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No Patent for You! How KSR v. Teleflex's Nonobviousness Test Conflicts with the Scientific Method and Removes the Incentive to Innovate

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Cover Page Footnote

First and foremost, I would like to thank Professor Sam Han of the University of Dayton School of Law for convincing me to take on this topic and for providing me with insightful guidance and advice throughout the entire writing process. I would also like to thank Professor Julie Zink (University of Dayton School of Law), Ria Farrell Schalnat (Frost Brown Todd), and Josh Lorentz (Dinsmore & Shohl) for their thoughtful commentary and suggestions. Finally, I would like to thank my husband for his endless love, support, and encouragement throughout my law school experience.

NO PATENT FOR YOU!: HOW *KSR V. TELEFLEX'S* NONOBVIOUSNESS TEST CONFLICTS WITH THE SCIENTIFIC METHOD AND REMOVES THE INCENTIVE TO INNOVATE

Rebecca Greendyke*

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I. INTRODUCTION

Many everyday conveniences that most Americans take for granted were accidental discoveries. In 1928, Sir Alexander Fleming inadvertently discovered the antibiotic properties of penicillin when a species of *Penicillium* mold contaminated an agar plate full of bacteria in his laboratory.¹ Shortly after the end of World War II, Raytheon engineer Percy Spencer stumbled upon the idea for microwave ovens after a chocolate bar melted in his pocket while he was standing next to a large magnetron that

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¹ MILTON WAINWRIGHT, *MIRACLE CURE: THE STORY OF PENICILLIN AND THE GOLDEN AGE OF ANTIBIOTICS* 16-17, 19 (1990).

had powered Allied radar during the War.² Unlike the serendipitous discoveries of penicillin and microwave ovens, the vast majority of scientific innovation leading to patentable inventions occurs slowly and methodically. At the heart of this process is the scientific method, which involves predicting an outcome based on known methods and using controlled testing to determine whether the prediction holds true.

The goal of the United States patent law system is to promote the progress of technology by encouraging and rewarding innovation. This goal is reflected in the United States Constitution, which gives Congress the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”³ From its inception, the Intellectual Property Clause endeavored to strike a balance between promoting innovation for the benefit of the public while avoiding unnecessary monopolies that restrain competition.⁴ In order to receive the reward of a patent monopoly, modern patent law requires that an invention be new, useful, and nonobvious.⁵ An invention that is an obvious combination of known elements from the prior art is not deserving of patent protection.⁶

While many patent lawyers consider the nonobviousness inquiry to be the most important patentability requirement, a practical and objective nonobviousness standard remains elusive.⁷ In 2007, the Supreme Court decision in *KSR International Co. v. Teleflex Inc.* upended almost twenty-five years of nonobviousness case law from the Court of Appeals for the Federal Circuit.⁸ Perhaps most unsettling about the *KSR* decision is the statement that inventions created “according to known methods . . . [that] yield predictable results” are unpatentable.⁹ This statement is particularly troubling because science progresses by predicting a result and applying known methods to test the prediction.

² J. Carlton Gallawa, *A Brief History of the Microwave Oven*, SOUTHWEST MUSEUM OF ENGINEERING, COMMUNICATION AND COMPUTATION, http://www.smecc.org/microwave_oven.htm (last visited May 2, 2010). Magnetrons are the source of microwave rays. *Id.*

³ U.S. CONST. art. I, § 8, cl. 8 (the “Intellectual Property Clause”). Although it may seem counterintuitive, the term “science” in the Intellectual Property Clause actually refers to creative matter that is the subject of copyright law, while the phrase “useful arts” refers to the subject matter of patent law.

⁴ *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989).

⁵ 35 U.S.C. §§ 101-103(a) (2006).

⁶ *See id.* § 103(a).

⁷ ROBERT PATRICK MERGES & JOHN FITZGERALD DUFFY, *PATENT LAW AND POLICY: CASES AND MATERIALS* 611 (4th ed. 2007).

⁸ *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407, 415 (2007).

⁹ *Id.* at 416.

The Supreme Court decision in *KSR* is inconsistent with the scientific method. Because the decision embraces a policy that will prevent, not promote, the progress of science, the decision is in direct opposition to the constitutional mandate of the Intellectual Property Clause. This Comment explores the effect of the *KSR* decision on the patent system, specifically focusing on the opinion's tension with the scientific method. Section II briefly discusses the history of the scientific method and explores the origin and evolution of the nonobviousness requirement. Section III argues that some of the wording of the *KSR* opinion conflicts with the underlying basis of the scientific method and that the opinion fails to address the significant problem of hindsight bias. Finally, Section IV concludes that the *KSR* decision has left the nonobviousness inquiry in an uncertain state that will cause problems for the patent system in the years to come.¹⁰

II. BACKGROUND

To appreciate the significance of the *KSR* decision, it is important to first understand the history of both the scientific method and the patent system. Part A discusses the history of the scientific method and its modern formulation. Part B discusses the origin of patent law and addresses the history and evolution of the nonobviousness requirement. Part C explores the creation of the Court of Appeals for the Federal Circuit and its impact on patent law. Part D provides a full analysis of the *KSR* decision. Finally, Part E discusses some of the immediate effects of *KSR* on the patent system.

A. A Brief History of the Scientific Method

“If I have seen farther, it is by standing on the shoulders of giants.” ~ Sir Isaac Newton¹¹

Newton's humble quote succinctly summarizes the basic concept of the scientific method: science progresses slowly by carefully observing natural phenomena and building upon what is already known. The modern scientific method traces its origins to the teachings of several ancient Greek philosophers, including Pythagoras, Socrates, Plato, and Aristotle (582-322 B.C.).¹² Plato and Pythagoras introduced and refined the idea of the hypothesis, while Aristotle introduced the use of logic, reasoning, and

¹⁰ The scope of this Comment is limited to identifying and discussing the problem created by *KSR*'s potential conflict with the scientific method. Any suggestions of solutions to this problem are left for a later time.

¹¹ ROBERT K. MERTON, ON THE SHOULDERS OF GIANTS: A SHANDEAN POSTSCRIPT I (1965). This quote is almost universally attributed to Newton, but, ironically, it is a variation of a much older adage. *Id.* at 2-3, 32-33. One of the earliest written records of the quote comes from Bernard of Chartres, who died in 1126, some 500 years before Newton's use of the saying. *Id.* at 37, 40.

¹² W.S. FOWLER, THE DEVELOPMENT OF SCIENTIFIC METHOD 4-11 (1962).

observation to the study of natural phenomena.¹³ The ancient philosophers believed that knowledge was derived from observation and that the truthfulness of a fact could be demonstrated by showing how it was derived from what was “already known and understood”¹⁴

In the thirteenth century, Roger Bacon was among the first to recognize the importance of controlled and systematic experimentation for the testing of hypotheses.¹⁵ In the late sixteenth to early seventeenth century, Sir Francis Bacon laid the groundwork for the structure and theory of the modern scientific method.¹⁶ He introduced and solidified the idea that investigation and understanding come from a series of “gradual inductions” that lead to the formation of a hypothesis.¹⁷ Although many of Sir Francis Bacon’s theories have been rejected as too simplistic, his idea that progress comes from a “gradual passage from concrete facts to broader and broader generalizations” still guides scientific theory and progress today.¹⁸

Science has been defined in modern times as “truth arrived at by observation, experiment, [and] induction.”¹⁹ Contemporary scientists fundamentally believe that the world can be understood, and although ideas are constantly evolving and emerging, much of the underlying scientific knowledge remains unchanged once it has been established.²⁰ These basic beliefs are apparent in the steps of the modern scientific method:

- a. Based upon observation, the scientist comes up with a testable question.
- b. The scientist then performs background research to see what has already been done and what theories and evidence already exist.
- c. Based on this research, the scientist forms an educated hypothesis that predicts a result for what will occur in subsequent experiments.

