IMAGINATION, COGNITION AND PERSONALITY, Vol. 23(4) 325-355, 2003-2004

APPLYING THE THEORY OF SUCCESSFUL INTELLIGENCE TO PSYCHOTHERAPY TRAINING AND PRACTICE

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ABSTRACT

The theory of successful intelligence developed and tested by Robert Sternberg attempts to predict success in life across analytical, creative, and practical dimensions. This article presents the theory of successful intelligence as a useful framework for incorporating various psychotherapy techniques. Application of the theory has effectively trained teachers to enhance important skills in normally functioning children and adolescents, as well as adults in real world settings. Presumably it can be taught to therapists to be applied in a psychotherapy setting. In support of this argument, the article is divided into four sections. First, a definition of the theory of successful intelligence is presented. Second, empirical efforts for construct validation of the theory—both internal and external—are described. Third, the research that has been conducted on each aspect of the theory (analytical, creative, and practical) is discussed along with related constructs from the field of psychotherapy. Fourth, an example of the use of the theory in clinical practice is described, drawn from older case material which actually anticipated the uses of analytical, creative, and practical skill development with a depressed client.

Is it possible to base the psychological treatment of emotional and relationship disorders on modern theories of human intelligence? Various definitions of intelligence have been proposed over the last century, but most are in agreement that

intelligence serves the main purpose of adaptation to the environment [1]. It may well be argued that the scientific study of human intelligence, especially in the broadened conception that goes beyond traditional IQ measures, may have implications for the practice of psychotherapy [2].

The traditional view of intelligence holds that there is a general factor of intelligence, often referred to as the *g* factor, that underlies all adaptive behavior [3]. Even though it was never clearly defined, the assumption by Charles Spearman is that *g* is unitary and a major cause of individual differences on tests of cognitive ability [4]. Most tests of *g* have been shown to measure abstract or analytical thinking skills [5].

In the past quarter of a century however, we have witnessed important developments in intelligence theory, measurement, and research which point to the conception of multiple forms of intellectual capacity, forms predictive not only of school achievement but also of effective vocational, social, and even artistic skills.

Louis L. Thurstone argued for the existence of seven primary mental abilities [6]: verbal comprehension, verbal fluency, number, memory, perceptual speed, inductive reasoning, and spatial visualization. J. P. Guilford described a broader model that consists of five operations, six products, and four contents which are combined to produce 120 distinct abilities [7]. In Howard Gardner's Theory of Multiple Intelligences [8, 9], he proposes that there are eight separate intelligences: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, intrapersonal, and naturalist. Additional intelligences are currently being considered, such as spiritual and existential intelligence. As of yet though, there is very little empirical research pointing to the validity of the theory of multiple intelligences. Also, it is not clear that the different intelligences are truly separate from each other, and that each serves an independent adaptive function.

The most extensively researched approach that attempts to go beyond *g* is that of Robert Sternberg and his group at Yale University. Sternberg's theory of successful intelligences attempts to go beyond prediction of school grades to account for success in all settings of a person's life [5, 10, 11]. According to the theory, successful intelligence is best predicted along three dimensions: the analytical, the creative, and the practical.

There may well be at least one other dimension—emotional intelligence—originally described by Peter Salovey and John Mayer in an article in this very journal [12]. Emotional intelligence is defined as ". . . the ability to perceive and express emotion, assimilate emotion in thought, understand and reason with emotion, and regulate emotion in the self and others" [13]. Even though emotional intelligence is now extensively researched, it is not as clearly applicable to effective daily life adjustment. There is promise, though, as some work suggests its value in predicting adjustment in business settings [14]. The importance of emotions is acknowledged in the clinical realm, with the cognitive therapies being extended to incorporate the research on emotions [15].

If measurable human intelligence can be used as more than just a predictor of academic test scores or of school grades, can it not also be a guide to effective life adjustment and personality change? Empirical research has shown that the theory of successful intelligence has been used effectively to train teachers to help schoolchildren and adolescents adapt to the demands of their environment. In this article we shall undertake to show that, based on the Sternberg group's research studies, it may be possible to propose therapeutic procedures that employ the techniques that demonstrably enhance successful intelligence in children and adolescents and help them overcome psychological difficulties.

First, a characterization of the theory of successful intelligence will be presented. Second, empirical efforts toward construct validation of the theory—assessing both internal and external validity—will be described. Third, the research that has been conducted on each aspect of the theory (analytical, creative, and practical) will be discussed along with related constructs from the field of psychotherapy. Fourth, a potential use of the theory in practice will be described, exemplified by an actual case study.

THE DEFINITION OF SUCCESSFUL INTELLIGENCE

The theory of successful intelligence comprises four key elements. A first key element is that "success is attained through a balance of analytical, creative, and practical abilities" [10, pp. 297-298].

The three key aspects of intelligence are analytical, creative, and practical intelligence. Analytical abilities are the abilities primarily measured by traditional tests of abilities. Success in life, however, doesn't require just this ability. The theory of successful intelligence includes three aspects of intelligence which, in combination, are important for success in life.

Analytical intelligence is required to solve problems and to judge the quality of ideas. However, just this skill is not enough. Often we need to use our analytical skills to determine what the problem is, creative skills to generate novel solutions to the problem, and practical skills to determine which solutions are realistic.

Creative intelligence is required to formulate good problems and solutions. This type of intelligence is important when considering novel solutions to problems that would ostensibly seem impossible. For instance, some individuals give up on their daydreams and ideal goals because they assume their current life circumstances prohibit them from accomplishing them. As the research of Strauman and Higgins suggests [16, 17], one's view of the discrepancies between actual self and one's ideal self can lead to depression. Sometimes, however, creativity can be used to imagine ways a change in a person's life could bring that person closer to reaching his or her dream. Creative intelligence alone is not enough to be successful. The person who seems to live in a dream world without any sense of rationality of practicality may end up staying in that dream world.

Practical intelligence is needed to use the ideas and analysis in an effective way in one's everyday life. Often success won't be attained until that person produces new innovative ideas (creative ability) and then works out the ramifications of these ideas in the real world and persuade others of the usefulness of the ideas (practical ability). As studies of creative groups suggest, creative urges must also be extended through practical resourcefulness and abstract thinking skills [18].

A second key element is that "intelligence is defined in terms of the ability to achieve success in life in terms of one's personal standards, within one's sociocultural context" [10, pp. 296-297].

Intelligence testing has primarily focused on the prediction of success in an academic setting. The theory of successful intelligence emphasizes the importance of going beyond just the academic sphere to account for success in whatever goals individuals (or societies) set for themselves. After all, David Wechsler, developer of one of the most widely used adult intelligence tests defined intelligence as ". . . the aggregate or global capacity of the individual to act purposefully, to think rationally and to *deal effectively with his environment*" [19, italics added].

The implication for psychotherapy is that success is defined by whatever criteria patients set. All patients must be treated in respect to their own personal goals and reasons for undergoing treatment.

