The Construct of Mindfulness

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After mindfulness is defined, a brief history of the research on the topic to date is reviewed. This work essentially falls into three categories: health, business, and education. Considerations of mindlessness as a social issue are then addressed. A brief introduction to the articles in this issue follows. These articles speak to mindfulness as it relates to potential solutions to social problems.

The main purpose of this issue is to offer social scientists and policy makers an alternative lens through which to view and understand the social phenomena and issues that interest them. Although the concept of mindfulness overlaps with many other constructs in psychology (a fuller discussion of this is provided in the following article, by Sternberg), it also offers some unique perspectives on how to investigate psychological processes. The concept of mindfulness and the related concept of mindlessness were introduced to social psychology more than 2 decades ago. They have been applied to many diverse areas, including psychopathology, developmental psychology, education research, political theory, and communication processes, to name a few.

Definition of Constructs

Mindfulness is not an easy concept to define but can be best understood as the process of drawing novel distinctions. It does not matter whether what is noticed is important or trivial, as long as it is new to the viewer. Actively drawing these

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distinctions keeps us situated in the present. It also makes us more aware of the context and perspective of our actions than if we rely upon distinctions and categories drawn in the past. Under this latter situation, rules and routines are more likely to govern our behavior, irrespective of the current circumstances, and this can be construed as mindless behavior. The process of drawing novel distinctions can lead to a number of diverse consequences, including (1) a greater sensitivity to one's environment, (2) more openness to new information, (3) the creation of new categories for structuring perception, and (4) enhanced awareness of multiple perspectives in problem solving. The subjective "feel" of mindfulness is that of a heightened state of involvement and wakefulness or being in the present. This subjective state is the inherent common thread that ties together the extremely diverse observable consequences for the viewer. Mindfulness is not a cold cognitive process. When one is actively drawing novel distinctions, the whole individual is involved.

Brief History of Research

Research on the differences that emanate from mindful versus mindless behavior began in 1974, and the results have been both wide-ranging and of great practical concern. Early work focused on looking at basic characteristics of mindfulness (e.g., Chanowitz & Langer, 1981; Langer, Blank, & Chanowitz, 1978). Studies with relevance to social issues fall into three major categories: health, business, and education.

Studies of health ramifications were among the earliest studies of mindfulness. These focused upon aging and the issue of control. Perceived control has been shown to have very positive effects on stress reduction and health (e.g., Geer, Davison, & Gatchel, 1970; Langer, Janis, & Wolfer, 1975). It is the perception of control, rather than any objectively viewed control, that is the significant variable. Interestingly, when a person behaves mindlessly, the perception of control is not possible. Therefore, we conducted several investigations (e.g., Alexander, Langer, Newman, Chandler, & Davies, 1989; Langer, Beck, Janoff-Bulman, & Timko, 1984) to see if mindfulness in elderly populations could be increased with positive effects. We found that this could be accomplished with relatively simple manipulations, for example, having more control over one's schedule and taking care of plans. Mindful treatments had dramatic effects: They decreased adverse health symptoms such as arthritis pain and alcoholism and increased longevity (see Langer, 1989, for a more detailed review of this work and further examples of the effect of mindfulness on health).

Those in the business world have been eager to utilize techniques that increase mindfulness in workers and managers. Studies of mindfulness in a business context have shown that increases in mindfulness are associated with increased creativity and decreased burnout (e.g., Langer, Heffernan, & Kiester, 1988). A study

by Park conducted with businessmen in Korea found an increase in productivity as well (Park, 1990). We anticipate that increased mindfulness will be shown to decrease accidents as well, particularly when new technology is introduced. For example, when many of us learned to drive, we were told to pump the brakes slowly while trying to stop on a slippery surface. With the advent of antilock brakes, however, the more appropriate response is to firmly press the brakes down and hold them there. Thus, accidents that could be prevented in the past by our learned behavior can now be caused by the same behavior. This is an example of mindlessness that can easily occur in everyday life as well as the workplace.