¹³ *Id.* at 15, 19-21; RALPH M. BLAKE ET AL., THEORIES OF SCIENTIFIC METHOD: THE RENAISSANCE THROUGH THE NINETEENTH CENTURY 22 (Edward H. Madden ed., 1960).

¹⁴ BARRY GOWER, SCIENTIFIC METHOD: AN HISTORICAL AND PHILOSOPHICAL INTRODUCTION 24 (2002).

¹⁵ FOWLER, *supra* note 12, at 35-36.

¹⁶ BLAKE ET AL., *supra* note 13, at 52-53.

¹⁷ *Id.* at 53-54.

¹⁸ *Id.* at 69.

¹⁹ F. Lyth Hudson, *Scientific Method and the Nature of Technology*, 4858 NATURE 933, Dec. 8, 1962, at 933.

²⁰ AMERICAN ASS’N FOR THE ADVANCEMENT OF SCIENCE, SCIENCE FOR ALL AMERICANS: A PROJECT 2061 REPORT ON LITERACY GOALS IN SCIENCE, MATHEMATICS, AND TECHNOLOGY 25-26 (1989).

- d. The scientist then applies known controlled methods to test the hypothesis.
- e. The scientist draws conclusions based upon the results of the experiments and refines the hypothesis, building upon the experimental results to arrive at an answer for the original question.²¹

The scientific method is a fundamental tool for any technology.²² While scientists in different fields may use different techniques, “the process of formulating and testing hypotheses” to predict a particular outcome is “one of the core activities of scientists,” and “[t]o be useful, a hypothesis should suggest what evidence would support it and what evidence would refute it.”²³ In other words, science progresses by testing educated predictions using known methods. With that brief introduction to the scientific method, the history of the nonobviousness requirement in patent law and the *KSR* decision may now be considered in context.

B. The Patent Law System and the Nonobviousness Requirement

While the concept of protection for new inventions dates back to at least 400 B.C.,²⁴ the American patent system traces its origins to English law.²⁵ Starting around the sixteenth century, the English kings and queens began using patents to grant manufacturing monopolies as a reward to inventors of useful new products and processes.²⁶ Many patents were properly granted as a reward for innovation, but the English royalty quickly began to use (and abuse) monopoly grants as a way to reward political support, creating a long-lasting hostility toward patent monopolies.²⁷ Despite its significant faults, the British patent system arguably helped to power the Industrial Revolution, and “it seems no coincidence that the patent system matured alongside the early industrial technologies.”²⁸

Prior to the American Revolution, the American colonies largely followed the English patent system.²⁹ After the Revolution, the American

²¹ See FOWLER, *supra* note 12, at 94; Hudson, *supra* note 19, at 933.

²² Hudson, *supra* note 19, at 935.

²³ AMERICAN ASS'N FOR THE ADVANCEMENT OF SCIENCE, *supra* note 20, at 26-27.

²⁴ MERGES & DUFFY, *supra* note 7, at 1. A fourth century B.C. document reflects a discussion between Aristotle and Hippodamas in which the two Greek philosophers debated the merits of a reward system for citizens who discovered new and useful things. *Id.*

²⁵ Adam Mossoff, *Rethinking the Development of Patents: An Intellectual History, 1550-1800*, 52 HASTINGS L.J. 1255, 1259-60 (2001).

²⁶ *Id.* at 1260.

²⁷ *Id.* at 1264-65.

²⁸ MERGES & DUFFY, *supra* note 7, at 6.

²⁹ Edward C. Walterscheid, *To Promote the Progress of Science and Useful Arts: The Background and Origin of the Intellectual Property Clause of the United States Constitution*, 2 J. INTELL. PROP. L. 1, 14-15 (1994).

patent system experienced a “significant renewal of patenting activity,” during which the individual states began issuing patents.³⁰ The delegates to the Constitutional Convention decided to include a constitutional grant of power to Congress to issue patent and copyright protection, in part to resolve conflicts between state-issued patents.³¹

However, compared to the other clauses in the United States Constitution, the Intellectual Property Clause has little written history, and it is somewhat of a mystery as to how it came into being.³² Over half of the delegates to the Convention had some sort of legal training and were more than likely very familiar with the benefits and drawbacks of the English patent system.³³ With the memories of the royal abuse of patents fresh on their minds, the delegates were reluctant to give the new American government the unfettered right to create any sort of monopoly.³⁴ The Intellectual Property Clause provided a “limited and acceptable” exception to the “general ban on monopolies.”³⁵ Additionally, the Clause presented a simple and cost-effective way for the federal government to encourage and reward progress and innovation.³⁶

The first long-term federal patent statute was the Patent Act of 1793,³⁷ and many of the basic patentability requirements of modern patent law remain unchanged. Utility and novelty have both been requirements for patentability since the inception of the patent system.³⁸ However, nonobviousness was a judicially created doctrine that arose later and was not a separate statutory requirement for patentability prior to the current Patent Act of 1952.³⁹

1. Early Nonobviousness Cases

The judicially created nonobviousness requirement has evolved considerably over the past 150 years. The 1850 Supreme Court case of *Hotchkiss v. Greenwood* recognized the concept of obviousness over one hundred years before its codification in the Patent Act of 1952.⁴⁰ In *Hotchkiss*, the Court considered the validity of a patent for a clay

³⁰ *Id.* at 17.

³¹ MERGES & DUFFY, *supra* note 7, at 7.

³² Walterscheid, *supra* note 29, at 26.

³³ *Id.* at 25, 35-36.

³⁴ *Id.* at 37-38.

³⁵ *Id.*

³⁶ *Id.* at 35.

³⁷ Edward C. Walterscheid, *The Use and Abuse of History: The Supreme Court's Interpretation of Thomas Jefferson's Influence on the Patent Law*, 39 IDEA 195, 202-03 (1999). The first patent statute was passed in 1790 but was replaced three years later in response to problems with the 1790 Act. *Id.*

³⁸ Sam S. Han, *Analyzing the Patentability of "Intangible" Yet "Physical" Subject Matter*, 3 COLUM. SCI. & TECH. L. REV. 2, 11-12, 18-20 (2002).

³⁹ MERGES & DUFFY, *supra* note 7, at 616.

⁴⁰ *Hotchkiss v. Greenwood*, 52 U.S. 248, 262-64 (1850).

doorknob.⁴¹ The accused infringer raised the defense that the plaintiff's product was simply a combination of two previously known elements and, therefore, did not deserve patent protection.⁴² The Supreme Court agreed, finding that clay doorknobs and the metal shank used to attach the doorknob were both previously well-known as separate elements.⁴³ The simple substitution of clay for the usual metal or wood doorknob was nothing more than the work of an "ordinary mechanic acquainted with the business" and lacked the level of "skill and ingenuity" needed to constitute a patentable invention.⁴⁴

Almost one hundred years later, the Supreme Court issued *Cuno Engineering Corp. v. Automatic Devices Corp.* in which it created the infamous "flash of genius" standard.⁴⁵ The Court noted that, in order to be patentable, "the new device, however useful it may be, must reveal the flash of creative genius not merely the skill of the calling."⁴⁶ Like *KSR*, *Cuno Engineering* caused great concern at the time among patent lawyers, who were concerned that the Supreme Court had driven the nonobviousness standard so high that no invention would be patentable.⁴⁷ Supreme Court Justice Jackson commented in 1949 that "the Court had developed such a 'strong passion' for striking down patents under its increasingly stringent invention standard 'that the only patent that is valid is one which this Court has not been able to get its hands on.'"⁴⁸

Just prior to the enactment of the Patent Act of 1952, the Supreme Court issued *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*⁴⁹ The Court recognized the absence of a clear test for patents involving combinations of known elements and also cautioned about the level of care necessary when examining combination patents for the presence of inventiveness.⁵⁰ The Court then went on to state that the whole of the combination must "exceed[] the sum of its parts" in order for the invention to be patentable.⁵¹ The Court ultimately held that the invention in

⁴¹ *Id.* at 249-50.