A third key element is that "one's ability to achieve success depends on one's capitalizing on one's strengths and correcting or compensating for one's weaknesses" [10, pp. 297-298].

In reality, no one is good at everything. It often is how well people can overcome obstacles in their lives by using strengths that are the best test of their intelligence. At the same time, though, attempts should be made to correct for weaknesses, because weaknesses are also a natural part of life.

There has recently been an increase in research on *positive psychology* stimulated by Martin Seligman and colleagues [20, 21]. Proponents of positive psychology suggest that psychotherapy should focus more on the strengths of individuals and less on their limitations. The theory of successful intelligence includes a focus on the positive, but is balanced in that it also attempts to compensate or correct for weaknesses.

A fourth key element is that "balancing of abilities is achieved to adapt to, shape, and select environments" [10, p. 298].

Traditional theories of intelligence have emphasized the importance an individual's adaptation to his or her environment, a setting over which he or she often has little or no control. For instance, performance on IQ tests requires adjustment to the specific questions, but no matter how one performs, these questions (the environment of the test) do not change. To the extent that you want to obtain a high score, you also do not have a choice as to which questions you want to answer.

In the real world, however, the story is often much more complex. We often can choose our environments. Intelligence does not involve simply modifying oneself to suit the milieu (adaptation), it also involves the ability to modify the environment to suit oneself (shaping) and, sometimes, to find a new setting that is a better match to one's skills, values, or desires (selection).

This conceptualization of practical intelligence has important implications for psychotherapy. Many individuals feel depressed because they feel as though there is no way out. An understanding that we are not just passive participants in our environment could be crucial to recovery. Clinical lore has it that Henry Stack Sullivan believed that when people are confronted with difficult situations, they should not deny them but instead get out of them, or, if necessary, get on with them, work to modify them, or get help with them.

Construct Validation

Investigations have been made by Sternberg and his colleagues into the validity, both internal and external, of the theory of successful intelligence. To investigate internal validity, several studies have used factor analysis to determine how statistically separable analytical, creative and practical intelligence are from each other.

In a first study [22], Sternberg and his colleagues administered a test they devised, the Sternberg Triarchic Abilities Test (STAT) [23], to 326 high school students. A confirmatory factor analysis on the STAT yielded three separate and uncorrelated factors.

The STAT comprises nine multiple-choice subtests and three essay subtests that measure analytical, creative, and practical thinking skills. The description below summarizes the content of each multiple choice subtest [10, p. 299]:

1. **Analytical-***Verbal*: Figuring out meanings of neologisms (artificial words) from natural contexts. Students see a novel word embedded in a paragraph and have to infer its meaning from the context.
2. **Analytical-***Quantitative*: Number series. Students have to say what number should come next in a series of numbers.
3. **Analytical-***Figural*: Matrices. Students see a figural matrix with the lower right entry missing. They have to indicate which of the options fits into the missing space.
4. **Practical-***Verbal*: Everyday reasoning. Students are presented with a set of everyday problems in the life of an adolescent and have to select the option that best solves each problem.
5. **Practical-***Quantitative*: Everyday math. Students are presented with scenarios requiring the use of math in everyday life (e.g., buying tickets for a ballgame) and have to solve math problems based on the scenarios.

6. **Practical-***Figural*: Route planning. Students are presented with a map of an area (e.g., an entertainment park) and have to answer questions about navigating effectively through the area depicted by the map.
7. **Creative-***Verbal*: Novel analogies. Students are presented with verbal analogies preceded by counterfactual premises (e.g., money falls off trees). They have to solve the analogies as though the counterfactual premises were true.
8. **Creative-***Quantitative*: Novel number operations. Students are presented with rules for novel number operations, for example, "flix," which involves numerical manipulation that differ as a function of whether the first of two operands is greater than, equal to, or less than the second. Participants have to use the novel number operations to solve presented math problems.
9. **Creative-***Figural*: In each item, participants are first presented with a figural series that involves one or more transformations; they then have to apply the rule of the series to a new figure with a different appearance and complete the new series.

In a second study, the STAT was revised [24]. This revised test supplemented the creative and practical measures described in the previous study with performance-based measures. Creative abilities were now being measured by having people write and tell short stories, by having them do captions for cartoons, and by having them use computer software to design a variety of products, such as greeting cards and a company logo. Practical skills were measured additionally by solving everyday problems presented by means of films, and by an office-based situational-judgment inventory and a college-student situational-judgment inventory. These tests require individuals to make decisions about everyday problems faced in office situations and in school.

Results from this study showed that the creativity tests are moderately correlated with each other and that the practical tests are highly correlated with each other. The two kinds of tests are distinct from each other, however.

A third study attempted to assess the internal validity of the STAT in diverse cultural settings [25]. In particular, the STAT was administered to 3,252 students in the United States, Finland, and Spain. Confirmatory factor analysis showed that a model that incorporated analytical, creative, and practical intelligence provided the best fit to the data, much better than a model featuring a general factor of intelligence.

A fourth study tested 511 Russian schoolchildren and 490 mothers and 328 fathers of these children [26]. Exploratory principal component analysis was conducted and both varimax and oblimin rotations yielded separate analytical, creative, and practical factors for the tests.

The research so far, therefore, has been supportive of the internal validity of the theory of successful intelligence by showing that within populations including

different nationalities, analytical, creative, and practical abilities are statistically distinct. Even though there is some overlap, they are distinct enough so that a high IQ score does not necessarily imply high scores on creative or practical intelligence measures.

Instructional studies serve a major basis for testing the external validity of the theory of successful intelligence. Teaching for successful intelligence provides a series of techniques for reaching as many students as possible, by having all students learn the same material in different ways [27]. The goal is to raise school achievement by teaching for memory learning, analytical learning, creative learning, and practical learning. The book *Teaching for Successful Intelligence* includes techniques the teacher can apply in the classroom [28]. A set of four studies demonstrates that school instruction based on the theory of successful intelligence can improve school achievement, and that these techniques can be taught not only to students, but also to teachers.

A first study looked at high school students who attended the 1993 Yale Summer Psychology Program [22]. Based on their STAT performance, the students who were selected to participate in the program were classified into five groups. The first three groups comprised those students who were high in one of the three aspects of intelligence (analytical, creative, and practical respectively). The fourth group comprised those who were high in all three aspects (they scored above the group average for all three abilities), and the fifth group consisted of those who scored at or below the average in all three aspects.

The summer program lasted four weeks and consisted of a common lecture during the day, with an afternoon discussion section that emphasized analytical, creative, or practical thinking. All students attended the same lecture during the day, but were randomly assigned to the discussion section. Using such a design, some students happened to be matched to their strength, whereas others were not. All students were assessed for analytical, creative, and practical achievement by way of two assignments, a final project, and a midterm and final.