Education is an area that often seems to abound in mindlessness. Many educational ramifications of mindfulness are reviewed in *The Power of Mindful Learning* (Langer, 1997). Whether intending to learn an academic subject, a new sport, or how to play a musical instrument, we often call upon mind-sets that hamper rather than help us to learn. For example, many of us believe that we should learn the *basics* of a task so well that they become second nature to us. Having mindlessly accepted this information, it rarely occurs to us to question who determined what the basics are. Surely, if women and men engage in the same sport, the differences in their bodies should result in differences in how to play the game, for example. Once we learn the basics mindlessly so that we no longer have to think about them, we are not in a position to vary them readily as we get more information about the task.

But there are relatively simple ways of reducing mindlessness in learning. Several studies more fully described in Langer (1997) explored the ramification of inducing mindful learning. In one study (Langer & Piper, 1987), mindfulness was encouraged by introducing information about objects in a conditional way, using language like "could be," rather than the more traditional, absolute way ("is," "can only be"), which was defined as the mindless condition. Participants in the mindful conditions were better able to use the objects creatively when the need for a novel use of the object arose. In subsequent studies this work was extended to the introduction of text in the same conditional manner. Here, the language that was used consisted of expressions such as "could be," "perhaps," "from one perspective." Similar benefits accrued from the mindfulness treatments in these studies (e.g., Langer, Hatem, Joss, & Howell, 1989).

Attentional processes have been assumed to be central to learning. These have also been illuminated by mindfulness research. In one study (Langer, 1997) I asked both students and teachers what they meant by *paying attention*. Interestingly, both groups believed that this meant to "hold the image still as if focusing a camera." The problem, however, is that if one follows this instruction, it is very difficult to stay attentive. In contrast, in studies with children, college students and the elderly, (Langer & Bodner, 1997; Langer, Carson, & Shih, in press; Levy & Langer, in press), we found that if people are instructed to vary the stimulus, that is, to mindfully notice new things about it, then attention improves. Moreover, such mindful attention also results in a greater liking for the task and improved memory.

Other mindful manipulations in the educational context have involved asking students to make material more meaningful for themselves, compared to groups asked to memorize it (Lieberman & Langer, 1997). The meaningful group retained the information better and was able to utilize it in more creative ways in essays. Adding perspective taking also elicits better performance (Lieberman & Langer, 1997). Consider the difference between introducing a history lesson as "Here are the three reasons for the Civil War" versus "Here are three reasons for the Civil War from the perspective of. . . ." The former presents the information as a closed package; the latter invites further consideration of how the information might vary from still other perspectives. Almost all of the facts most of us learned in school were taught to us in a perspective-free way that encourages mindless use of the information because it does not occur to us to question it again. In contrast, information presented in the mindful, perspective-taking condition was learned better by high school students, even though they had to deal with more information. Clearly, mindful teaching practices can have a pronounced effect on student learning.

Other areas currently being investigated through a mindfulness lens include decision making (see Langer, 1994, for a theoretical review), evaluation, meditation and Eastern religious practices, and emotion. The work described in the current issue further demonstrates the breadth of application possibilities of this construct, ranging from interaction with computers to understanding of mental retardation.

Mindfulness, Cognition, and Computers

The question of how mindfulness relates to intelligence, cognitive abilities and cognitive styles is considered in the issue's next article, by Robert Sternberg. He concludes that although there is some overlap with other types of cognitive processes, and it is most like the construct of cognitive style, the concept of mindfulness has some unique properties. We are not in complete agreement with his conclusion that mindfulness is most like a cognitive style because, in our view, a style is not expected to change over time and through different circumstances, whereas the essence of mindfulness is change.

We prefer to consider the problem of the relation between mindfulness and other types of cognitive processes in terms of whether something is reducible to an algorithm for processing information. Having a particular cognitive style cannot be mindful, by definition, because it is precisely the sensitivity to the novel and, therefore, unexpected (i.e., nonalgorithmic) that is one of the key components of mindfulness. The French philosopher Giles Deleuze captured part of the spirit of mindfulness when he wrote, "To the answer embedded in every question, answer with a question from a different answer" (Deleuze & Guattari, 1980).