⁴² *Id.* at 254.

⁴³ *Id.* at 263.

⁴⁴ *Id.* at 267.

⁴⁵ *Cuno Eng'g Corp. v. Automatic Devices Corp.*, 314 U.S. 84, 91 (1941).

⁴⁶ *Id.*

⁴⁷ MERGES & DUFFY, *supra* note 7, at 629. The United States Supreme Court's treatment of patents tends to create a cycle of pro-patent versus anti-patent rulings, dubbed the "patent pendulum." Patrick Doody, *The Patent System is Not Broken*, 18 No. 12 INTELL. PROP. & TECH. L.J. 10, 16 (2006). A number of recent patent decisions, including *KSR*, signal a swing of the patent pendulum back toward an anti-patent sentiment. Seth Fox, *Patent Pendulum*, BATON ROUGE BUSINESS REPORT, July 17, 2007, <http://www.businessreport.com/news/2007/jul/17/patent-pendulum-legal/>.

⁴⁸ MERGES & DUFFY, *supra* note 7, at 629 (quoting *Jungersen v. Ostby & Barton Co.*, 335 U.S. 560, 572 (1949)).

⁴⁹ *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147 (1950).

⁵⁰ *Id.* at 150-51.

⁵¹ *Id.* at 152. The requirement that a combination of known elements "exceed[] the sum of its parts" became known as the synergistic result requirement. *Id.*; see also *Anderson's-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 61 (1969).

question was a combination of elements with “no change in their respective functions,” making it unpatentable.⁵²

2. The Patent Act of 1952 and Subsequent Cases

The Patent Act of 1952 is the current patent statute. The Act codified the judicially created nonobviousness requirement into 35 U.S.C. § 103(a), which states:

A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.⁵³

The Congressional Committee Reports for the Patent Act of 1952 stated that patentable subject matter should “include anything under the sun that is made by man,” indicating that Congress intended for the new patent statute to have broad coverage.⁵⁴ Congress recognized the need for a statutory nonobviousness requirement for inventions that were “new in the sense that the same thing ha[d] not been made before” but were not sufficiently different from the prior art to warrant a patent.⁵⁵ Congress intended for section 103(a) to provide “uniformity and definiteness” for the nonobviousness inquiry and to “minimize great departures which have appeared in some cases.”⁵⁶ Section 103(a) was also intended to serve as a basis for the later development of additional criteria by the court system.⁵⁷

On its face, the language of section 103(a) seemed to be very simple, but the courts have struggled for almost sixty years to define and articulate workable standards for nonobviousness.⁵⁸ The Supreme Court’s first attempt to articulate a nonobviousness standard came in 1966 with the companion cases of *Graham v. John Deere Co.*⁵⁹ and *U.S. v. Adams*.⁶⁰ In *Graham*, the Court conceded that the last sentence of section 103(a) was intended to abolish the “flash of genius” test established in *Cuno*

⁵² *Great Atl. & Pac. Tea Co.*, 340 U.S. at 152.

⁵³ 35 U.S.C. § 103(a) (2006).

⁵⁴ S. REP. NO. 82-1979 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399.

⁵⁵ S. REP. NO. 82-1979 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2399.

⁵⁶ S. REP. NO. 82-1979 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2400.

⁵⁷ S. REP. NO. 82-1979 (1952), reprinted in 1952 U.S.C.C.A.N. 2394, 2411.

⁵⁸ See Jon R. Trembath, *KSR International Co. v. Teleflex Inc. – Obviousness Revisited*, 37 COLO. LAW. 35, 35-37 (2008).

⁵⁹ *Graham v. John Deere Co.*, 383 U.S. 1, 37 (1966). The *Graham* case is actually a consolidation of three cases: *Graham v. John Deere Co.*, *Calmar Inc. v. Cook Chemical Co.*, and *Colgate-Palmolive Co. v. Cook Chemical Co.* *Id.* at 4.

⁶⁰ *U.S. v. Adams*, 383 U.S. 39, 52 (1966).

Engineering.⁶¹ Interestingly, the Supreme Court then concluded that the rest of section 103(a) was simply an unaltered codification of previous judicial precedents regarding the nonobviousness requirement.⁶²

After recognizing that the nonobviousness determination was a “mixed question of fact and law,”⁶³ the *Graham* Court set out the familiar four-factor test that still guides the factual aspect of nonobviousness inquiries today: (1) “the scope and content of the prior art”; (2) the “differences between the prior art and the claims at issue”; (3) “the level of ordinary skill in the pertinent art”; and (4) the secondary considerations such as “commercial success, long felt but unsolved needs, failure of others, etc.”⁶⁴

In *Adams*, the Court recognized the validity of a patent for a combination invention that achieved unexpected results in contradiction to the teachings of the prior art and the opinions of experts.⁶⁵ The invention in *Adams* involved a water-activated electrical battery.⁶⁶ Respected experts expressed doubts as to the battery’s efficacy and practicality,⁶⁷ and the prior art taught away from the use of plain water as battery fluid.⁶⁸ However, the water-activated battery proved to be surprisingly functional, practical, and efficient.⁶⁹ The Supreme Court held that the invention was nonobvious because it had overcome “known disadvantages” that would have “naturally discourage[d] the search for new inventions” using this particular combination of elements.⁷⁰

Between 1966 and 1982, the Supreme Court issued two more noteworthy decisions regarding nonobviousness.⁷¹ In *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*⁷² and *Sakraida v. Ag Pro, Inc.*,⁷³ the Supreme Court reemphasized the “synergistic result” requirement from

⁶¹ *Graham*, 383 U.S. at 15.

⁶² *Id.* at 17. The wording chosen by Congress in the Congressional Reports regarding section 103(a) and by the U.S. Supreme Court in the *Graham* decision is worth noting because of the constitutional issues involved. MERGES & DUFFY, *supra* note 7, at 660. The Supreme Court’s nonobviousness decisions prior to the enactment of the Patent Act of 1952 were arguably constitutional standards, prompting the Supreme Court and Congress to engage in a “delicate dance” over the years regarding the nonobviousness requirement to avoid the issue of whether Congress was attempting to modify a constitutional interpretation by the Supreme Court. *Id.*

⁶³ *Graham*, 383 U.S. at 17; Gregory N. Mandel, *Another Missed Opportunity: The Supreme Court’s Failure to Define Nonobviousness or Combat Hindsight Bias in KSR v. Teleflex*, 12 LEWIS & CLARK L. REV. 323, 326 (2008).

⁶⁴ *Graham*, 383 U.S. at 17. The fourth factor was intended to “give light to the circumstances surrounding the origin of the subject matter sought to be patented,” if needed. *Id.* at 17-18.

