that in the future, the use of digital, multimedia devices for solving mental health problems will exponentially increase.

In sum, the actual form of psychotherapy is outdated both by the demands of the market, as well as by the new expectancies and attitudes induced by the information and communication technology (ICT).

Computer-supported psychotherapy is a recent tentative to innovate the psychotherapeutic process and match both the existent demands of the market and the new attitudes of those who seek help in the digital era. Computer-supported psychotherapy (CSP) consists of a combination of ICT and human capabilities aiming to alleviate emotional disorders and provide opportunities for personal growth. It is ranging on a continuum, from a completely computerised therapy (e.g., CD-Rom or client-administered psychological software) to the use of psychotherapeutic software and platforms solely as an extension for the work of the psychotherapist. In one form or another CSP has come closer to e-learning or blended learning, and could benefit from conceptual and methodological transfer originating in these more mature disciplines.

There are at least two domains where the theories and data already accumulated in e-learning may enrich e-mental health and CSP in particular: instructional design and the use of multimedia.

INSTRUCTIONAL DESIGN AND CSP

Fundamentally, psychotherapy is a design: an artifact aiming to solve particular mental health problems, relying on evidence-based general principles. It is a co-construction of the psychotherapist and patient working together in a therapeutic alliance, rather than a mechanical application of a particular technique. In fact, repeated meta-analyses have emphasized that a specific psychotherapeutic technique accounts for 15-30% of the effect size in psychotherapy, the largest part of the cure being determined rather by non-specific factors than by the technique itself (Richardson & Richard, 2006). Moreover, the psychotherapeutic process

proceeds by eliciting a series of learning experiences aiming the alleviation of symptomatology. Our clients learn how to conceptualize their symptoms, how to identify dysfunctional cognitions and to challenge irrational thoughts, how to expose to fearful situations, how to acquire new coping skills, etc. Any successful psychotherapy relies on successful learning occurring during therapeutic encounters. The consideration exposed above provides sufficient reasons to consider the instructional design as a promising source of enhancing the offer of psychotherapeutic approaches in the digital age.

Instructional design refers to the analysis of learning (and performance) problems, and the design, development, implementation, evaluation and management of instructional and non-instructional process and resources aiming to improve learning (Reiser & Dempsey, 2007). Due to the thorough scrutiny of the instructional design in educational psychology and the psychology of learning, a burgeoning terminology and models have emerged in the existing literature (Gagné, Wager, Golas, & Keller, 2005; Kauffman, 2000; Smith & Ragan, 2005). However, beyond various terminologies and models, the large majority of the researchers agree that instructional design is an empirical, iterative and self-correcting process consisting of six elements or phases.

We are claiming that these elements are highly relevant to the development of a computer-supported psychotherapy as we shall illustrate below. Thus, any CSP should consider, iteratively, the components mentioned below as evidence-based suggestions that could maximize its effectiveness.

- (1) **Analysis.** Any design relies on a more or less extensive analysis of the needs and characteristics of the users. Traditional psychotherapy undertakes such an analysis almost exclusively focused on the patient's symptoms and the context (internal and external) of their occurrence as the basis for any therapeutic plan and its implementation. However, we think that this analysis has two limitations.

First, it is concerned only with those clients who afford themselves to come to the psychotherapist's office; the design of psychotherapeutic process is focused exclusively on their needs and characteristics. But, what about those who cannot afford a psychotherapeutic session due to their work schedule or because they are living in remote areas? What about those who are at the beginning at their emotional problems and they need rather psychological education, resilience enhancement or preventive measures than psychotherapy? We must recognize that the traditional design of psychotherapy is a face-to-face process of reparatory nature for those already disturbed, who afford entering the therapist's office; thus, a large number of people with specific needs, as mentioned above, may not receive psychotherapeutic assistance.

Second, the analysis in the framework of traditional psychotherapy is psychotherapist-centered rather than *process-centered*. It assumes that the alleviation of symptoms occurs only with the critical involvement of the

psychotherapist, and the whole design of psychotherapy undertaken by the therapist puts him/her in the center; in other words, the design is self-serving. However, compelling data from the self-help literature have testified the existence and robustness of patient-directed psychotherapy and, on the other hand, about 90% of those seeking help for mental health problems stop at the level of the general practitioner's intervention (Williams & Whitfield, 2001; Kaltenthaler, Brazier, De Nigris, Tumur, Ferriter, Beverley, & et al., 2006). This means that the therapeutic process may occur in many places, with many actors and various resources. We should rather create therapeutic designs that enhance the therapeutic *process* wherever it occurs: at the patient's home, in the therapist's office, or at the general practitioner's premises.