Several relevant results came out of this study. First, all three ability tests significantly predicted course performance. Also, students who were placed into an instructional condition that matched their pattern of successful intelligence abilities performed better than those who were poorly matched. Another finding was that teaching for successful intelligence, by emphasizing all three skills, can improve all three aspects of intelligence. For instance, those in the high-analytical condition improved their creative and practical abilities, and those in the high creative and high practical skill conditions improved their analytical abilities.

In the Primary-School Project [29], third graders in two schools comprising primarily lower socioeconomic status students were assigned to one of three interventions. Prior to the interventions, teachers were divided into three groups, one for each form of instructional treatment. The teachers then received extensive training programs pertaining to the intervention condition they were assigned. Each training program provided teachers with a description of the appropriate

teaching strategy, and opportunities for teachers to create lesson plans and classroom activities, and to receive feedback on their work. Each workshop also included techniques for using strategy they were being taught in all aspects of their instruction, including lecture, discussion, collaborative learning groups, and individual assignments.

In the *successful intelligence* group, the teachers participated in workshops devoted to techniques for using and strengthening analytical, creative, and practical skills in the classroom. The *critical-thinking* group focused exclusively on analytical abilities. The *traditional-instruction* group participated in workshops focusing on an irrelevant topic—procedures for portfolio assessment.

All students worked with the same social-studies curriculum but were taught in one of three ways (depending on their assigned condition). The intervention took place for 10 weeks, 4 days per week, 45 minutes per day, for a total of 30 hours of instruction. During the intervention, the students received instruction that reflected the differences among these three instructional treatments.

Here is an example of an activity from the *traditional-instruction* condition (which emphasized memory skills) [29, p. 376]:

> A police officer came to visit the class. He answered questions from the students and talked about what police officers do. He also talked about the equipment police officers use and how a person goes about becoming a police officer. After he left, each student wrote a letter thanking him and describing what [the student] learned during his visit.

Here is an example of an activity from the *critical-thinking* condition (which emphasized analytical reasoning) [29, p. 376]:

> Class discussion concerning authority figures: each student records information on a sheet with three columns. At the top of each column is a symbol for the following: USA/President, NC/Governor, and Raleigh/Mayor. The students take notes in each column as a range of issues are discussed (e.g., comparative powers, privileges, responsibilities).

Here is an example of an activity from the *successful intelligence* condition (which emphasized analytical, creative, and practical thinking skills) [29, p. 376]:

> The students invented their own government agency. They had to decide what service to provide, give it a name, tell why it's important, and why the government should pay for it. Then [students were asked to] make an advertisement for [the invented government agency]. [The class] shared the agencies for the rest of the class time. (Creative)
>
> The students were given a problem situation of littering in the community. They brainstormed consequences that could be used in that situation. The teacher listed them on the board. Students then decided which consequences were appropriate (fair versus unfair). Then we tied our "make believe" littering-in-the-community problem to our real-life problem of litter on the school grounds. In groups, the students brainstormed possible solutions to the

> problem. They regrouped to pick the best solution and discuss consequences for future "offenders." They came up with a school-wide litter pick-up day for each grade level. (Practical)

As a test of their knowledge, students received assessments in the form of multiple-choice items, essay items, and performance assessments (assignments relying less heavily on students' writing skills, such as drawing a map).

Results from the study show that for performance on the analytical tasks, the successful intelligence group performed significantly better than did both the critical-thinking and the traditional groups. For performance on practical tasks, there was no significant difference between the successful intelligence and critical-thinking groups, but both groups performed better than did the traditional-teaching group. On the creative tasks, students from the successful intelligence group performed significantly better than did students either in the critical-thinking group or the traditional-teaching groups. It is also interesting that even on the multiple-choice tasks the successful intelligence-group students outperformed the other groups.

Another study was conducted with rising eighth-graders drawn from around the nation. The same research design was used, but the curriculum was introductory psychology instead of social studies.

In the traditional instruction condition teachers had students memorize theoretical constructs and research findings. For example [29, p. 380]:

> Obedience to authority is a topic of interest to social psychologists. Who are some of the psychologists that conducted important research on obedience? What motivated this research? What sorts of research methods did they use? What did the researchers find?

In the critical-thinking instruction condition, teachers asked students to compare, contrast, and evaluate different psychological theories. For example [29, p. 380]:

> Sigmund Freud and Gordon Allport put forth different theories of human personality. What did each theorist seek to explain? On what assumptions does each theory rely? How are the theories similar? How are they different? Which of the two do you more agree with, and why?

In the successful intelligence instruction condition, teachers encouraged students to combine analytical, creative, and practical abilities. For example [29, p. 380]:

> Why do you think that people sometimes fail to transfer skills or information when they need to? Think of a time when you did transfer when you should not have. Then think of a time when you did not transfer but should have. Why did these things happen? From your own life, come up with an explanation for why transfer does and does not occur when it is appropriate. (Creative)

> Measurement error is a problem for many kinds of tests. This error is due to extraneous influences that can make people's scores unreliable. Imagine that you have a new job at the Educational Testing Service to reduce measurement error on the Scholastic Assessment Test. What kinds of measurement errors do you want to reduce, and how will you do it? Feel free to suggest strategies that ETS might not like but which you think will reduce measurement error. (Practical)

During the intervention, students received instruction that reflected the differences between the three strategies. Students then participated in activities that emphasized one of three types of instruction and were assessed by both multiple-choice examinations and a series of homework assignments that were essay-based.

Results displayed a different pattern depending on the use of homework assignments or examinations as the outcome measure. For performance on analytical tasks assessed through homework, both the successful intelligence group and the critical-thinking group performed better than did the traditional group, but did not differ from each other. Similarly, for homework-assignment performance on creative tasks, there was no significant difference between the successful intelligence and critical-thinking groups, but both groups performed better than did the traditional group. The pattern was also replicated for the practical homework assignment.

For the examinations however, the groups differed significantly on both creative and practical tasks. For the creative tasks, the successful intelligence group did better than did either the critical-thinking group or the traditional group. On the practical tasks, the successful intelligence-group performance was the highest and significantly different from the performance of both the critical-thinking group and the traditional group. Also, the successful intelligence-group students performed better on the multiple-choice test than both the critical-thinking group and the traditional group.

Similar results have been found for a reading curriculum taught at the middle-school and high-school levels [30]. Students were taught in a way that either emphasized the principles of the theory of successful intelligence or that emphasized memory. They then received assessments for vocabulary, reading comprehension, memory, analytical, creative, or practical thinking. At both grade levels, the students who were taught the successful intelligence based curriculum outperformed students on *all* the assessments relative to those taught in a way that chiefly emphasized memory skills.

Taken together, these results fit within the framework of the theory: the successful intelligence mode of instruction enables children and adolescents to capitalize on their strengths and to correct or to compensate for their weaknesses by allowing students to learn in the way that is matched to their strengths while at the same time increasing their performance in areas that may need development.

ANALYTICAL, CREATIVE, AND PRACTICAL ASPECTS OF INTELLIGENCE

Many psychotherapy approaches can be categorized into one of the aspects of successful intelligence. Below is an attempt to describe the work that has been done by Sternberg and his colleagues for each aspect, and its relation to already existing approaches in psychotherapy.