⁶⁵ *Adams*, 383 U.S. at 51-52.

⁶⁶ *Id.* at 42-43.

⁶⁷ *Id.* at 44.

⁶⁸ *Id.* at 45-48.

⁶⁹ *Id.* at 43-44.

⁷⁰ *Id.* at 51-52.

⁷¹ Mandel, *supra* note 63, at 330-31.

⁷² *Anderson’s-Black Rock, Inc. v. Pavement Salvage Co.*, 396 U.S. 57, 61 (1969).

⁷³ *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 281-82 (1976).

*Great Atlantic & Pacific Tea Co.*⁷⁴ These two cases involved rather unglamorous inventions, both of which were also relatively simple. The invention in *Anderson's-Black Rock* was an improved paving machine used to lay asphalt.⁷⁵ *Sakraida* involved an improvement of a water flush system for removing animal waste from the floors of dairy barns.⁷⁶ In both cases, the inventions involved new combinations of old elements that were well-known in the prior art.⁷⁷ The Court held that the combined elements in both inventions worked in the same fashion as they did individually and did not produce an “effect greater than the sum of the several effects taken separately.”⁷⁸

Despite the Supreme Court’s acknowledgement in *Graham* that a determination of nonobviousness was a question of law and fact, the Court’s opinions provided very little guidance for the lower courts regarding the legal test for nonobviousness.⁷⁹ The *Graham* factors regarding the analysis of the prior art and the establishment of the ordinary level of skill in the art constitute the factual aspect of the nonobviousness inquiry.⁸⁰ The court then makes the ultimate legal determination of nonobviousness by analyzing the invention in light of the manner in which a person of ordinary skill would have viewed the cited prior art.⁸¹ The *Graham* decision contained a detailed analysis of the prior art but nothing on the level of ordinary skill in the art or how to apply the factors for the nonobviousness inquiry.⁸² The *Adams* decision and the subsequent cases did contain a more thorough discussion of the level of ordinary skill in the art; rather than analyze the invention from the viewpoint of a person of ordinary skill in the art, the Court largely substituted its own judgment regarding nonobviousness in every case.⁸³ Up to this point, the Supreme Court’s nonobviousness decisions had failed to supply the stability and uniformity that Congress envisioned when it enacted section 103(a).⁸⁴

C. Creation of the Court of Appeals for the Federal Circuit

In 1982, Congress created the Court of Appeals for the Federal Circuit (the “Federal Circuit”) and vested it with exclusive jurisdiction over patent appeal cases.⁸⁵ The purpose of the Federal Circuit was to bring

⁷⁴ *Great Atl. & Pac. Tea Co. v. Supermarket Equip. Corp.*, 340 U.S. 147, 152 (1950).

⁷⁵ *Anderson's-Black Rock*, 396 U.S. at 58.

⁷⁶ *Sakraida*, 425 U.S. at 273.

⁷⁷ *Id.* at 275-77; *Anderson's-Black Rock*, 396 U.S. at 58.

⁷⁸ *Sakraida*, 425 U.S. at 282 (quoting *Anderson's-Black Rock*, 396 U.S. at 60-61).

⁷⁹ See *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966); Mandel, *supra* note 63, at 328-33.

⁸⁰ Mandel, *supra* note 63, at 328-30.

⁸¹ *Id.*

⁸² *Id.* at 328-29.

⁸³ *Id.* at 330; *U.S. v. Adams*, 383 U.S. 39, 51-52 (1966).

⁸⁴ Mandel, *supra* note 63, at 328.

⁸⁵ 28 U.S.C. § 1295(a)(4) (2006).

consistency and uniformity to the field of patent law,⁸⁶ and it has “taken its role as defender of the patent system seriously.”⁸⁷ Prior to the creation of the Federal Circuit, courts strictly construed section 103(a) to regularly invalidate patents for obviousness.⁸⁸ However, if the patent did survive the nonobviousness inquiry, the court would interpret the scope of the patent broadly to reach as many infringing products or processes as possible.⁸⁹ The Federal Circuit sought to limit the reach of the nonobviousness requirement by finding more patents valid but enforcing them much more narrowly.⁹⁰ Prior to *KSR*, the Supreme Court had not revisited the nonobviousness requirement for over thirty years and seemed content to allow the Federal Circuit to rewrite its case law.⁹¹

The Federal Circuit quickly distanced itself from the Supreme Court’s nonobviousness decisions in *Anderson’s-Black Rock* and *Sakraida* and the synergy requirement.⁹² The Federal Circuit announced that it saw no reason to continue the practice of differentiating between the different types of patents by applying a “more stringent standard” to combination patents.⁹³ In addition to the four factors from *Graham*, the Federal Circuit developed the teaching, suggestion, or motivation test (the “TSM test”) as an additional framework for determining nonobviousness. The TSM test required a showing of actual evidence that there was some teaching, suggestion, or motivation for a person of ordinary skill in the art to combine the prior art references used to demonstrate obviousness.⁹⁴ This evidence could come from a variety of sources, including the “prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved.”⁹⁵ “Broad conclusory statements regarding the teaching of multiple references, standing alone, are not ‘evidence.’”⁹⁶

One of the main purposes of the TSM test was to curb the problem of hindsight bias.⁹⁷ Because section 103(a) requires the court to step back in time to when the invention was created, the Federal Circuit noted that the nonobviousness inquiry frequently allowed courts to enter the “tempting

⁸⁶ Trembath, *supra* note 58, at 36.

⁸⁷ Glynn S. Lunney, Jr., *Patent Law, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 SUP. CT. ECON. REV. 1, 2 (2004).

⁸⁸ *Id.* at 1.

⁸⁹ *Id.* at 1-2.

⁹⁰ *Id.* at 2.

⁹¹ *Id.* In *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 810-11 (1986), the Supreme Court issued a brief *per curiam* opinion reversing the Federal Court’s decision on obviousness based on the standard of review applied.

⁹² Trembath, *supra* note 58, at 36-37.

⁹³ MERGES & DUFFY, *supra* note 7, at 663.

⁹⁴ *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999), *abrogated in part by*, *In re Gartside*, 203 F.3d 1305 (Fed. Cir. 2000).

⁹⁵ *Id.*

⁹⁶ *Id.*

⁹⁷ *Id.* at 998-99.

but forbidden zone of hindsight.”⁹⁸ A new invention that is groundbreaking at the time seems obvious with the passage of time and widespread usage.⁹⁹ The Federal Circuit noted that “the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis” is to require a showing of an objective reason why a person of ordinary skill in the art would have combined the references.¹⁰⁰

Further compounding the problem of hindsight, patent applicants are required to fully disclose how to make and use the invention.¹⁰¹ “Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor’s disclosure as a blueprint for piecing together the prior art to defeat patentability — the essence of hindsight.”¹⁰² The Federal Circuit specifically noted that “less technologically complex inventions” are especially prone to hindsight bias.¹⁰³

D. *The KSR International Co. v. Teleflex Inc. Decision*

“Technological progress has merely provided us with more efficient means for going backwards.” ~ Aldous Huxley¹⁰⁴

After a relatively inactive period since the creation of the Federal Circuit, the Supreme Court has taken a recent renewed interest in patent law.¹⁰⁵ The result of this renewed interest has often been unfavorable to the rights of patent owners, signaling a return to a system that is hostile to patent protection.¹⁰⁶ Many practicing patent attorneys see these recent Supreme Court decisions weakening a patent owner’s rights as a backlash against some controversial patents that have been granted in recent years.¹⁰⁷ It was no accident that the Supreme Court chose the *KSR* case to express its displeasure with the Federal Circuit’s TSM test.¹⁰⁸ The case concerned a

⁹⁸ *Id.* at 998 (quoting *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 873 (Fed. Cir. 1985)).

