THE IMPLICATIONS OF COGNITIVE ENHANCEMENT ON OBVIOUSNESS

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Cognitive enhancement is defined as improving the way the brain works. Various methods exist for enhancement, such as the use of pharmaceuticals and neuroelectronic interfaces.[1] For patent law purposes, most of these methods are still nascent. This paper focuses on a particular type of technology that has produced the most dramatic effect on cognitive enhancement: improving perception through the availability of information in a searchable form.

An increase in computing power and information technology has changed the process of research. In 2003, sequencing the human genome cost almost $3 billion.[2] Scientists estimate that in the next several years, it will drop to $1,000.[3] In the semiconductor industry, engineers have developed increasingly complex computer chips as prices have fallen, resulting in an explosive growth in computing power.[4] Additionally, information about patents has become more widely available and searchable, increasing the potential for interdisciplinary innovation. But does broad access to information actually enhance creativity or the understanding of different technological fields?

Commentators have lamented the decline in prior art search quality by patent examiners that over-rely on keyword searching,[5] but little attention has been paid to the ways in which advances in cognition have changed the inventive process itself and the implications on patent law. Access to organized information may help inventors integrate information from different disciplines. Without adequate reflection, courts and examiners might assume that the availability of information necessarily results in better understanding of technology from different fields or improved creativity, when it in fact may not.

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[1] See, e.g., Theodore W. Berger, et al., *A Cortical Neural Prosthesis for Restoring and Enhancing Memory*, J. NEURAL ENG. 8-10 (2011) (discussing the use of neural implants to improve memory in rats); Henry T. Greely, et al., *The social effects of advances in neuroscience: legal problems, legal perspectives*, in NEUROETHICS: DEFINING THE ISSUES IN THEORY, PRACTICE AND POLICY 255-56 (Judy Illes ed. 2006) (discussing pharmacologic and neuroelectronic enhancement).

[2] Amy Harmon, *Gene Map Becomes a Luxury Item*, N.Y. TIMES, Mar. 4, 2008, at F1.

[3] Francis Collins, *Opinion: Has the Revolution Arrived?*, 464 NATURE 674 (2010); Nicholas Wade, *Cost of Decoding a Genome Is Lowered*, N.Y. TIMES, Aug. 11, 2009, at D3.

[4] *See* Intel, *Moore's Law: Made Real by Intel Innovations,* http://www.intel.com/technology/mooreslaw/ (last visited June 1, 2011); Gordon E. Moore, *Cramming More Components onto Integrated Circuits*, ELECTRONICS (Apr. 19, 1965), *available at* http://download.intel.com/research/silicon/moorespaper.pdf (predicting that the number of transistors that fit on a microchip would double every two years).

[5] *See, e.g.*, Andrew Chin, *Search for Tomorrow: Some Side Effects of Patent Law Automation*, 87 N.C.L. REV. 1617 (2009) (discussing the use of search engine technology by examiners); Justin Pats, *Preventing the Issuance of "Bad" Patents,* 48 IDEA 409, 418-420 (2008) (describing the limitations of search engine technology used by examiners).

After describing the technological background of cognitive enhancement, I discuss how these advances might affect the determination of obviousness, one of the most difficult evaluations in assessing patentability. I suggest that cognitive enhancement requires revisiting how patent law defines the person having ordinary skill in the art (PHOSITA), the fictionalized being blessed with perfect understanding of all the relevant prior art. As the ability of actual inventors to extract information from prior art references approaches the ideal of the PHOSITA, ascertaining whether references are from analogous arts becomes critical; courts and examiners cannot combine references that are from nonanalogous arts for obviousness purposes. The determination of obviousness needs to focus on the level of ordinary skill in a particular art and when to limit consideration of references from different fields. I argue that courts and examiners, in assessing obviousness, should look at whether those of ordinary skill in the art actually would have used technological advances in an interdisciplinary way at the time the invention was made.