Analytical intelligence is involved when a person analyzes, evaluates, judges, or compares and contrasts stimuli. Analytical intelligence is mostly what is measured on IQ tests, and tends to involve problems that are fairly abstract in nature.

The idea that the way a person thinks affects the way they act is incorporated in cognitive behavioral theories of psychotherapy. Albert Ellis and Aaron Beck are two of the founders of this form of psychotherapy.

Albert Ellis formulated Rational-emotive therapy, which distinguishes between *rational* and *irrational beliefs* [31]. According to Ellis, rational beliefs are helpful, whereas irrational beliefs can hinder the individual from achieving his or her desired outcome. Ellis has argued that individuals disturb themselves by thinking to themselves absolutist statements such as "I should be that way" or "I must be this kind of person." Another aspect of Ellis's work is his belief that it isn't so much the actual event in a person's life that disturbs the person, but the *meaning* imposed by the person on the event. Therefore, Ellis's theory is mostly cognitive in nature.

The other major contributor to the cognitive-behavioral movement is Aaron T. Beck. Beck's Cognitive therapy holds as a central goal the identification and challenging of automatic thoughts [32]. Both Beck and Ellis share in the common strategy of identifying and modifying cognitive distortions. However, cognitive therapy tends to deal more with whether beliefs and thoughts are realistic than with whether they are rational.

How do the cognitive therapies relate to analytical intelligence? Cognitions that are distortion free may be conceptualized as thoughts that reflect analytical intelligence as a result of their logical nature. At the same time, distortions in cognition may be conceptualized as showing low performance in analytical intelligence and hence as being maladaptive. Cognitive therapy is not normally discussed in terms of intelligence, but when thought of as such, it fits within the framework of the theory of successful intelligence. After all, analytical intelligence has an important adaptive function, especially in regard to examining the logic of one's belief systems.

Creative intelligence is involved when an individual creates, explores, imagines, supposes, or synthesizes stimuli. Sternberg's investment theory of creativity views creativity as a decision wherein the creative thinker produces an idea that is initially unpopular (buys low), and then sells it high, and eventually moves on to the next creative idea once the last one has become popular [33, 34]. According to the investment theory, creativity requires six resources (the first

five of which involve decision making): intellectual abilities, knowledge, styles of thinking personality, motivation, and environment.

Research has shown support for the investment theory. Sternberg and Lubart asked 63 people to create various kinds of products where there is no one correct answer. Individuals were asked to create products in the realms of writing, art, advertising, and science. In writing, they were provided with story titles and were then asked to compose a short story based on that title. In art, the participants were asked to produce art compositions with titles such as "The Beginning of Time." In advertising, they were asked to produce advertisements for a list of products. In science, they were asked to solve problems such as one asking them how people might detect extraterrestrial aliens among us who are seeking to escape detection. Participants created two products in each domain.

They found, first, that their model of the resources needed for creativity: intelligence, knowledge, thinking styles, personality, and motivation was well supported by the data. Second, they found that creativity is relatively although not completely domain-specific. Third, Sternberg and Lubart found that correlations between their measures of creativity and traditional tests of intelligence tended to be higher to the extent that the problems on the traditional tests were novel. These results indicate that even though tests of creative intelligence have some overlap with traditional tests, they also tap skills beyond those measured by traditional tests of intelligence.

Viewing creativity as a decision has important implications for psychotherapy since, if it is a decision, it may be possible to teach patients how to make such a decision. These decisions, in turn, could help them in their lives. Strategies to develop creativity as a decision have been proposed, along with strategies for developing analytical and practical thinking skills. These strategies were originally proposed to increase intelligence in schoolchildren, but a glance at the strategies should make it clear how these strategies could also be applied to an individual's personal life. Even though a complete list of the strategies and their descriptions can be found elsewhere [28, 35, 36], six particularly relevant strategies to psychotherapy are listed below. These six strategies can first be practiced in imagination during treatment and possible outcomes can be considered. Then overt behavior in relatively "safe" settings can be tried.

1. Question assumptions and encourage others to do so.

Creatively intelligent people question why things are the way they are. Therapists should encourage patients to question assumptions. That way, they will encourage them to think creatively and express their own ideas about the way things are or should be.

In the private practice of one of the authors (J.L.S.), a number of patients who felt intimidated by bosses at work or other authority figures found that when they expressed their differing opinion quietly, clearly but forcefully, they were heeded and not fired or humiliated. This was in contrast to the way they

were treated as children and it allowed them to reexamine their assumptions and latent rage against all authorities.

2. Allow yourself and others to make mistakes.

Making mistakes is an inevitable result of producing creative ideas. The important thing is to teach the patient to learn from their mistakes. The patient should learn to be more flexible, and that making mistakes is a part of the learning process. Each mistake the patient brings up should be analyzed and efforts should be made to see how the mistake can be avoided in the future.

3. Take sensible risks and encourage others to do the same.

Creative individuals will take risks and sometimes fail in doing so. This is acceptable. Creative people lean toward taking more risks. Perhaps just the act of taking risks can make a patient feel refreshed and more in control of their life. For instance, taking sensible risks that they would have never thought of taking before may help the patient view themselves as more multi-dimensional and may help them to have positive therapeutic outcomes.

4. Actively define and redefine problems, and help others to do so.

Sometimes people have a problem and see only a few options. This type of thinking leads them to feel pressured and can lead to depression. A way of generating more options is to constantly be redefining the problem. Therapists can allow patients to choose their own ways of solving problems and encourage them to choose again when they learn that their selection was mistaken. It is also important here to emphasize to the patient the importance of gathering the proper information before defining a problem.

5. Understand the obstacles creative people must face and try to overcome them.

Creative people always encounter obstacles and almost always encounter resistance. The question is not whether the person will encounter resistance but whether the person will give up or do something about it. It may be worth it for the therapist to spend some time working with the patient on building up resilience through role-playing, imagery, or any number of other techniques. Also, emphasis should be placed on how to overcome the obstacle, instead of focusing on the obstacle itself.

6. Recognize the importance of person-environment fit.

Patients should be encouraged to develop their creativity in the areas where they have a contribution to make and to seek out environments that will most appreciate that form of creativity. Therefore, a patient may be advised to consider alternative environments that may allow themselves more opportunities to capitalize on their strengths, or different social settings that may be a better match to the patient's social style.

Research has supported the notion that creative-thinking skills can be taught [35]. In one study, the investigators divided 86 gifted and nongifted fourth-grade children into experimental and control groups. All children took pretests on insightful thinking. Then some of the children received their regular school instruction whereas others received instruction on insight skills. After the instruction, all children took a post-test on insight skills. The investigators found that children taught how to solve the insight problems gained more from pretest to post-test than did the students who did not receive the training [37].