The algorithmic aspects of problem-solving behavior have been extensively addressed by the literature on cognition and problem solving (Newell, 1990) and

this has had a major effect on cognitive psychology. Paradoxically, although this early work established a whole new approach to the mapping of cognitive processes, it also limited the scope of what a mind-mapping venture could look like.

The Simon-Newell paradigm (Newell, 1990) is based on what has been called the mind-as-computer metaphor (Gigerenzer & Goldstein, 1996). The central tenet of this metaphor is that mental processes are nothing more than algorithmic processes, or processes that can be simulated by general-purpose computational devices, such as a digital computer. This central tenet is, by definition, irrefutable, because it contains a set of cognitive commitments that we commonly use to refer to a problem. According to this view, solving large arrays of linear equations is a legitimate problem and an adequate topic for the study of mental processes because the answer is computable by a finite algorithm working on a finite-state computational device. Inventing a new topology for a space-time—as Einstein did—would not be a legitimate problem for this view (or would be considered an ill-posed problem) because it is not susceptible to formulation as the input to a finite-state computational device. Thus, the cognitive abilities scholar cannot account for acts of creation of new concepts, even something like the general theory of relativity, that have become new paradigms in their fields. In contrast, the student of mindfulness focuses often on those particular cognitive processes that defy immediate algorithmic representation.

The phenomenon of mindfulness also has implications for the ways in which we view and represent the mind and its connection to the brain. The "cognitive revolution" has relied, as previously noted, on models of the human mind based on the image of a computer or a generalized computational device. Most investigators in this area (e.g., Churchland, 1987) have sought to explain mental processes by reduction to computational or algorithmic processes that can be modeled using sophisticated computer science representations. This reduction has recently been extended to explaining mental phenomena in terms of neurobiological processes taking place in the brain (e.g., Churchland, 1987), which can themselves be represented in computational terms. An epistemological problem, however, is that these metaphorical devices cannot be transcended or refuted by empirical means because the organizing metaphors have never been explicitly made subject to empirical investigation. All that investigations based on the mind-as-computer metaphor can tell us is whether our problem-solving processes deviate from the normative precepts that make up the metaphor in question. Thus, we are not informed about the possibly nonalgorithmic processes by which people come to solve the practical problems that cognitive scientists expect them to solve by algorithmic means.

Mindfulness theorists are not alone in positing the importance of nonalgorithmic factors in problem solving. Logician Kurt Godel wrote eloquently about the incompleteness of any non-self-contradictory logic system (see Putnam, 1985). Because of this, we as a society are still trying, with little success, to build robots that can navigate their way around a relatively uncrowded room and can

resolve problems like catching a ball that a child can resolve while riding a bicycle, carrying on a conversation, and listening to his favorite tune on the radio. We believe that the time to investigate the nonalgorithmic dimensions of thinking is ripe, and the phenomena of mindful engagement can provide a portal to these relatively unexplored dimensions.

Mindlessness as a Social Issue

Mindlessness can show up as the direct cause of human error in complex situations, of prejudice and stereotyping, and of the sensation of alternating between anxiety and boredom that characterizes many lives. Boredom and malaise, particularly, can be thought of as conditions brought on by mindlessness. Without noticing differences brought on by the passage of time within ourselves and the outside world, each day looks like every other. Students feel stuck and listless in the classroom. Their teachers often absent-mindedly slog through long-winded lectures and sermons. Employees such as telephone operators, checkout clerks, and airline personnel often sleepwalk through their days, mechanically carrying out the tasks that have been designed for them. The day when surgeons and airline pilots may check out psychologically because of standardization and routinization of their work is perhaps not very far off, with potentially disastrous consequences. Already, human error accounts for more casualties in the American military than does any actual military conflict (Snook, 1996).

