The Field of Psychology Never Maxed out on the Ideas of Max Wertheimer:

A New Look at *Productive Thinking*

Robert J. Sternberg

Cornell University

Department of Human Development
College of Human Ecology
Ithaca, NY 14853
USA
robert.sternberg@cornell.edu

Abstract

I review the contribution of Wertheimer's book, *Productive Thinking.* Three main contributions are emphasized. First, the book moved the field beyond behaviorism. Second, the book opened up the field of creativity research. Third, the book and the approach recognized that, in human behavior, the whole is more than the sum of its parts and indeed, that the whole often directs what the parts are and how they function. Although no longer widely read, the ideas in the book continue to be influential today.

When we reach the limit of, say, our credit card, we say we have "maxed out" on the card. We have used up as much credit as it has to offer us.

Toward the early part of the twentieth century, Gestalt psychology offered psychology an opportunity better to understand aspects of human behavior, especially perception and creativity. But the field never "maxed out" on their contribution, that, is made the most of what they had to teach us. At the head of the Gestalt movement was a Max, namely, Max Wertheimer.

Max Wertheimer lived from 1880 to 1943. His son, Michael Wertheimer (born 1927), also became a famous psychologist. Wertheimer, together with Kurt Koffka and Wolfgang Köhler, were the founding trio of the Gestalt movement. Each of the three founders have entered the pantheon of the greatest psychologists who ever lived.

Wertheimer is known primarily for his greatest work, the book *Productive Thinking,* originally published in 1945. (Wertheimer, 2019). The book is a bit of an odd assortment. Chapter I is on "The Area of the Parallelogram." Chapter II is on "The Problem of the Vertical Angles." Chapter III is "The Famous Story of Young Gauss." Chapter IV is about "Two Boys Play Badminton; A Girl Describes Her Office." Chapter V is on "Finding the Sum of the Angles of a Polygon." Chapter VI deals with "A Discovery by Galileo." Chapter VII is on "Einstein: The Thinking that Led to the Theory of Relativity." And there is a "Conclusion: Dynamics and Logic of Productive Thinking." The book is perhaps not as widely read today as some other classics because so much of it is specific analyses of particular strategies used in specific problem-solving endeavors.

The newly published edition of the book contains a preface and introduction by Viktor Sarris. These are tremendous additions to the book. Indeed, I believe the introduction is worth the price of the whole book!   It contains a biography of Max Wertheimer, a discussion of the chapters of the book, a discussion of the main "credo" of Wertheimer, a consideration of the reception the book received, and a review of the book from a modern perspective. I have read about Gestalt psychology before in my various courses in school and in my studies of history, but this introduction provides a deeper and yet more readable introduction to Gestalt thinking than anything I believe I have read in the past.

This rather strange collection of chapters is valuable less for the particular content in each of them than for the main contributions of the book—and of the Gestalt movement in general. I point out here three of these main contributions. Doubtless, there are others.

First, the Gestalt approach provided a school of psychological thought that freed its followers from the limitations that behaviorism placed on the study of psychological phenomena (Schultz & Schultz, 2015). In at least the stricter forms of behaviorism, empirical work was literally limited to the study of behavior. The study of the internal mental representations and processes—of the mind—was off limits. When I named the first edition of my introductory psychology textbook, *In Search of the Human Mind* (Sternberg, 1995)*,* I received pushback from some behaviorists, even at the end of the 20th century, regarding whether the mind existed and, if so, whether it was a legitimate object of study. Clearly, even then, behaviorism in a strict form was influential among at least some psychologists. The Gestalt approach, in contrast, delved into the human mind, although it was not clear about the mind's details.

Second, the study of creativity was absolutely moribund when Wertheimer and his Gestaltist colleagues, including also Karl Duncker (1945), began studying creative problem solving. Although J. P. Guilford (1950) is often given credit for the revival of interest in the study of creativity, it was actually the Gestalt psychologists who initiated a broad program of empirical research.

The question of who gets credit for exciting interest in the empirical study of creativity could seem like a small matter of scholarly dispute. In my view, however, the mistake in credit was more serious than it might at first appear. The reason is that the Gestaltists, on the one hand, and Guilford, on the other, took radically different approaches to studying creativity. The Gestaltists, including Wertheimer in his book, studied creative insight. They, and especially Duncker, devised ingenious problems to study insightful reasoning. They then observed how people came to the insights they had for solving these problems.

On the one hand, the Gestaltists never got very specific about just how their participants reached their insights. On the other hand, at the time they were working in the early twentieth century, experimental methodology was not very advanced. Subsequent investigators (e.g., Gick & Holyoak, 1983; Metcalfe & Weibe, 1987; see also Sternberg & Davidson, 1994), with the benefit of several decades of research in cognitive psychology, later would devise more sophisticated methods of research. The Gestaltists were on the right track, at least so far as their problem-finding was concerned. They were dealing with a key aspect of creativity—insightful thinking—that would later lend itself to programs of research that would be highly illuminating with respect to the nature of creative thinking.