Imagination and fantasy are also crucial components to creativity, and techniques to increase both have been used in a psychotherapy setting. In particular, there is a considerable body of clinical and experimental research that suggests the value of uses of patient's imagery and fantasy abilities in various forms of psychotherapy. Such uses range from the visualizing of relaxing scenes during systematic desensitization through the methods of mental rehearsal found in cognitive therapies, the uses of images and fantasies for identifying transferences in psychoanalytic therapies and the elaborate imagery trips of European Guided Imagery approaches [38-40].

Practical intelligence is involved when an individual applies knowledge to his or her daily life. The key concept Sternberg and his colleagues have used to define practical intelligence is *tacit knowledge* [41-45]. Tacit knowledge is conceptualized by Sternberg and his colleagues as a procedural type of knowledge that is often, although not necessary, acquired implicitly and that is used to achieve personal goals. Tacit knowledge takes the form of a series of *if* clauses which are added to each other to produce a *then* action. Most of us learn through experience, even if we aren't consciously aware of it. After awhile, certain rules (which can become a complex sequence of *if-then* pairs) are formed that may affect our subsequent behavior.

Even though tacit knowledge is often helpful for success, tacit knowledge that has become overgeneralized can be a barrier to success. With the help of the therapist, tacit knowledge can be made explicit. For instance, a patient of J.L.S. had encountered enough situations where his mother had not approved of his decisions that he began to avoid telling her things altogether. In therapy, he was asked to imagine the best and worst case outcomes of telling his mother he wanted to get his own apartment. After trying imaginary dialogues with his mother, he chose an approach with which he felt comfortable. To his delight, his mother was accepting of the move albeit with some trepidation. Subsequently, she found that she had expanded her own social life considerably.

Sternberg and his colleagues have measured tacit knowledge for adults in over two dozen occupations including management, academia, sales, and the military. The tacit knowledge is typically measured using problems that one might actually encounter on the job. A typical tacit-knowledge problem consists of a set of work-related situations. People are asked to rate (usually on a scale of either 7

or 9), for each statement in a set of statements, how important each statement is for success in that particular situation.

What are some results from their tacit-knowledge studies? A study of business mangers was conducted at the Center for Creative Leadership in Greensboro, North Carolina [46].

Here is an example of a tacit knowledge question for management [39, p. 4]:

> You are responsible for selecting a contractor to renovate several large buildings. You have narrowed the choice to two contractors on the basis of their bids and after further investigation, you are considering awarding the contract to the Wilson & Sons Company. Rate the importance of the following pieces of information in making your decision to award the contract to Wilson & Sons.
> ____ The company has provided letters from satisfied former customer.
> ____ The Better Business Bureau reports no major complaints about the company.
> ____ Wilson & Sons has done good work for your company in the past.
> ____ Wilson & Sons' bid was $2000 less than the other contractor's (approximate total cost of the renovation is $325,000).
> ____ Former customers whom you have contacted strongly recommend Wilson & Sons for the job.

In two managerial situations their test of tacit knowledge was the single best predictor of performance out of a series of measures that included an intelligence test, a personality test, a cognitive styles test, a test for preference for innovation, a test of job satisfaction, and a test of orientation in interpersonal relationships. The measure of tacit knowledge also showed a much higher correlation with performance on the job than the IQ measures that were used.

Two studies looked at the tacit knowledge of academic psychology professors. Here is an example of a tacit knowledge question for academic psychology [41, p. 5]:

> It is your second year as an assistant professor in a prestigious psychology department. This past year you published two unrelated empirical articles in established journals. You don't however, believe there is yet a research area that can be identified as your own. You believe yourself to be about as productive as others. The feedback about your first year of teaching has been generally good. You have yet to serve on a university committee. There is one graduate student who has chosen to work with you. You have no external source of funding, nor have you applied for any.
>
> Your goals are to become one of the top people in your field and to get tenure in your department. The following is a list of things you are considering dong in the next two months. You obviously cannot do them all. Rate the importance of each by its priority as a means of reaching your goals.
> ____ Improve the quality of your teaching.
> ____ Write a grant proposal.
> ____ Begin a long-term research project that may lead to a major theoretical article.

____ Concentrate on recruiting more students.
____ Begin several related short-term research projects, each of which may lead to an empirical article.
____ Participate in a series of panel discussions to be shown on the local public television station.

Results showed correlations in the .4 to .5 range between tacit knowledge and the number of citations to the professors' work reported in the *Social Science Citation Index*, as well as the rated scholarly quality of an individual's departmental faculty [43, 44].

Tacit knowledge has also been looked at in the domain of sales [47]. Here is an example of a tacit knowledge question in sales [41, p. 4]:

> You sell a line of photocopy machines. One of your machines has relatively few features and it's inexpensive, at $700, although it is not the least expensive model you carry. The $700 photocopy machine is not selling well and it is overstocked. There is a shortage of the more elaborate photocopy machines in your line, so you have been asked to do what you can to improve sales of the $700 machine.
>
> Rate the following strategies for maximizing your sales of the slow-moving photocopy machine.
>
> ____ Stress with potential customers that although this model lacks some desirable features, the low price more than makes up for it.
> ____ Stress that there are relatively few models left at this price.
> ____ Arrange as many demonstrations as possible of the machine.
> ____ Stress simplicity of use, since the machine lacks confusing controls that other machines may have.

Correlations in the .3 to .4 range were found between measures of tacit knowledge for sales and sales volume and sales awards. This work made explicit rules of thumb that sales people use on the job.

A more recent study looked at the importance of tacit knowledge in military leadership [48, 49]. Here is an example of a tacit knowledge question for military leadership [49, p. 124]:

> You are a company commander, and your battalion commander is the type of person who seems always to "shoot the messenger"—he does not like to be surprised by bad news, and he tends to take his anger out on the person who brought him the bad news. You want to build a positive, professional relationship with your battalion commander. What should you do?
>
> ____ Speak to the battalion commander about his behavior and share your perception of it.
> ____ Attempt to keep the battalion commander "over-informed" by telling him what is occurring in your unit on a regular basis (e.g., daily or every other day).
> ____ Speak to the sergeant major and see if she/he is willing to try to influence the battalion commander.

____ Keep the battalion commander informed only on important issues, but don't bring up issues you don't have to discuss with him.
____ When you bring a problem to your battalion commander, bring a solution at the same time.
____ Disregard the battalion commander's behavior: Continue to bring him news as you normally would.
____ Tell your battalion commander all of the good news you can, but try to shield him from hearing the bad news.
____ Tell the battalion commander as little as possible, deal with problems on your own if at all possible.

A measure of tacit knowledge for military leadership (TKML) was administered to 562 participants. It was found that their measure of tacit knowledge significantly predicted military effectiveness, whereas scores on a traditional measure of intelligence and on a tacit knowledge test for managers did not.