Social psychologists have provided many examples over the years of ways in which collective choices regarding prejudice can become normative and destructive. Negative intergroup attitudes can also be the result of mindless categorization. When we do not stop drawing distinctions between people at some arbitrary point (e.g., skin color or accent), and we keep on drawing distinctions (down to feeding habits, music they listen to, or any of thousands of issues), then we may discover that most stereotypes that we have formed are not rooted in fact, but in choice.

We believe that the findings of mindfulness research can help address these various phenomena directly. The research presented in the current issue demonstrates the many areas to which it is applicable.

Organization of the Issue

This issue brings together both theoretical and empirical work. In keeping with the emphasis of the mindfulness research paradigm on the continuous re-creation of new categories, the articles in this issue alternately delve into the mindless phenomena of interactions between people and their environment and review ways in which this continuous interaction can be made more mindful.

The article by Robert Sternberg is theoretical. It examines various possible interpretations of the concept of mindfulness as they appear in the field of cognitive

psychology. Based upon this investigation, Sternberg concludes that mindfulness cannot readily be absorbed into any of the existing categories—such as cognitive style or capability—that have been traditionally operationalized in cognitive psychology. His work encourages and stimulates new research aimed at clarifying and operationalizing mindfulness.

As noted, much of the research already conducted reveals the powerful effect of mindfulness manipulations on creativity, attention, and learning. In the issue's third article, Ron Ritchhart and David Perkins take this work further by applying mindful learning to a new content area, math, in a real-world setting. In their research, they present the original information to be taught in a conditional form and discover advantages associated with this type of educational practice.

The following article, by Christine Kawakami, Judith White, and Ellen Langer, extends the concept of mindfulness to the personal characteristics and gender roles enacted by women in the business world. As Langer (1989) noted, mindfulness keeps us situated in the present. Because of this, a mindful individual should be perceived as more genuine than a mindless individual, irrespective of whether she behaves in a gender-traditional or non-gender-traditional way. The authors present experimental evidence that suggests that mindfulness does lead to audience reception of genuineness that increases positive affect and may override negative gender biases of male observers.

Steven Reiss next presents a review of research of both theoretical and empirical relevance. He reinterprets the construct of mindfulness as a combination of high curiosity with a low need for order. He then discusses the implications of these ideas and shows how categories used for classifying mental retardation have become more mindful over time. His article also has ramifications for childhood education.

The following article, by Clifford Nass and Youngme Moon, considers how people interact with computers. Their investigations argue that relationships with computers are often mindless because machines are frequently treated as if they were human. Individuals bring the same rules and expectations to bear when interacting with computers as they do when interacting with people. These authors review studies that show the ways in which we have "welcomed" computers and made them part of our social environment by giving them personalities and human characteristics.

Judee Burgoon, Charles Berger, and Vincent Waldron present research that addresses the ways in which mindless behavior influences communicative practices. This mindlessness often results in misunderstandings, misconstruals, and misperceptions among communicators who are individually under the impression that they are engaged with one another in meaningful dialogue. These authors explore ways in which increasing mindful awareness of one another can deepen and broaden social understanding.

The penultimate article, by the current authors, explores ways in which we might consider both decreasing mindlessness and increasing mindfulness with respect to three social concerns: demographic changes, the workplace, and preparing children for the high-tech world in which they live. They explore ways in which loosening our cognitive commitments to certain stereotypes and archetypes can stimulate personal development and increase the potential for interpersonal learning of the new age of broadband residential access and suggest extensions to the research paths indicated by articles in the issue.

In the issue's final article, Jack Demick reviews and summarizes the contributions of the articles in the issue. He argues that the construct of mindfulness can be used as a unifying framework because of its applicability to many subfields in psychology, including social, cognitive, and developmental. He also discusses the contributions that mindfulness theory has made to a constructive reinterpretation of many diverse social problems, such as the perpetuation of prejudice and stereotypes and tensions within adoptive and foster families.

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