Guilford (1950), in contrast, opened up creativity research to the study of divergent thinking, of the kind one uses in thinking of unusual uses of a paperclip. Many creativity researchers would go on to pursue research in this area. The Torrance Tests of Creative Thinking (Torrance, 1974, 2008) are based upon divergent thinking, and a field built itself up around the study of divergent thinking (Runco, 1991). Some scholars in the field or creativity (e.g., Amabile, 1996; Sternberg, 2018) have suggested that the divergent-thinking approach may have trivialized creativity to the point that it may have told us less about real-world creativity than one would have hoped for, given the effort expended. Baer (2015; Baer & Kaufman, 2005) has argued that creativity is largely domain-specific, so that an approach such as that of divergent-thinking, which is domain-general, may have missed the point in terms of understanding how creativity is generated in each of a number of specific domains (see also Sawyer, 2012).

Third, the main credo of the Gestalt movement, promulgated by Wertheimer, was important but, somehow, largely lost after the era of the Gestaltists:

"There are entities where the behavior of the whole cannot be derived from its individual elements nor from the way these elements fit together; rather the opposite is true: the properties of any of the parts are determined by the intrinsic laws of the whole."

---Max Wertheimer (1925), Lecture at the KANT Society on 17 December, 1924.

This view came to be popularized as "the whole is more than the sum of its parts," but the popularization obviously lost something. The loss for the field of psychology was great.

An example was the psychometric approach, which grew up alongside the Gestalt approach but outlasted it, perhaps because its emphasis on measurement gave it a veneer of scientific credibility that the Gestalt approach did not carry for a sufficiently long time. The idea was that constructs such as creativity or intelligence could be broken down into constituent factors, which then could again be put together, supposedly to permit understanding of a phenomenon as a whole. Thus, psychometric tests of creativity or intelligence consisted of individual items, the sum of scores on which yielded an overall score, which then could be converted to a percentile or to an IQ or other standard score. Similarly, general intelligence or creativity could be broken down into factors, and the sum of factor scores would yield an overall composite factor score that was designed to capture the whole.

But can creativity, intelligence, or anything else be fully understood merely as some kind of additive sum of its parts? Three types of theories of intelligence suggest that they are not. First, cognitive theories view intelligence as involving the interaction of many different information-processing components with each other and with working memory (Ellingsen & Engle, 2020). Simply adding up scores on some kind of information-processing measure or measures will not fully reflect the complexity of this approach to intelligence. Second, cultural theories (Sternberg, 2020a) argue that the nature of intelligence can only be understood in a cultural setting, because intelligence is socioculturally defined. What is intelligent in one cultural milieu may or may not be in another. Third, systems theories suggest that the elements of intelligence are highly interactive—that, following Wertheimer, the whole

is more than the sum of its parts. For example, on one such view, intelligence is a complex

interaction of creative, analytical, practical, and wisdom-based abilities (Sternberg, 2020b).

What is left of the Gestalt approach today? Perhaps not as much as should be. But its

influence has not disappeared. First, the names of Wertheimer, Koffka, and Köhler can be

found in virtually any serious history-of-psychology textbook. They are among the few

psychologists whose contributions to the field have become immortal. Second, when one

compares the organismic approach of the Gestaltists to the strictly behavioral approach of the

behaviorists, clearly the Gestaltists won. The cognitive-psychology movement, as well as

related movements, build far more on Gestalt psychology than on behaviorism. Indeed, in its

origins, cognitive psychology was largely a reaction to behaviorism (Miller, Galanter, & Pribram,

2013). Third, the psychological study of creativity—which the Gestaltists largely initiated,

remains an active and vibrant field, one that has gone way beyond Guilford and that perhaps

more closely resembles what the Gestaltists had in mind than what Guilford had in mind. The

main emphasis today, at least for the field as presented in textbooks, is on understanding the

inner workings of creativity and its interactions with the environment, rather than just on

measuring divergent thinking and its offshoots (see, e.g., Kaufman & Sternberg, 2021; Sawyer,

2012). Finally, most psychologists recognize, at some level, that the whole of behavior is more

than the sum of its parts and that the whole influences its parts.   For that contribution alone,

the field of psychology should be forever grateful. Schools of thought come and go in

psychology. Some disappear with scarcely a trace; others leave a legacy. Without doubt,

Gestalt psychology, in large part propelled by Wertheimer's book, has left a lasting and

important legacy.

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