Research has not just shown the importance of tacit knowledge for success on the job, but also for the prediction of mental disorders. Grigorenko and Sternberg, in a study already described earlier [26] used their measures of analytical, creative, and practical intelligence to predict the mental health of the Russian adults in the study. Mental health was assessed by paper-and-pencil measures of depression and anxiety. It was found that the best predictor of mental health was their measure of practical intelligence with analytical intelligence coming in second and creative intelligence coming in third. All three skills however contributed to the prediction.

Efforts to teach for practical intelligence have demonstrated some success. Wendy Williams and her colleagues conducted observations and interviews with middle-school students and teachers in order to determine the tacit knowledge necessary for success in school [50]. Based on their results, they created a program that teaches students the tacit knowledge needed to raise their practical intelligence in school. Sternberg and his colleagues have evaluated the program in a variety of settings and found that students who use the curriculum show superior performance in reading, writing, homework, and test-taking ability compared to those not taking the curriculum [51, 52].

Therefore, in real world settings, practical intelligence is important and is not the same thing as analytical intelligence. More importantly for psychotherapy, it is possible to make explicit these implicit rules for success. This is important since it has been shown that lack of practical intelligence can lead to mental disorders such as depression and anxiety. Patients having problems dealing effectively with their own life may be lacking in important adaptive tacit knowledge, a failing that can be discovered through the use of successful intelligence techniques.

Sternberg's conceptualization of tacit knowledge is very similar to the cognitive therapy work by Vittorio Guidano [53]. Guidano introduced the concept of *tacit knowing*, which "consists of deep, abstract, unverbalized rules that organize an individual's perception of self and the world" [54, p. 421]. Guidano has applied

this concept to the use of psychological problems by postulating the existence of the Personal Cognitive Organization (P.C.Org.).

Guidano's work has been further developed by Michael Mahoney [55], who has argued that tacit structures are surrounded by a *protective belt* that sustains the cognitive system, and that too rapid a change can threaten the sense of self that our identity is built. Outside the protective belt lie the conscious structures that consist of our daily activities and thoughts. Perhaps Mahoney's biggest contribution is his elevation of constructivism to a prominent place with cognitive psychotherapy [56]. Constructivism argues that reality is socially constructed and resides in our minds. Therefore, it is not an objective truth. As an outgrowth of these ideas, Mahoney has emphasized the importance of not only irrational cognition but also the importance of the client's tacit assumptions and rules.

Dowd and Courchaine discussed the implications of the experimental research on *tacit knowledge* for the practice of cognitive therapy [57]. They found evidence that tacit knowledge is often more comprehensive, detailed, and richer than explicit knowledge. They also concluded that since early life experiences are particularly likely to be learned implicitly, the identification of tacit cognitive themes is important to the therapeutic process.

Another closely related set of construct is that of *schemas, scripts, prototypes* and *stereotypes*. These hypothetical constructs have become central to most theorizing in cognitive science. They form ways of organizing novel information into rapidly accessible structures that allow for encoding, retention and retrieval of acquired information when one is confronted with sets of events or signals. New social or environmental data are matched against established schema. If there is a reasonable fit the new is assimilated into the older meanings and, emotionally, one may experience relief or even enjoyment. If a mismatch occurs one is first surprised or curious and exploration may follow until a new schema can be formed. But if a mismatch persists one may become frightened, angered, or distressed [38, 58, 59]. Cognitive therapy has recently been extended to treat personality disorders and cognitive therapists have posited that schemas are important in the understanding of such disorders [60].

In an attempt to integrate the psychodynamic focus on automatic unconscious processing with the cognitive focus on rational conscious thinking, Seymour Epstein formulated his cognitive-experimental self-theory (CEST) [61]. According to the theory, humans have two parallel but interacting modes of information processing. The first mode is the *rational system*. The rational system is analytic, logical, abstract, experienced actively and consciously, is slower to process information, and requires justification via logic and evidence. This is in contrast to the *experiential system* which is holistic, affective, concrete, experienced passively, processes information automatically, and is self-evidently valid (experience alone is enough to believe something). Epstein's rational system is closely aligned to the analytical aspect of the theory of successful intelligence, whereas the experiential system is closely aligned to the practical aspect and its creative aspects. Epstein's

integrative theory is impressive, in that it combines the psychodynamic view with the more recent cognitive view in psychology. However, Epstein's theory is primarily an integrative theory of personality, and does not view creativity as a third distinct component. The goal of CEST in a clinical setting is to help patients make changes to their experiential system. One of the ways to produce such a change is by communicating with the experiential system in its own symbol system, which is fantasy. Therefore, creativity is not viewed necessarily as a distinct system, as it is suggested that imaginative thought is the medium through which the experiential system stores its information [62].

THE THEORY OF SUCCESSFUL INTELLIGENCE IN PRACTICE

Humans possess the ability to reason, think rationally, and analyze a situation. However, we also possess the ability to generate novel ideas (or else society wouldn't progress) and the ability to have an understanding (even if at an implicit tacit level) of how the world works in order to judge whether a novel idea will actually work within the confines of our environment. There are many processes at work when a human attempts to display intelligent behavior. Intelligence is an outcome, after all, not a cause.

This article has included an entire section showing that analytical, creative, and practical skills can be increased. This research may have potential for use with patients in a clinical setting. After all, sometimes the hardest part can be getting a patient to the practical stage; to apply changes made in the psychotherapy session to their own life and make it work.

How could the theory of successful intelligence be applied to a psychotherapy setting? The goal of the patient and therapist would be to *work through* the various problem solving cycle stages, *using various techniques* where appropriate *to build* skills in analytical, creative, and practical thinking, *in order to help* patients alter their cognitions and environment in such a way as to alleviate mental health problems.

What are these problem solving cycle stages? For years, psychologists have described the problem-solving process in terms of a cycle [63-65]. These stages include (a) problem recognition, (b) problem definition, (c) formulating a strategy for problem solving, (d) representing information, (e) allocating resources, and (f) monitoring and evaluation.

Within each stage of the analytical problem solving cycle, different aspects (creative, analytical, and practical) of intelligence should be applied in order to progress to the next stage. In a psychotherapy setting, a client can work with the patient in going through this cycle applying different aspects of the theory where appropriate. It is important to note however that this is a cycle, not a linear set of stages. As such, it may be necessary for the patient to return to earlier stages.

Below we suggest for each stage what aspects of intelligence can be helpful, and then describe an actual case that uses the principles.

Stage 1: Problem Recognition

The most important thing for patients to do is recognize that a problem exists. If they don't they will never even consult a therapist unless pressured by family or friends.

Stage 2: Problem Definition

Once there is recognition that there is "a" problem, the next natural step is to figure out what "the" problem is, or what combinations of problems there are. Defining the problem may take a few sessions of psychotherapy. This may require working through the person's life and pinpointing exactly what the problem is. At this stage, the patient's analytical intelligence may be an important starting point (see case example below).

