The current state as described in the articles in this special issue is summarized. Fascinating possibilities exist, and technical applications have a potential for making a contribution back to underlying concepts, but a critical overview also reveals gaps, not only from a scientific perspective. We are warned of a use of “empty technology.” An outlook for great possible developments comes with a postulate of keeping the cost-benefit ratio in mind. © 2004 Wiley Periodicals, Inc. J Clin Psychol 60: 347–349, 2004.

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While the introduction to this special issue of the *Journal of Clinical Psychology* has served the purpose of giving an overview and an advanced organizer, this summary and outlook is based on the individual articles and tries to sum up and derive some consequences. The articles in this special issue, each dedicated to a relevant field of technical development and application, demonstrate and discuss interesting developments which have the potential to change clinical psychology in many respects. At the same time, scientifically oriented as they are, they also reveal domains in which more work is needed. More research on the applications themselves, more utilization of existing concepts from various domains of psychology and other fields, and further development of clinical psychology and psychotherapy are needed.

Technology often requires precision and may by this requirement stimulate precision of therapeutic concepts in a positive sense, which is an argument with much weight beyond concrete usefulness. It should be acknowledged, however, that dealing with soft,
ambiguous information and working with pluralistic approaches are typical for large parts of clinical work (Caspar, Berger, & Hautle, in press). These softer parts should not be reduced for the sake of technology and at the cost of validity of the approaches, but rather driven by technological requirements when it also improves the approaches. A good example of utilizing existing clinical knowledge for the development of an application is the use of virtual reality in psychotherapy training by Beutler and Harwood, and an example of using cognitive science concepts for the development of a technical device giving feedback to trainees is the application of Caspar et al., described by Berger. It would be impossible to develop such an instrument from scratch just for clinical purposes.

An application which would require precise and differentiated empirical knowledge related to the effects of psychotherapeutic treatment would be a tool supporting differential treatment selection. Such a tool (not identical with the virtual-reality application described in this issue!) has been presented by Beutler and Williams (2003; the program will be available shortly; Williams, Beutler, & Yanick, in press). Insights required to construct treatment-selection programs can be expected to enhance the clarity and quality of guidelines. This could go in two directions: Clarity in terms of content should be improved while possibly developing more sophisticated decision models. Algorithmic rules, which are seen as too rigid by many practitioners, could be replaced by multiple constraint satisfaction models, as they can be realized when using neural network models (Thagard, 2000).

Further research should help sort out which approaches are useful in terms of supporting diagnostics and interventions. It is desirable, though, that research not concentrate too one-sidedly on outcome research, but soon study differential effects (what treatment for whom?) and process (e.g., in dismantling studies). The need for explicitness and clear structure in conjunction with technical applications may facilitate such research on effective agencies. As it is relatively easy to record all steps done on or in interaction with technical devices, data recording should be easier and less expensive in comparison to research related to traditional clinical psychological interventions.

It may be needless to say that further technological developments will make possible applications that we do not even dream of these days, just as past technical developments were required to achieve what we have so far. Some developments that are and would be extremely useful for clinical applications took and take much longer than originally expected. This applies especially to the recognition of natural speech. There are other applications which may appear very futuristic, but technically could be realized in the very near future (e.g., putting faces of significant others on artificial bodies, aging them if necessary, and letting them interact with patients). Whether such applications should be used and whether they have positive effects is, of course, another question! The task for clinical researchers and practitioners will be to make intelligent use of technology; “empty” technology is of little use!

We also need to acknowledge that unless therapy and other psychological interventions are automated to a degree that renders clinicians superfluous, human professionals are still the center of clinical activities. This is reason enough to invest more than has been invested so far into developing a better understanding of clinicians’ information processing than we have previously (Caspar, 1997). Similarly, it is often not trivial how patients should use or can be enabled to use existing applications, and it is important that developers have a very good understanding not only of the problems their applications are supposed to solve but also how patients and clinicians function in general psychological terms. How can the spontaneous information processing, learning, decision making, emotional processing, and so on optimally be used? What has to be considered to avoid parts of applications that are technically perfect, but incompatible with the psychology of
users? How can users be prepared and tutored to take best advantage of applications? These are questions challenging psychology far beyond clinical psychology!

An obstacle for further development is the high investment typically required initially. This becomes apparent when using technology in psychotherapy training, which already is easily accessible to most lecturers (e.g., PowerPoint and programs serving the purpose of inserting video clips). Although this is far from high tech, this question is obviously relevant: Does investment of time pay in some way? Usually, this is only the case if teaching modules can be used a sufficient number of times or if they can be sold. All involved institutions, such as psychotherapy training institutes, should reflect on ways to further innovation on the level of individual trainers and lecturers. If they go about the task of computerizing their courses, many teachers may see themselves forced to think through their presentations much more clearly and explicitly. I have used (non-electronic) transparencies for years believing they are close to optimal, and then have made dramatic changes when switching to PowerPoint presentations, which are animated and build up step by step, and need to be thought through in detail. Although there also is a risk related to PowerPoint encouraging presenters to spend more time on format than on content, a reasonable use seems promising in terms of enhancing content not only presented but also digested by the audience.

One thing is clear: Many products developed will appear as “dinosaurs” in just a few years, but they are necessary stepping stones for further development. As development will not come to an end for many years to come, it seems recommendable to deal with it now.

References