⁹⁹ Carl H. Hinneschiedt, *KSR Int’l Co. v. Teleflex, Inc.: No Obvious Changes for the Biotechnology Market*, 80 YALE J. OF BIOLOGY AND MED. 153, 156 (2007).

¹⁰⁰ *In re Dembiczak*, 175 F.3d at 999.

¹⁰¹ *Id.*; 35 U.S.C. § 112 (2006).

¹⁰² *In re Dembiczak*, 175 F.3d at 999.

¹⁰³ *Id.*

¹⁰⁴ Erich Taylor, *A New Wave of Police Interrogation? "Brain Fingerprinting," the Constitutional Privilege Against Self-Incrimination, and Hearsay Jurisprudence*, 2006 U. ILL. J.L. TECH. & POL’Y 287, 287.

¹⁰⁵ Timothy B. Dyk, *Does the Supreme Court Still Matter?*, 57 AM. U. L. REV. 763, 764-65 (2008). Of the twenty patent or patent-related cases heard by the Supreme Court since 1982, eight have been granted certiorari since 2005. *Id.*

¹⁰⁶ Fox, *supra* note 47.

¹⁰⁷ *Id.* Much of the recent furor over patents has been caused by the Federal Circuit’s decision to grant patents for business methods. See generally Kathryn T. Ng, Comment, *Tax Strategy Patents: Close Pandora’s Box on Patenting Criminal Defense Strategies*, 34 U. DAYTON L. REV. 253 (2009) (addressing concerns with regard to granting tax strategy patents and subsequent patenting of criminal defense strategies).

¹⁰⁸ R. Polk Wagner, *The Supreme Court and the Future of Patent Reform*, FED. LAW., Feb. 2008, at 35, 39.

classic combination invention with relatively simple technology involving elements that were widely known in the prior art.¹⁰⁹

1. Background of the Invention and Procedural History

Teleflex's patent was for an adjustable accelerator pedal assembly for an automobile that incorporated an electronic sensor for communication with the computer chip controlling the throttle in the car's engine.¹¹⁰ Prior to the 1990s, automobile accelerator pedals physically interacted with the throttle in the engine "via cable or other mechanical link."¹¹¹ The driver pressed on the pedal, the cable pulled open valves in the engine, and the car accelerated.¹¹² In the 1970s, designers created adjustable pedals that could accommodate drivers of differing heights by moving the pedal forward or backward in the footwell without changing the amount of force necessary to push the pedal down.¹¹³ With the advent of computer-controlled throttles, it was no longer necessary to have the physical link between the pedal and the engine, but the car's computer chip still had to be advised of the pedal's position.¹¹⁴ Inventors solved this problem by using electronic sensors with wires connected to the chip.¹¹⁵ Several prior art patents disclosed several locations for the sensor on a fixed part of the pedal assembly to avoid various problems, such as chafing on the wires connecting the sensor to the computer.¹¹⁶ The prior art patents separately disclosed each of the elements in Teleflex's patent, but no single patent contained every single element, implicating section 103(a) and the nonobviousness inquiry.¹¹⁷

Teleflex Inc. sued KSR International Co. for infringement of its patent for an adjustable accelerator pedal assembly.¹¹⁸ The District Court found the disputed portion of the patent to be obvious in light of the prior art and granted summary judgment in favor of KSR.¹¹⁹ The District Court found "little difference" between the prior art and Teleflex's patented pedal assembly.¹²⁰ The District Court held that the TSM test had been satisfied by showing that the relevant prior art disclosed all elements of Teleflex's invention and that the "state of the industry would lead inevitably to combinations of electronic sensors and adjustable pedals"¹²¹

¹⁰⁹ *Id.*

¹¹⁰ KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 410 (2007).

¹¹¹ *Id.* at 407-08.

¹¹² *Id.* at 407.

¹¹³ *Id.* at 408.

¹¹⁴ *Id.* at 408-09.

¹¹⁵ *Id.*

¹¹⁶ *Id.*

¹¹⁷ *Id.*

¹¹⁸ *Id.* at 412.

¹¹⁹ *Id.*

¹²⁰ *Id.* at 412-13.

¹²¹ *Id.* at 413.

In reversing the District Court, the Federal Circuit held that the lower court had incorrectly applied the TSM test.¹²² The Federal Circuit found that the District Court failed to make specific findings as to the “understanding or principal within the knowledge of a skilled artisan that would have motivated one with no knowledge of [the] invention” to attach the electronic sensor to the pivot point of this particular adjustable accelerator pedal assembly, rather than to one of the many other fixed attachment points that were available.¹²³ The Federal Circuit held that there must exist not only a motivation to combine the prior art references but also a motivation to combine them in the “particular manner claimed.”¹²⁴ In addition, the cited prior art was designed to solve different problems than those sought to be solved by Teleflex’s patent; therefore, a person having ordinary skill in the art would not necessarily have turned to the teachings of those prior art patents to solve the problem presented.¹²⁵

2. The Supreme Court Opinion

The Supreme Court unanimously reversed the Federal Circuit, finding that Teleflex’s combination of elements from the prior art was obvious.¹²⁶ The Court began by condemning the Federal Circuit’s nonobviousness analysis as too rigid.¹²⁷ The Court stated that the case law demanded a “broad inquiry” and a “flexible approach” to the nonobviousness inquiry.¹²⁸ While expressing disapproval for the Federal Circuit’s application of its TSM test, the Supreme Court did affirm the basic principle underlying the TSM test.¹²⁹ In determining whether a combination patent is obvious, the Court noted that it can be helpful to identify the reason why a person of ordinary skill would have been prompted to combine those known elements in the way claimed in the patent.¹³⁰ The Court stated that the TSM test is not incompatible with the Graham analysis, so long as the TSM test is not applied too rigidly.¹³¹

¹²² *Id.*

¹²³ *Id.* at 413-14.

¹²⁴ *Teleflex, Inc. v. KSR Int’l Co.*, 119 F. App’x 282, 286 (Fed. Cir. 2005).

¹²⁵ *KSR*, 550 U.S. at 414.

¹²⁶ *Id.* at 422.

¹²⁷ *Id.* at 415.

¹²⁸ *Id.*

¹²⁹ *Id.* at 418-19.

¹³⁰ *Id.*

¹³¹ *Id.* at 419.

While the Supreme Court did not completely dismiss the TSM test, it provided little additional guidance for the legal aspect of the nonobviousness inquiry and failed to create a clear objective framework for future courts. The Court reiterated a variation of its “synergistic result” requirement from *Great Atlantic & Pacific Tea Co. v. Supermarket Equipment Corp.*: an invention obtained by combining “familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”¹³² The Court also reemphasized the degree of caution necessary in examining a combination patent.¹³³

In addition, the Court assigned error to the Federal Circuit’s holding that a patent claim cannot be proven obvious by showing that the combination was “obvious to try.”¹³⁴ Where there is a “design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions,” an invention obtained from pursuit of these known solutions is “likely the product not of innovation but of ordinary skill and common sense.”¹³⁵ In these situations, the combination may be found obvious under section 103(a) because it was “obvious to try.”¹³⁶

The Court also added that common sense teaches that “familiar items may have obvious uses beyond their primary purposes,” and a “person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.”¹³⁷ A reviewing court should take into consideration “inferences and creative steps that a person of ordinary skill in the art would employ” in assessing the obviousness.¹³⁸

The Supreme Court concluded that Teleflex’s pedal was obvious as a predictable combination of elements from the prior art.¹³⁹ One prior art patent taught everything contained in Teleflex’s invention except the sensor placement.¹⁴⁰ Several other prior art patents taught placement of the sensor on a nonmoving part of the pedal assembly, and the “most obvious nonmoving point” on Teleflex’s pedal assembly was the pivot point.¹⁴¹ In addition, there was a strong market incentive to make the conversion from mechanical to electronic pedals, rendering Teleflex’s patent obvious.¹⁴²

¹³² *Id.* at 401.