This process may be aided with the use of the successful intelligence journal (see Appendix). The journal was modified from an original version that was used in the classroom for students to determine their successful intelligence profile. In this modified version, the journal allows the patient to keep track of the salient events during the course of a day that lead to feelings of sadness or inadequacy and to recognize in what manner they handled the situation. By keeping a list of the strategies used to develop analytical, creative, and practical thinking nearby [28, 35, 36], the patient can list certain strategies that he or she could have used in the situation to help deal with the situation more effectively. Looking at the journal after a few weeks the patient might notice some patterns that will help to identify exactly where the problem lies and concrete elements that can be worked on in consultation with the therapist with the goal of boosting the patient's successful intelligence profile.

Stage 3: Formulating a Strategy for Problem Solving

Whereas stages 1 and 2 require mostly analytical thinking, the best use of stage 3 involves the application of multiple aspects of intelligence. In this stage, the patient must formulate a strategy for attacking the problem. This stage may include a combination of analytical, creative, and practical thinking. The patient can analytically think of logical solutions, but ostensibly illogical solutions at this stage should not be discounted either. Imagery and make-believe techniques could be used to generate many different options. Uses of imagery and fantasy reflect the creative side of thinking. Attention should also be directed to the fact that we don't just have to adapt to our environment. We can shape it, as well as select a new environment. This is necessary to be aware of, especially as a justification for generating seemingly illogical alternatives.

Stage 4: Representing Information

Analytical thinking is important in this stage, as the patient tries to determine whether or not he or she is representing the problem in a way that is helpful or hurtful to the individual. For instance, patients may think they are worthless if they don't reach their ideal in every situation. This may prevent patients from evaluating information on a case to case basis accurately. For instance, they may look at every failure as a personal failure in life, as opposed to a monitor setback in that particular domain. How patients represent this failure is important to their recovery.

Stage 5: Allocating Resources

After strategies are generated and the problem is represented in a different way, strategies can be narrowed down to a practical one by doing an analysis of the resources that would need to be allocated for each alternative. This is an analytical task, but also requires an understanding of what will work in the world. This involves practical skills. A cost-benefit analysis is helpful, as well as trying to make the tacit knowledge explicit in order to modify it or compare it to an expert's tacit knowledge for the same situation. However, creative thinking can also take stage here in trying to imagine how a change in environment might accommodate a strategy that wouldn't immediately be accommodating under current environmental circumstances.

Stage 6: Monitoring and Evaluation

This stage is important, because the person may come up with multiple practical alternatives to solving the problem even after the narrowing process. This is the time to take a risk and try out these alternatives in the real world (similar to the approach taken by Ellis's RET). It will be important at this point to monitor and evaluate how well the solutions are working, and either try another strategy or to go back and figure out how a current strategy can be modified (an analytical process).

COMBINING ANALYTICAL, PRACTICAL, AND CREATIVE INTELLIGENCE IN PSYCHOTHERAPY

Our discussion of the uses of Sternberg's three dimensions of successful intelligence for psychotherapy is obviously speculative since we are introducing the proposal. Nevertheless, it may be possible to move towards a real example of how it may operate by searching clinical records for instantiations of therapists' use of the principles we have derived for actual treatment. One of us (J.L.S.) had practiced psychotherapy for about 50 years and a search of records turned up a number of cases in which treatment reflected application of facets of the three-dimensional model, albeit well before the Sternberg theory had even been

devised. The following brief case study is one example from several in the records. Naturally, certain background details and, of course, names have been changed to protect privacy.

A Case Story

Herman, a 23-year-old man, had sought therapy because of a mixture of depression and anxiety. He reported right at the outset that he had been enrolled for months in a prestigious university Master of Business Administration program but without the knowledge of his wife and his parents, he had not been attending the classes or paying any attention to the course content. After just a couple of weeks of school attendance, he would say goodbye to his wife, Louise, when she left for her job as an executive in merchandising, and then simply head to a large public library to read books unrelated to his schoolwork or else to the city park where he would occupy a bench, brood, work on math problems and crossword puzzles, or simply feed the pigeons. He realized that ultimately he would no longer be able to sustain the deception from his loving wife and admiring parents. He could not explain how he had gotten himself into such a fix. He was obviously a person of high analytic intelligence as indicated by high IQ scores on traditional tests and by his college grades. The course work to which he had been exposed in his few weeks of the MBA program seemed well within his ability level. He simply found that it could not hold his interest and that his mind wandered to other issues in mathematics, political theory, and political history. How could he explain to his wife and also to his parents that he seemed to have not the slightest interest in a business career? His wife, while herself very effective in her career, wanted to have children soon and his parents expected Herman with the MBA (which they were financing) to move well beyond them (successful immigrant shopkeepers) to a high-level business career.

Depressed as he was, Herman spoke slowly and sadly. He used many abstractions and summary statements in his speech rather than presenting concrete instances or specific memories. To engage him at all it became necessary to approach him first through his one best developed form of intelligence, the analytical. He was challenged to join with the therapist in attempting to make sense of how he had gotten himself into such a fix.

The therapist proposed that they both concentrate on understanding his cognitive processes; perhaps his belief systems that might be faulty and self defeating. The importance eventually of concretizing his communications and of allowing himself to speculate or to explore his daydreams or even his night dreams was also stressed. these might lead to clues as to some of his important but perhaps partly suppressed hopes and goals. In retrospect, one can recognize that the therapist, while initially dealing with the patient's obvious abstract abilities, was also pointing eventually to the importance of more creative, and ultimately, of more practical skill development as a feature of the treatment process.

Humor played a part in the therapist's approach. When the patient would talk at some length in philosophical abstractions about the meaning of life, of Schopenhauer or Spinoza's theories, the therapist might quietly and gently say things like "You get an A in Philosophy but how will this help you get beyond a career as a park pigeon-feeder?" Such approaches to which the patient seemed responsive led to an increase in his reporting more specific memories and descriptions of his actual relationships with his family and his experiences in childhood and in college.

To summarize briefly some of the life story which emerged, Herman, an only child, experienced great performance pressure from his parents. Their only hope was that he could use the schooling opportunities of America to gain wealth and position beyond the desperate struggles that had characterized their lives running a moderately successful "Mom and Pop" store with long hours, continuing stress, and no opportunities for leisure. At college Herman was a good student in abstract subjects, skilled in mathematics and sociological and political theories. He had always had good male friends with comparable interests but scarcely noticed social skills, focused as he was on his seeming ineptness in practical business matters and his shyness with girls. The family atmosphere at home was strongly puritanical and full of sexual taboos. To his amazement, Herman became the object of the pretty Louise's affection when she saw this good-looking young man who seemed like a Romantic poet to her performing on the school debating team. He couldn't believe that this energetic, sophisticated, very well-dressed girl could really like him. Indeed, she pursued him vigorously, introduced him to sexual activity and they were married while still in college. Like his parents, she built an image of him in keeping with her own business orientation as a "good provider" as well as a romantic, verbally articulate lover. It seemed quite natural for her to move quickly and effectively into the commercial world to support them while he gained the important business credential of an MBA.