Overall, the design of the computer-supported psychotherapy should rely on the analysis of the characteristics and needs of several "users": clients, psychotherapists, and general practitioners. Therefore, it should be process-centered rather than psychotherapist-centered, aiming to enhance the psychotherapeutic process and not only the psychotherapist's professional power.

- (2) **Design and development.** In the theory and practice of instructional design, the analysis of learning needs and the characteristics of the learner constitutes the premise for establishing learning goals, learning strategies and the elaboration of materials necessary for learning, namely the design and development of learning experiences (Morrison, Ross, & Kerp, 2004). By analogy, a similar process could be enacted in the process of elaborating computer-supported psychotherapy. First, we have to decide the appropriate contents offered for each actor (user) involved in the psychotherapeutic process: client – therapist – general practitioner. In other words, the problem we must solve is the following: what contents, available for which actor, will maximize the probability to achieve the therapeutic goal. Some of these contents will be specific, whereas others will be shared among the actors. Second, for each content we have to specify the most effective method(s) of delivery, such as: exposure, demonstration, exemplification, problem-solving, use of models, graded task assignments, etc. We should also specify how these contents will be organized (i.e., "curriculum"), as well as the optimal size of each module. Third, we have to decide what kind of media will be used: text, audio-video, graphs animation, or any appropriate combination of them. Forth, we need to set-up a feed-back system allowing any patient to become aware of his/her progress in therapy, and to benefit from the methods available to overcome the difficulties encountered. If possible, explanatory feedback (correction + explanation) should prevail upon simple corrective feedback.
- (3) **Implementation.** In the instructional design, implementation refers to the delivery of courses to the target population. In computer-supported psychotherapy, the problems of implementation are related to the effective

use of the therapeutic program and of the resources by those involved in the therapeutic process, be they patients, therapists or general practitioners. Usability becomes here a critical factor; any module of CSP which is not user-friendly has a reduced therapeutic impact. We should also consider the daily routines of those involved; any product that cannot be assimilated into their usual practices will be more or less rejected by any user.

- (4) **Evaluation.** Relying on the conceptual transfer from the instructional design theory to CSP, we underline that any CSP should be the object of two types of evaluation: formative and summative. Formative evaluation is undertaken during the process of construing CSP modules and consists of continuous, iterative recalibration of therapeutic modules relying on the feed-back of the users. Summative evaluation is aiming to reveal the effectiveness and efficacy of CSP. Effectiveness is operationalized by the effect size of CSP modules upon dependent variables such as the client's symptomatology, relationship, performances, and satisfaction. On the other hand, the economic costs and efficacy of CSP compared to other kinds of intervention (e.g., traditional psychotherapy, bibliotherapy) are also integrative parts of summative evaluation.
- (5) **Management.** In the terminology of instructional design, management refers especially to the institutional integration of instructional solutions. By analogy, we should figure out how CSP is integrated in mental health services (primary, secondary, and tertiary), how psychotherapists interact with general practitioners via CSP modules and resources, how one undertakes client management, database-management, and the management of software application.

To summarize, instructional design may be considered an "illuminating metaphor" for CSP. Many procedures and concepts from instructional design can be transferred to improve the process of creating CSP. As far as successful psychotherapy consists mainly of learning (i.e., a persistent change in client's cognitions and behaviors), theories and data from instructional design can inspire and enhance the development of computer-supported psychotherapies. The comparison of CSP with instructional design has also revealed critical limitations of traditional psychotherapy, as: a) its excessive focus on the therapist rather than on the therapeutic process, as an emergence of interactive contributions from clients, general practitioners and psychotherapists; b) its discrimination of those who, for various reasons, cannot afford to approach the psychotherapist's office; c) its lack of interest for the methods and media that may enhance learning in psychotherapy. Furthermore, we think that the time is ripe to reconsider psychotherapy. It is rather a process which takes place in the client's mind (the psychotherapist being only one of the several possible resources), and not an event exclusively occurring in the therapist's office, mediated by the therapeutic alliance. Psychotherapeutic outcomes may be improved and even generated by relevant

learning experiences, elaborated by analogy upon the general principles of instructional design and mediated by the digital technologies.