¹³³ *Id.* at 417-18.

¹³⁴ *Id.* at 421.

¹³⁵ *Id.*

¹³⁶ *Id.*

¹³⁷ *Id.* at 420.

¹³⁸ *Id.* at 418.

¹³⁹ *Id.* at 423-24.

¹⁴⁰ *Id.*

¹⁴¹ *Id.* at 424-25.

¹⁴² *Id.* at 424.

Finally, the *KSR* decision devoted a single paragraph in its opinion spanning almost twenty pages to addressing the problem of hindsight bias.¹⁴³ The Supreme Court held that the Federal Circuit had drawn the “wrong conclusion” from “the risk of courts and patent examiners falling prey to hindsight bias.”¹⁴⁴ The Court stated that “[a] factfinder should be aware, of course, of the distortion caused by hindsight bias” but that common sense should also be applied to the obviousness inquiry.¹⁴⁵

E. The Aftermath of KSR

The most significant effects of *KSR* will likely be felt at the entry point into the patent system, which is the patent application.¹⁴⁶ In response to *KSR*, the United States Patent and Trademark Office (the “USPTO”), has changed its patent examining procedures regarding nonobviousness.¹⁴⁷ The Manual of Patent Examining Procedures (the “MPEP”) now incorporates seven exemplary rationales that may be used to support a rejection for obviousness, several of which come directly from *KSR*.¹⁴⁸ In addition, USPTO allowance rates for patent applications have been plunging precipitously over the last several years.¹⁴⁹ The allowance rate held steady between 60-70% from the mid-1970s until around 2001, when it began

¹⁴³ *Id.* at 421.

¹⁴⁴ *Id.*

¹⁴⁵ *Id.*

¹⁴⁶ Fox, *supra* note 47 (noting that the USPTO now has more options than ever to reject a patent for obviousness).

¹⁴⁷ U.S. DEPT. OF COMMERCE, U.S. PATENT AND TRADEMARK OFFICE, MANUAL OF PATENT EXAMINING PROCEDURE §§ 2141-42 (8th ed. 2008) [hereinafter MPEP]. The USPTO is the government agency with the primary responsibility for examining patent applications, and the MPEP contains the procedures used by examiners at the USPTO to determine the validity of patent applications. The most current version of the Manual (8th ed., rev. 7, July 2008) remains unchanged in relevant part. See U.S. Patent and Trademark Office, Non-Provisional (Utility) Patent Application, A Guide to Filing: A Guide to Filing a Non-Provisional (Utility) Patent Application, <http://www.uspto.gov/patents/resources/types/utility.jsp> (last visited May 2, 2010).

¹⁴⁸ MPEP, § 2141 sec. III. The seven rationales are:

- (A) Combining prior art elements according to known methods to yield predictable results;
- (B) Simple substitution of one known element for another to obtain predictable results;
- (C) Use of [a] known technique to improve similar devices (methods, or products) in the same way;
- (D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- (E) “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- (F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;
- (G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Id.

¹⁴⁹ JOHN F. SALAZAR, HINDSIGHT AND RESPONDING TO OBVIOUSNESS REJECTIONS 2 (Nov. 9, 2008), <http://www.aipla.org/html/annual/2008/Papers/Salazar-slides.pdf>.

falling rapidly to its current rate of approximately 40%.¹⁵⁰ Coincidentally, one of the most significant drops occurred from 2007-08 when the rate fell almost a full 10%, which is also around the time that the *KSR* decision was issued.¹⁵¹

Moreover, as many patent practitioners feared, recent statistics for the Board of Patent Appeals and Interferences (the “BPAI”)¹⁵² reflect an upward trend since the 2007 *KSR* decision in favor of affirming section 103(a) obviousness rejections from the USPTO.¹⁵³ The BPAI currently affirms approximately 70% of rejections made on obviousness grounds from the USPTO.¹⁵⁴ With so many ways to reject a patent for obviousness, it is not surprising that the statistics would reflect an increase in section 103(a) rejections at both the USPTO and the BPAI.

The Federal Circuit has also changed the way in which it analyzes the nonobviousness requirement in response to *KSR*. In *Leapfrog Enters., Inc. v. Fisher-Price Inc.*, the first post-*KSR* nonobviousness decision, the Federal Circuit affirmed the District Court’s finding that the invention was obvious.¹⁵⁵ Leapfrog sued Fisher-Price, alleging that Fisher-Price’s product infringed Leapfrog’s patent.¹⁵⁶ The invention in *Leapfrog* was an electronic “learning device to help young children read phonetically,” and the cited prior art consisted of two similar learning toys, one electro-mechanical and one completely electrical.¹⁵⁷ In part, Leapfrog argued that the lower court had not presented sufficient evidence regarding the motivation to combine the two prior art patents.¹⁵⁸ While a lack of evidence regarding motivation to combine the prior art patents might have been sufficient prior to *KSR*, the Federal Circuit held that the use of modern electronics to update mechanical devices was “reasonably obvious to one of ordinary skill” in the art.¹⁵⁹ Interestingly, the Federal Circuit also held that Leapfrog had presented no evidence that the combination of elements was “uniquely challenging or difficult for one of ordinary skill in the art.”¹⁶⁰ These statements, particularly the latter one, indicated a change in the Federal Circuit’s attitude towards the nonobviousness requirement.

¹⁵⁰ *Id.*

¹⁵¹ *Id.*

¹⁵² After a patent application is examined by the USPTO, the applicant may appeal the USPTO’s decision to the Board of Patent Appeals and Interferences.

¹⁵³ SALAZAR, *supra* note 149, at 4.

¹⁵⁴ *Id.*

¹⁵⁵ *Leapfrog Enters. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1158 (Fed. Cir. 2007).

¹⁵⁶ *Id.*

¹⁵⁷ *Id.* at 1158, 1161.

¹⁵⁸ *Id.* at 1160.

¹⁵⁹ *Id.* at 1161.

¹⁶⁰ *Id.* at 1162.

Although it is still too early to discern the full effects of the *KSR* ruling on the Federal Circuit, the indications are mixed regarding the direction the court will take for the nonobviousness requirement. Prior to *KSR*, the Federal Circuit's rulings on appeals from infringement cases were split fairly evenly, with a slight bias toward finding the questioned patent nonobvious and valid.¹⁶¹ Post-*KSR*, the Federal Circuit seems slightly more inclined to invalidate patents for obviousness. In the twelve months following *KSR*, the Federal Circuit found patents invalid in almost 60% of the cases where obviousness was involved.¹⁶² While this number reflects an increase, it does not appear to be a significant departure from the court's pre-*KSR* statistics. In addition, one Federal Circuit judge stated that he understood the *KSR* ruling to have little effect on the Federal Circuit's approach to the nonobviousness analysis.¹⁶³ It remains to be seen what the long-term effects of *KSR* will be on the nonobviousness inquiry at the Federal Circuit level.

