Testing Nonlocal Observation as a Source of Intuitive Knowledge

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This study explored the hypothesis that in some cases intuitive knowledge arises from perceptions that are not mediated through the ordinary senses. The possibility of detecting such nonlocal observation was investigated in a pilot test based on the effects of observation on a quantum system. Participants were asked to imagine that they could intuitively perceive a low-intensity laser beam in a distant Michelson interferometer. If such observation were possible, it would theoretically perturb the photons' quantum wave functions and change the pattern of light produced by the interferometer. The optical apparatus was located inside a light-tight, double steel-walled shielded chamber. Participants sat quietly outside the chamber with eyes closed. The light patterns were recorded by a cooled digital camera once per second, and average illumination levels of these images were compared in counterbalanced attentional blocking versus nonblocking conditions. By design, perturbation would produce a lower overall level of illumination, which was predicted to occur during the blocking condition. Based on a series of planned experimental sessions, the outcome was in accordance with the prediction ($z = -2.82$, $P = .002$). This result was primarily due to nine sessions involving experienced meditators (combined $z = -4.28$, $P = 9.4 \times 10^{-6}$); the other nine sessions with nonmeditators were not significant (combined $z = 0.29$, $P = .61$). The same experimental protocol run immediately after 10 of these test sessions, but with no one present, revealed no hardware or protocol artifacts that might have accounted for these results (combined control $z = 1.50$, $P = .93$). Conventional explanations for these results were considered and judged to be implausible. This pilot study suggests the presence of a nonlocal perturbation effect that is consistent with traditional concepts of intuition as a direct means of gaining knowledge about the world, and with the predicted effect of observation on a quantum system.

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INTRODUCTION

"The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift."[1]

—Albert Einstein[1]

Intuition is widely regarded as a key source of inspiration in medical diagnosis,[2,3] technological innovation, business decisions, artistic achievement, and scientific discovery.[4] Based upon an analysis of the lives of numerous scientific icons, Root-Bernstein[5] concluded that "Virtually without exception, the greatest mathematicians and scientists assert that the development of their personal, visual, kinesthetic, or generally sensual algorithms [associated with intuition] is the basis for scientific thinking."

But what is intuition? Given its central role in advancing science and civilization, one might expect that the topic has been a keen subject of inquiry, especially within academic psychology for many decades. Surprisingly, until recently it has been studiously ignored. This may be because the quasi-magical, numinous nature of intuition presents an embarrassing challenge to science, which prides itself on the power of rational knowing. Intuitive knowledge does not appear to function like the methodical inferences associated with rational thought. It arises "in a flash," or "out of the blue," sometimes with correct answers to thorny scientific and technical problems, elegant solutions to complex mathematical theorems, and complete scores for intricate musical compositions.[6]

Because of the scientific emphasis on rational knowing, and especially of physicalism—the belief that "mental entities, properties, relations and facts are all physical"[7]—other ways of knowing, including intuitive knowing, have been regarded as an inferior epistemology at best and a vestige of superstitious nonsense at worst. For half a century, this belief led academic psychology to utterly deny the importance of subjective experience.[8,9] Indeed, when behaviorism was in full bloom, many psychologists embraced a perplexing catch-22 in which minds concluded with great confidence that there were no minds at all.

But as the cognitive sciences and neurosciences advanced, the idea of an unconscious mind, once the sole province of psychoanalysis, became scientifically acceptable again. This transformed the original concept of intuition from a mysterious means of gaining nonordinary knowledge of the world to the more familiar domain of computer-inspired background information processing. The computer analogy spawned experiments looking for physiological markers of implicit learning, for the brain circuits responsible for the "ah ha" experience,[10,11] and for identification of unconscious cognitive biases.[12] In medical research, scepticism about the accuracy of intuition contributed to the enthusiastic acceptance of evidence-based medicine, which is based on the assumption that a purely rational evaluation of experimental evidence will always be more reliable than educated intuition.[13]

Given these trends, the traditional concept of intuition as a nonrational, nonsensory way of knowing seems well on its way to oblivion. And indeed, experiments testing the possibility that there may be other ways of knowing are rarely reported in psychological, neuroscience, and medical journals. By contrast, in the literature of parapsychology—the discipline that straddles those uncertain realms between physics and psychology—one

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