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## The Decline of the Patent Registration Exam

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# The Decline of the Patent Registration Exam

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## I. INTRODUCTION

The U.S. Patent and Trademark Office<sup>1</sup> is no stranger to problems of underfunding, overwork, and incompetence. Not even ten years after it first began examining patents, the Patent Office already was expressing frustration with a backlog of unexamined applications and a shortage of skilled examiners. Commissioners in the 1840s, who complained of the physical impossibility of keeping up with patent filings<sup>2</sup> and worried about losing capable examiners to the better-paying private sector,<sup>3</sup> could just as well have been presiding over the modern-day PTO, whose struggles to efficiently and effectively conduct its business are well documented.<sup>4</sup> Apparently, in the almost 200 years

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1. The Patent Act of 1836 named the agency the Patent Office, which it remained until 1975, when it was renamed the Patent and Trademark Office. See 1 Moy's WALKER ON PATENTS § 2:20 (4th ed. 2011). In 1999, the agency's name was changed once again to the United States Patent and Trademark Office. See *id.* Depending on the time period referenced, this Article refers to the agency as, alternatively, the Patent Office or the PTO.
  2. See, e.g., ANNUAL REP. OF COMM'R OF PATENTS 3 (1845) ("The great addition to the number of applications, during the two last years, has rendered it physically impossible to keep up with the business of the office, even with the most arduous and persevering of efforts . . .").
  3. See, e.g., ANNUAL REP. OF COMM'R OF PATENTS 4 (1844) ("The present compensation will be inadequate to induce those now in the office [of examiner] to remain, and much more to replace the assistance needed, if a vacancy occurs. . . . I beg to ask . . . whether it would not be a matter of the deepest regret to part with experienced help, for new and untried hands. What blunders, what errors, what litigation, would ensue!").
  4. See, e.g., USPTO STRATEGIC PLAN 2010–2015, at 8, available at [http://www.uspto.gov/about/stratplan/USPTO\\_2010-2015\\_Strategic\\_Plan.pdf](http://www.uspto.gov/about/stratplan/USPTO_2010-2015_Strategic_Plan.pdf) (noting the critical importance of strengthening the PTO's examination capacity and improving the quality of issued patents and application processing times); USPTO STRATEGIC PLAN 2007–2012, at 11–12, available at <http://www.uspto.gov/web/offices/com/strat2007/stratplan2007-2012.pdf> (noting the "unchallenged reality" that the application filing rate had increased beyond the rate at which the PTO can examine applications); USPTO, THE 21ST CENTURY STRATEGIC PLAN 1 (rev. Feb. 2003), available at [http://www.uspto.gov/web/offices/com/strat21/stratplan\\_03feb2003.pdf](http://www.uspto.gov/web/offices/com/strat21/stratplan_03feb2003.pdf) (stating that the PTO "is under siege" due to increased patent filings, increasingly complex technologies, and customer demands for higher quality products and services, all of which had created a "workload crisis").

that have passed since the United States adopted an examination-based patent system, much having to do with the Patent Office has changed, but not the basic complaints by and about it.

These complaints—both their nature and endurance—call into question whether the PTO is institutionally capable of satisfactorily performing its duties. The quality of the PTO's examinations of patent applications has long vexed the patent community,<sup>5</sup> and the subject features prominently in virtually every report on the PTO's operations.<sup>6</sup> Most recently, the promise of improving the quality of the PTO's patent examinations by, among other things, releasing additional funds to the agency and increasing the input of third parties, helped secure the passage of the Leahy-Smith America Invents Act of 2011.<sup>7</sup>

By contrast, relatively little attention has been paid to the quality of the PTO's performance of its non-examining functions. Although patent examination is surely the most costly and visible of the PTO's patent-related responsibilities, it is only one of them. The PTO is also tasked with important non-examining functions, including guiding the development of domestic and international patent and innovation policies, processing and disseminating information about patents and the U.S. patent system, and promoting high-quality patents and the integrity of the prosecution profession through regulation of the patent bar.<sup>8</sup>