III. ANALYSIS

Science progresses incrementally via the scientific method by using known methods to test educated predictions. The United States Supreme Court in *KSR v. Teleflex* stated that inventions created "according to known methods . . . [that] yield predictable results" are unpatentable,¹⁶⁴ which is in direct conflict with the scientific method. In addition, the Court has failed to provide clear guidance regarding hindsight bias, a problem that is particularly important for inventions achieved using the scientific method. If the USPTO, the BPAI, and the courts interpret portions of the *KSR* decision literally, then almost every invention achieved using the scientific method will be rendered obvious and unpatentable. This result would prevent, not promote, the progress of the arts in direct opposition to the constitutional mandate of the Intellectual Property Clause.

A. The KSR Decision Reinstated an Unreasonably High and Unpredictable Nonobviousness Standard

"Those who cannot remember the past are condemned to repeat it."
~ George Santayana¹⁶⁵

¹⁶¹ Christopher A. Cotropia, *Nonobviousness and the Federal Circuit: An Empirical Analysis of Recent Case Law*, 82 NOTRE DAME L. REV. 911, 934, 953 (2007). The Federal Circuit tends to show deference to the USPTO and affirms its finding regarding obviousness over 85% of the time. *Id.* at 937-38.

¹⁶² JOHN T. JOHNSON, OBVIOUSNESS AND *KSR* – ONE YEAR LATER 11 (Apr. 17, 2008), [http://www.aipla.org/Content/Microsites152/IP_Practice_in_Japan/Committee_Meetings/2008-04_Japan_Trip/Presentations13/JPAA-KSR-Litigation-\(John-Johnson\).ppt](http://www.aipla.org/Content/Microsites152/IP_Practice_in_Japan/Committee_Meetings/2008-04_Japan_Trip/Presentations13/JPAA-KSR-Litigation-(John-Johnson).ppt). The Federal Circuit continues to show deference to the USPTO's findings, affirming 100% of its findings. *Id.* at 16.

¹⁶³ Wagner, *supra* note 108, at 41.

¹⁶⁴ *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

¹⁶⁵ GEORGE SANTAYANA, *THE LIFE OF REASON OR THE PHASES OF HUMAN PROGRESS* 82 (1953).

The patent system strives to balance the rights of the inventor with the rights of the public, and the nonobviousness requirement plays an important role in effectuating that goal. The requirement exists to prevent inventors from obtaining patent protection for combination inventions that remove important building blocks from the public domain. However, the *KSR* decision needlessly expanded the breadth and scope of the nonobviousness requirement. While the USPTO and the Federal Circuit may have allowed some seemingly ridiculous patents in the past,¹⁶⁶ the better solution for the problem may have simply been to invalidate the offending patents or remove their subject matter from patentability. Nevertheless, the *KSR* decision raised the bar for patentability unnecessarily high and failed to provide clear guidance as to what level of inventiveness will satisfy the nonobviousness requirement.

In the *KSR* decision, the Supreme Court seemed to reinstate a nonobviousness standard similar to the “flash of genius” standard from *Cuno Engineering*, which was specifically abolished by the enactment of 35 U.S.C. § 103(a).¹⁶⁷ The *KSR* decision stated that an invention obtained by combining “familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”¹⁶⁸ Under this standard, an invention is likely to be unpatentable unless the result achieved is something extraordinary and unexpected. However, because the scientific method involves the prediction of an outcome from the use of known methods, any result derived from the use of the scientific method will, by definition, be a predictable result of combining familiar elements according to known methods, thereby making it unpatentable under *KSR*.

Additionally, *KSR* opened up the possibility that an invention may be proven to be obvious by showing that it was “obvious to try.”¹⁶⁹ The Federal Circuit had consistently held that the fact that something was obvious to try was insufficient to render the invention obvious.¹⁷⁰ The *KSR* decision stated that a “design need or market pressure to solve a problem . . . [with] a finite number of identified, predictable solutions” may render an invention unpatentable as “obvious to try.”¹⁷¹ An invention obtained using the scientific method will almost always be unpatentable under this standard because a scientist following the scientific method attempts to solve an identified problem by taking an inventory of the known methods available and making a prediction as to which one is the best avenue to pursue. While

¹⁶⁶ See Daniel Wright, Patently Silly, <http://www.patentlysilly.com/index.php> (last visited May 2, 2010) (lamenting the issuance of patents for an array of inventions of questionable utility).

¹⁶⁷ *Graham v. John Deere Co.*, 383 U.S. 1, 15 (1966) (noting that the last sentence of section 103(a) was intended to abolish the “flash of genius” standard from *Cuno Engineering*).

¹⁶⁸ *KSR*, 550 U.S. at 416.

¹⁶⁹ *Id.* at 421.

¹⁷⁰ *In re Deuel*, 51 F.3d 1552, 1559 (Fed. Cir. 1995) (“A general incentive does not make obvious a particular result, nor does the existence of techniques by which those efforts can be carried out.”).

¹⁷¹ *KSR*, 550 U.S. at 421.

some inventions are accidental, almost every inventor works toward achieving a specific goal, and that goal is often driven by a demonstrated need in the market. If an invention is obvious because of this reality, the incentive to continue trying to “build the better mousetrap” will be significantly diminished. Thus, the assertion that a combination patent can be found invalid simply because it was obvious to try has serious implications for many inventions, particularly those obtained using the scientific method.

These statements in *KSR* could potentially have a chilling effect on progress and innovation. In particular, corporations may be reluctant to invest the time and money in research and development if the legal costs to obtain a patent rise dramatically and there is reduced predictability regarding the ability to acquire patent protection for that investment. Furthermore, small inventors may find it much too expensive to obtain patents due to the increased amount of work for the patent attorney.¹⁷² Research and development is the backbone of scientific progress and is an important part of a healthy economy. Lack of predictability and increased legal costs could eventually lead to a downturn in scientific research in all areas and a decrease in the number of patents filed and issued.

The patent system needs a practical and objective framework for analyzing nonobviousness in order for it to achieve its goal of promoting the progress of the arts and sciences. The nonobviousness requirement will always involve an unavoidable element of subjectivity because the “person of ordinary skill” standard is susceptible to many interpretations.¹⁷³ The Supreme Court condemned the Federal Circuit’s rigid use of the TSM test, yet it failed to provide a clear and consistent test in its place. If the TSM test is no longer acceptable, the Supreme Court must provide a better roadmap for the USPTO and the lower courts to follow. Increased flexibility for the USPTO, the BPAI, and the courts on the nonobviousness standard translates into reduced predictability as to whether or not a patent will be found valid. Rather than promoting innovation and encouraging inventors to invest time and money in research, the judicial policy embodied in the *KSR* decision could potentially restrain the advancement of the arts and sciences in direct opposition to the constitutional mandate of the Intellectual Property Clause.

B. The KSR Opinion Minimized and Failed to Address the Problem of Hindsight Bias

In *KSR*, the Supreme Court underestimated the gravity and

¹⁷² Fox, *supra* note 47 (noting that the increased amount of work for patent attorneys could lead to an increase in cost to obtain a patent, forcing smaller inventors to do more of the legal work themselves).