It is not necessary for our purposes here to elaborate on the "dynamics" of Herman's history and psychology. Rather, we are stressing the therapeutic course. Herman, once engaged and challenged intellectually to collaborate with the therapist in "solving the puzzle" of his own self-defeating behavior, began to recount more anecdotes, specific personal history events, and the accumulation of childhood or later life episodes, which had led him to denigrating self-categorizations and, then, to the unwitting formulation of quasi life-rules such as, "One dare not try to act on one's hopes and imaginings when only financial success matters" or "there is no future in pursuing intellectual interests."

When it became clear that Herman was now open to allowing some of his suppressed wishes and fantasies to emerge in the therapy, the therapist encouraged him to use his imaginative abilities to try out a series of alternative life scenarios, modifying his earlier schemas and scripts in a playful, risk-free fashion. This approach, one can see, is an introduction of Sternberg's creative intelligence dimension into the therapeutic setting, although, of course, not so noticed by the

therapist forty years ago. Herman found these exercises exciting. His depression began to lift. He realized how much he yearned for opportunities to explore his political science and mathematical interests further through education.

The therapy then moved into questions that now seem clearly relevant to practical intelligence. How important were these goals? What could one do to implement them? How could he approach his wife and parents, first revealing his depression and withdrawal from school and then offering alternatives for his future for them to consider? The therapist encouraged Herman to role play various encounters with these significant others, sometimes using the Gestalt Therapy Empty Chair Technique or other forms of imagined dialogues drawn from Psychodrama. Here we see a blending movement toward practical intelligence but reaching the buildup of tacit knowledge by first employing creativity and imaginative resourcefulness.

In the course of these efforts Herman came to see how he had become intimidated and seemingly weakened by his continuing exposure earlier in life to the extreme, almost desperate practicality of his parents and also more recently by his wife's energetic strength and down-to-earth, street-wise realism (except, perhaps, in her love-blinded overestimation of Herman's business potential). In the course of these insights, Herman began to consider more carefully what he himself really wanted in life and what it would take to move toward achieving some approximation of his more personal wishes without completely breaking with those he genuinely loved.

Herman, after further "rehearsals," was able to confront both Louise and his family with the reality of his life. He told them that he had no interest in a business career but did see possibilities for himself as a teacher in either mathematics or political science. He asked for their support in pursuing such a career and first took the practical step of obtaining work as a part-time mathematics instructor in a community college. To his surprise, his wife and parents, at first shocked by his revelation, soon turned their practical abilities to helping him move toward his goals. Herman found that his math skills, combined with the creative, imaginative resources he had practiced in therapy, made him an extremely effective teacher of a "hard" subject. With family support he went on to a Master's degree in Political Science and he was able to secure a permanent position, decently paid, as a community college instructor combining his mathematics and social science background. His depressive thoughts had faded and he found new resources of energy, enjoying his teaching, administration, and "college politics." His relationship with his wife grew even closer as they began their own family. A follow-up some years later showed that he was a respected academic who continued his philosophical discourses with colleagues and students, was well-remunerated (albeit certainly not rich) for his teaching and administrative roles and enjoyed with an academic schedule opportunities for vacations and travel as well as child-care opportunities that were gratifying, after all, to his parents hopes for him.

Clearly, this was an instance of therapy that served to enhance the young man's successful intelligence, even though the therapist had no awareness during the treatment process that the approach used might someday fit well within the scope of the as yet undiscovered Sternberg theory!

CONCLUSION

Since there has been no systematic empirical test of the application of the theory of successful intelligence to psychotherapy, we recognize that the approach outlined in this article remains speculative. However, evidence has been provided that personality and adjustment changes occur in children and adolescents of the kind that we would hope to see in maladjusted adults.

Nonetheless, we believe that clinicians should be aware of the research showing the systematic application of a broad theory of human intelligence to individuals who are confronting new environments. Research described in this article has demonstrated that teachers can be trained. On average, therapists have had more psychological training than schoolteachers. Therefore, there is certainly no reason why therapists couldn't learn the techniques of successful intelligence to help patients. Indeed, psychotherapy methods described in this article that are related to analytical, creative, and practical intelligence have already demonstrated success in a psychotherapy setting (i.e., cognitive therapies, imagery techniques).

With the proliferation of new constructs in all branches of psychology will come the increasing need for integrative models. Some constructs are so closely related to each other that scientists often seem as though they are talking about the same thing, just using a different name. We see the theory of successful intelligence as a framework to help a patient achieve success. It combines a variety of techniques under one theoretical framework. Hopefully the ideas presented in this article are just a start in a positive direction that may open up an interesting and practical line of research on clinical practice.

APPENDIX
Successful Intelligence Journal

(Modified from a version created by Jonna Kwiatkowski for use with college students)

Instructions:

Systematic self-evaluation is an excellent way to learn about your areas of strength and weakness. It allows reflection on individual behaviors, as well as on patterns of behavior. This journal writing exercise has been designed to help you explore your areas of strength and weakness related to the theory of successful intelligence.

The three main components of the theory of successful intelligence are analytical skills, creative skills, and practical skills. There are certain actions associated with each of these skill groups:

Analytical skills—analyze, compare and contrast, evaluate, explain, judge
Creative skills—create, design, invent, imagine, suppose
Practical skills—use, apply, implement, employ, contextualize

It is possible to evaluate your actions during a given day based upon the amount of analytical, creative, and practical skill you exhibited. This journal is designed to allow you to systematically record your analytical, creative, and practical activities as they relate to your daily activities.

On the following page, you will find a template for a single day's journal entry.

You will notice on this page space for you to record the most salient events from your day that caused you to feel sad or inadequate.

Try to record your events in order, from most important/memorable to least important/memorable. Write as many as you think accurately represent your day.

For each event, write a brief description and then rate how much analytical, creative, and practical skill you used during the event.

Then, for each skill list some specific strategies you did not use but could have used in the situation you were in.

For each day, calculate the average amount of analytical, creative, and practical skill that you used at the bottom of the page.

Keep your journal for one week. At the end of the week, go back through your journal and evaluate the following aspects:

Which skill do you use most often? Least often?

Were there situations where you used one skill, but another might have been more appropriate?

Was there a relationship between the events that you ranked as most important in your days, and the skills that you applied to those events (i.e., do you usually draw upon a particular skill in important situations)?

This self-evaluation technique is designed to help you understand your successful intelligence profile. It should become clear within a week which skills you rely upon most, and which skills may be underused. Furthermore, this tool should help you identify situations where you could be more successful by adjusting your approach.

Date _____

1. Event Description:

_____

_____

_____

My actions in this event were . . .

Very Analytical Analytical Not Analytical
1 2 3 4 5

Analytical strategies:

_____
_____
_____
_____

Very Creative Creative Not Creative
1 2 3 4 5

Creative strategies:

_____
_____
_____
_____

Very Practical Practical Not Practical
1 2 3 4 5

Practical strategies:

_____
_____
_____
_____

Daily Average:
Analytical _____ Creative _____ Practical _____

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