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5. See, e.g., Paul R. Michel, *Fellow Citizens: Be On Guard*, 92 J. PAT. & TRADEMARK OFF. SOC'Y 135, 136–37 (2010) (arguing that the U.S. patent system “is failing primarily because the patent office is failing,” due in large part to inexperienced examiners who approve bad patent applications and the lack of adequate quality assurance mechanisms); R. Polk Wagner, *Understanding Patent Quality Mechanisms*, 157 U. PA. L. REV. 2135, 2144 (2009) (noting public criticism of the PTO's issuance of poor-quality patents); John C. Stedman, *The U.S. Patent System and Its Current Problems*, 42 TEX. L. REV. 450, 475 (1964) (criticizing the Patent Office for issuing patents “without adequate processing”). Complaints about PTO examiners are so common that some defendants try to use them to undermine the presumption of validity that attaches to issued patents. See, e.g., *Novo Nordisk A/S v. Becton Dickinson & Co.*, 304 F.3d 1216, 1220 (Fed. Cir. 2002) (noting that statements to the jury that PTO examiners are prone to error because they are overworked and inexperienced are improper); *DNT, LLC v. Sprint Spectrum, LP*, Civil Action No. 3:09CV21, 2010 WL 582164, at \*4 (E.D. Va. Feb. 12, 2010) (granting motion in limine precluding any witness from generally disparaging the PTO or the examiner of the patent at issue).
  6. See, e.g., *supra* note 4.
  7. See, e.g., 157 CONG. REC. S5,326-27 (daily ed. Sept. 6, 2011) (statement of Sen. Patrick Leahy).
  8. See *The USPTO: Who We Are*, USPTO, <http://www.uspto.gov/about/index.jsp> (last modified Jan. 10, 2012); see also *Intellectual Property Law and Policy*, USPTO, <http://www.uspto.gov/ip/index.jsp> (last modified Jan. 31, 2012); *Public Information Products & Services*, USPTO, <http://www.uspto.gov/products/index.jsp> (last modified Dec. 28, 2011); *Office of Enrollment and Discipline (OED)*, USPTO, <http://www.uspto.gov/ip/boards/oed/index.jsp> (last modified Sept. 5, 2012).

Focusing on this last function, for over a century the PTO has enjoyed almost complete autonomy in regulating who may draft patents and negotiate their issuance by the agency. Since 1897, the Patent Office has maintained a registry of lawyers and non-lawyers who are allowed to prosecute patents before it.<sup>9</sup> And since 1934, passage of a written examination has been an essential part of the process of being added to the registry.<sup>10</sup>

In these respects, patent prosecution is unique among the many specialized fields of law, as it is both the only one to allow non-lawyers to practice in the field<sup>11</sup> and the only one to condition entry into the field on passage of an exam.<sup>12</sup> The purpose of the “patent bar exam,” as it is known, is to ensure that all individuals who practice before the PTO can competently prepare and prosecute patent applications.<sup>13</sup> It holds the distinction of being the only bar exam created by and administered on behalf of the federal government.

As the value of patents to the United States economy has increased dramatically in recent years, so, too, has the number of individuals taking the patent registration exam. The first group of examinees in 1934 comprised only sixty-one individuals.<sup>14</sup> By 1986, that number

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9. See *infra* note 52 and accompanying text.

10. See *infra* subsection III.B.1; *infra* note 70 and accompanying text.

11. A formal legal education is not among the requirements that must be satisfied to prosecute patents before the PTO. See 37 C.F.R. § 11.7 (West 2012) (setting forth the requirements); USPTO, GENERAL REQUIREMENTS BULLETIN FOR ADMISSION TO THE EXAMINATION FOR REGISTRATION TO PRACTICE IN PATENT CASES BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE 4–8 (Mar. 2012) [hereinafter GRB 2012], available at [http://www.uspto.gov/ip/boards/oed/GRB\\_March\\_2012.pdf](http://www.uspto.gov/ip/boards/oed/GRB_March_2012.pdf) (expanding on the requirements set forth in the Code of Federal Regulations). In 1963, the U.S. Supreme Court held that the Patent Office may continue registering non-lawyer agents even though their professional activities might constitute the unauthorized practice of law in some States. *Sperry v. Florida ex rel Florida Bar*, 373 U.S. 379 (1963).

12. With few exceptions, one must pass the “general” bar examination administered by a U.S. State or Territory to receive a license to practice law in that State or Territory, but the licensure is broad and is not restricted to any particular field of law. While attorneys may be certified as specialists in particular fields by state or private certification programs, such certification is intended only to signal expertise and does not serve as a barrier to practice; uncertified lawyers are not prohibited from practicing in a field for which certification is available, and certified lawyers may practice outside their field(s) of certification. See AM. BAR ASS’N STANDING COMM. ON SPECIALIZATION, A CONCISE GUIDE TO LAWYER SPECIALTY CERTIFICATION 2 (2007), available at [http://www.americanbar.org/content/dam/aba/migrated/2011\\_build/specialization/june2007\\_concise\\_guide\\_final.authcheckdam.pdf](http://www.americanbar.org/content/dam/aba/migrated/2011_build/specialization/june2007_concise_guide_final.authcheckdam.pdf).