MULTIMEDIA LEARNING AND CSP

Multimedia learning refers to the use of media aiming to generate or enhance learning. Any multimedia application integrates at least three of the following types of presentation: text, data, graphics, audio, photographic images, animation or moving pictures (Shavinia & Loarer, 1999). The impact of media upon learning has become, during the last three decades, object of intense scrutiny and theoretical disputes (Clark, 2001; Mayer & Moreno, 2003). On the one side, Richard E. Clark strongly claimed that media is a “*mere vehicle*”, stating that: “Computers make no more contribution to learning than the truck which delivers groceries to the market contributes to improved nutrition in a community” (Clark, 2001, p. 29). He has offered compelling evidence that the achievement gains attributed to the computer mode of delivery are probably due to the instructional methods (instructional designs) embedded in their software than to the media involved. On the other side, relying on an elaborated analysis of media capabilities and on a constructivist approach to learning, R. Kozma has argued that “medium and method have a more integral relationship; both are parts of the design. Within a particular design, the medium enables and constrains the method; the method draws on and instantiates the capabilities of the medium” (Kozma, 2001, p. 171). Fortunately, the theoretical disputes have produced a substantial amount of empirical evidence that now permit the creation of a set of recommendations about what kind of media in which context *may* enhance learning.

As far as the multimedia presentation of psychotherapeutic contents is considered a critical strength of CSP, the transfer of empirically-based recommendations from e-learning to computer-supported psychotherapy has high heuristic value. Consequently, it is much better to capitalize on the knowledge accumulated across the boundaries of one’s own discipline than to reinvent periodically the wheel. The most salient results accumulated in multimedia learning relevant for the development of CSP are presented below:

- a. *Different media can be functionally equivalent.* In other words, one can obtain the same cognitive effect with one media or another. For example, the available data show that for understanding a process, a simple animation is as effective as a complex video picture but, of course, it is much cheaper (Clark & Salomon, 2001). Thus, not the shallow aspects of the media, but their cognitive impact are of critical relevance for learning outcomes.
- b. *The use of picture with text increases recall only if the picture illustrates information related to the text* (Dembo & Junge, 2003). The effect of combining picture + text is higher for poor readers and/or complex texts, but is very low or even disappears for simple text or expert readers.

- c. *The combined presentation (visual and auditory) results in better recall than visual-only or audio-only presentation* (Kozma, 2001). The auditory presentation (i.e., narration) is more successful when associated with animation than with graphics or on-screen text (Mayer & Moreno, 2003).
- d. *Learning is improved when separate multimedia units are used proximally*. For example, people learn better when graphics and corresponding words are placed near rather than *far* from each other on the screen. Similarly, learning is improved when animation and narration are presented *simultaneously* rather than delayed (Mayer & Moreno, 2003).
- e. *Learning is improved when “the narrator” has a human voice with standard accent, rather than a machine voice*. Even when the software uses animated pedagogical agents (i.e., onscreen characters designed to offer feedback, assistance, and promote learning), their effectiveness is increased when they present guidance via a natural voice rather than via text.
- f. *Learning is improved when extraneous, non-necessary words, sounds or pictures are excluded from the message*. Any irrelevant details, even those of positive emotional valence, overload the working memory and, therefore, reduce the learning performance. Thus, seductive details can make the context more interesting but dramatically decrease learning. As Harp and Mayer (1997) have stated: “the best way to help learners enjoy a passage is to help them understand it” (p. 100).
- g. *Characteristics of the media interact with the characteristics of the learner and the learning task*. Prior knowledge, for example, may represent a critical individual difference influencing the efficiency of the learning process. Novices (i.e., learners with low prior knowledge) benefit more from multimedia presentations than experts (i.e., learners with high prior knowledge) do. Thus, integrating text and diagrams help novices but not experts; in other words, instructional guidance is more effective for novices but may interfere with the performance of the experts. In general, high knowledge learners are able to compensate for poor media, whereas low-knowledge learners are not (Reiser & Dempsey, 2007). Shortly speaking, the research to date suggests that it is not the surface features of the media (e.g., whether it is a moving picture or a graph) that determine its effectiveness. Rather it is the functional features: how will a media (or multimedia combination) convey the intended message for a specific learner involved in a specific learning task.

CONCLUDING REMARKS

The basic assumption of our paper is that any successful psychotherapy is merely learning; namely, enduring changes in the behaviors and cognitions of our clients may be enhanced by several resources. Computer-supported psychotherapy

is integrating human and technological resources with the explicit goal to provide salient learning experiences for symptom alleviation and personal growth. If our assumption is correct, then a conceptual and procedural transfer from e-learning to mental e-health is not only desirable but also scientifically valid. Sound knowledge regarding instructional design and multimedia user, accumulated from theoretical debates and empirical research, may facilitate the construction of multi-user psychotherapeutic platforms and enhance the effectiveness of CSP in general. The methods and multimedia which proved to be useful in e-learning are the best candidates for the challenging endeavor of creating computer-supported psychotherapy. Analogical thinking is, by the end, an essential tool for innovation and discovery.

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