¹⁷³ Hineschiedt, *supra* note 99, at 153. The court establishes the fictitious legal “person of ordinary skill in the art” through expert testimony, which inevitably leads to a battle of the experts. *Id.*

pervasiveness of the problem of hindsight in the nonobviousness inquiry. The Supreme Court simply stated that the factfinder should be aware of hindsight bias and seek to avoid it.¹⁷⁴ However, this statement underestimates the pervasiveness of the problem of hindsight and fails to offer an objective solution. Recent studies have shown that hindsight bias is a much more serious problem than previously thought, and the current judicial policies do little to prevent the problem.¹⁷⁵ In light of the *KSR* decision, the nonobviousness requirement could become an even more significant hurdle to patentability in the absence of objective guidelines designed to combat hindsight bias.

Section 103(a) requires the patent examiner and the court to step back in time to consider whether the invention was obvious based only on the prior art and knowledge at that time.¹⁷⁶ In practice, this analysis is much easier said than done. “Humans are cognitively unable to prevent knowledge gained through hindsight . . . from impacting their analysis of past events, as required for the proper non-obvious analysis.”¹⁷⁷ This problem is compounded by the fact that patentees are required to fully disclose how to make and use their invention in order to receive patent protection.¹⁷⁸ Once the factfinder sees the solution, particularly how it was achieved, the invention “appears to have been more obvious than it actually was.”¹⁷⁹

The effect of hindsight bias has been demonstrated in several recent studies involving mock jurors, and the results are clear—hindsight is a much more severe problem than initially expected.¹⁸⁰ In one set of studies, jurors were divided into two groups, with each group being given general background information about the field of the invention, some relevant prior art references, and a description of the problem the inventor was seeking to solve.¹⁸¹ One set of jurors was shown the solution to the problem (the invention), while the other set was not, with some very striking results.¹⁸² In one scenario, only 34% of the jurors without knowledge of the solution found the patent to be obvious, while 73% of the jurors who had seen the invention found it to be obvious.¹⁸³ In two different scenarios, the numbers reflected a similar trend (49% vs. 85% and 23% vs. 59%).¹⁸⁴ The studies

¹⁷⁴ *KSR*, 550 U.S. at 421.

¹⁷⁵ Mandel, *supra* note 63, at 338-39.

¹⁷⁶ 35 U.S.C. § 103(a) (2006).

¹⁷⁷ Mandel, *supra* note 63, at 336-37.

¹⁷⁸ 35 U.S.C. § 112 (2006).

¹⁷⁹ Mandel, *supra* note 63, at 337.

¹⁸⁰ *Id.* at 337-38.

¹⁸¹ *Id.* at 337.

¹⁸² *Id.* at 337-38.

¹⁸³ *Id.* at 338.

¹⁸⁴ *Id.*

revealed a hindsight effect of 36% to 39%.¹⁸⁵

Another set of studies testing jury instructions revealed similar results.¹⁸⁶ One set of jurors received strong warnings about the possibility of hindsight bias and were instructed to guard against it, while the other set of jurors was not warned.¹⁸⁷ The jurors who received the warnings regarding hindsight bias showed little difference from jurors who did not receive any instruction.¹⁸⁸ The studies also showed that the Federal Circuit's TSM test and the Supreme Court's *Graham* factors did very little to reduce hindsight bias.¹⁸⁹ These results indicate that a simple warning to the factfinder regarding the potential for hindsight bias is insufficient to avoid or combat it.¹⁹⁰

The *KSR* decision provided several additional avenues through which an invention can be found obvious, while providing no further guidance for combating hindsight bias. For example, the opinion stated that "any need or problem known in the field of endeavor" can serve as a basis for establishing obviousness by showing that the invention was "obvious to try."¹⁹¹ This policy seems to be an invitation to courts and patent examiners to "exercise hindsight in combining the prior art to render a claim invalid as obvious."¹⁹² The *KSR* opinion also stated that common sense and the "inferences and creative steps that a person of ordinary skill in the art would employ" should all be used in analysis of the invention for nonobviousness,¹⁹³ which seems to be a further invitation to engage in a hindsight-based analysis. The case offers no guidelines to lower courts for determining what constitutes common sense or permissible inferences and creative steps in any given case.

The problem of hindsight bias is particularly evident with inventions achieved using the scientific method. After identifying a particular problem, researchers study the prior art in the field of endeavor and determine which avenues appear promising based on what is already known in the area. Due to the process of the scientific method, the building blocks of the resulting invention will necessarily exist in the prior art, and the combination of those elements to obtain the invention will seem much more obvious in hindsight.¹⁹⁴ As the Federal Circuit feared in *In re Dembiczak*, the patent

¹⁸⁵ *Id.* at 338.

¹⁸⁶ *Id.* at 339.

¹⁸⁷ *Id.*

¹⁸⁸ *Id.*

¹⁸⁹ *Id.*

¹⁹⁰ *Id.* at 342.

¹⁹¹ *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420-21 (2007) (emphasis added).

¹⁹² Andrea G. Reister, *Enablement & Written Description: We Know It When We See It and a Word About Obviousness*, 910 P.L.I./PAT 479, 523 (2007).

¹⁹³ *KSR*, 550 U.S. at 418.

¹⁹⁴ See Hineschiedt, *supra* note 99, at 155. The possibility that an invention is obvious because it was "obvious to try" may be particularly important for biotechnology inventions. *Id.* Many

applicant's required disclosure detailing how to make and use the invention could be the patent's undoing.¹⁹⁵ The applicant's disclosure provides a convenient roadmap into which the common sense and "inferences and creative steps" of a person of ordinary skill in the art may be inserted to show that the invention is obvious.¹⁹⁶ Again, the *KSR* decision offers little guidance for making the legal determination of when the combination of elements is sufficiently obvious to render the patent invalid.

This lack of guidance for combating hindsight bias is apparent in the USPTO's examining procedures. Section 2142 of the MPEP states that the "tendency to resort to 'hindsight' based upon [the patent] applicant's disclosure is often difficult to avoid due to the very nature of the examination process," but "impermissible hindsight must be avoided."¹⁹⁷ Besides this statement, the MPEP provides no additional guidance as to how hindsight can be avoided. Coupled with the recently added ways in which an examiner can reject an application for obviousness, the MPEP's ambiguous instruction regarding hindsight makes the need for an objective framework to combat hindsight even more critical. Without clear and objective guidelines, patents for inventions achieved using the scientific method will be particularly vulnerable to a hindsight-based invalidation for obviousness by the USPTO, the BPAI, and the courts.

IV. CONCLUSION

To achieve the goal of the Intellectual Property Clause to promote the progress of the arts and sciences, the patent system needs predictability and certainty. The *KSR* opinion generated much controversy regarding the status of the nonobviousness requirement, and yet it failed to transform and clarify the requirement, as many on both sides of the issue hoped it would. Although the full effects of *KSR* remain to be seen, the decision created more questions than it answered, and the section 103(a) standard is now perhaps higher and more confusing than ever. In particular, the judicial policy created by the *KSR* decision appears to be in direct conflict with the scientific method, and this policy has serious implications for the future of research and development. *KSR* also failed to provide clear guidance for combating hindsight bias, which is a particularly troublesome problem for inventions achieved using the scientific method. It remains to be seen if the Supreme Court will offer the clear, objective, and reliable guidelines necessary for the patent law system to achieve its purpose, or if *KSR v. Teleflex* will remain the primary law on the topic of obviousness.

biotechnology inventions "spring from known components and methodologies found in [the] prior art." *Id.*

¹⁹⁵ *In re Dembiczak*, 175 F.3d 994, 999 (1999) (noting that patent applicant's disclosure provides a "blueprint for piecing together the prior art to defeat patentability . . .").

¹⁹⁶ *KSR*, 550 U.S. at 418.

¹⁹⁷ MPEP, § 2142.