13. 37 C.F.R. §§ 11.7(a)(2)(ii)-(iii), (b)(1)(ii) (promulgated pursuant to 35 U.S.C. § 2(b)(2)(D) (West 2012)); see GRB 2012, *supra* note 11, at 21.

14. *United States Patent Office Examination for Enrollment of Attorneys*, 17 J. PAT. OFF. SOC’Y 259, 259 (1935).

had shot to 722,<sup>15</sup> and in fiscal year 2010, 3,120 individuals took the exam,<sup>16</sup> In other words, between 1986 and 2010, the number of persons taking the patent registration exam increased by 332%. To put this growth in perspective, during that same time period, the number of persons taking the “general” bar exam increased by only 19%.<sup>17</sup>

Despite the exam’s functional and symbolic significance to a rapidly growing profession, and in contrast to the extensive literature that has developed around the general bar exam,<sup>18</sup> the patent registration exam has thus far largely escaped the notice of policymakers and academics. One aim of this Article, therefore, is to draw attention to the exam as a regulatory and political tool and a subject of scholarly inquiry. This Article’s second, more specific aim is to take advantage of the opportunity presented by the patent registration exam to study the quality of the PTO’s performance of one of its non-examining functions.

This Article focuses on the PTO’s management of the patent registration exam instead of one of the agency’s other non-examining responsibilities for three reasons. First, as already mentioned, a critical analysis of the exam has not yet been conducted and is overdue. Second, because the PTO’s exam-related responsibilities are well defined and relatively narrow, the quality of the PTO’s execution of them can be examined in some detail.

Finally, the subject presents a unique opportunity to gather and study a set of primary sources that to my knowledge has not yet been subjected to any kind of scholarly analysis: the exams themselves. Thus, in researching this Article, I collected eighty-one registration exams administered over the course of forty-nine non-consecutive years, with each full decade represented by at least five years’ worth of exams.<sup>19</sup> Copies of many of these exams were obtained in response

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15. OFFICE OF INSPECTOR GEN., U.S. DEP’T OF COMMERCE, FINAL AUDIT REPORT NO. PTD-10627-8-0001, PATENT AND TRADEMARK OFFICE: OFFICE OF ENROLLMENT AND DISCIPLINE MUST CONDUCT MORE TIMELY INVESTIGATIONS OF COMPLAINTS AGAINST PRACTITIONERS 5 (June 1998) [hereinafter OIG AUDIT].
  16. See *Exam Results*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/past/results/index.jsp> (last updated Apr. 23, 2012).
  17. *Compare 1986 Bar Examination Statistics*, B. EXAMINER, May 1987, at 12, 12–14 (reporting 67,392 general bar examinees in 1986), with NAT’L CONF. OF BAR EXAMINERS, 2010 STATISTICS 8–9, [http://www.ncbex.org/assets/media\\_files/Statistics/2010Stats110111.pdf](http://www.ncbex.org/assets/media_files/Statistics/2010Stats110111.pdf) (last updated Nov. 1, 2011) (reporting 79,953 general bar examinees in 2010).
  18. See, e.g., Andrea A. Curcio, *A Better Bar: Why and How the Existing Bar Exam Should Change*, 81 NEB. L. REV. 363 (2002); Kristin Booth Glen, *When and Where We Enter: Rethinking Admission to the Legal Profession*, 102 COLUM. L. REV. 1696 (2002); Daniel R. Hansen, Note, *Do We Need the Bar Examination?: A Critical Evaluation of the Justifications for the Bar Examination and Proposed Alternatives*, 45 CASE W. RES. L. REV. 1191 (1995).
  19. Of the eighty-one registration exams reviewed for this Article, seventy-eight are complete. Three exams are missing one or more pages. For the sake of brevity

to Freedom of Information Act (FOIA) requests to the PTO.<sup>20</sup> Because these documents are not otherwise easily accessed, they will be published in connection with this Article on a webpage hosted by the University of Houston Law Center's Institute for Intellectual Property and Information Law.<sup>21</sup>

It should be noted that passage of a written exam is only one requirement that must be satisfied to become a registered patent prosecutor. The other major requirement is proof of technical competency in the form of education or training in a recognized scientific or engineering discipline.<sup>22</sup> This Article is limited to a consideration of the exam requirement, the technical requirement having already been analyzed by other scholars.<sup>23</sup> Nevertheless, the two requirements necessarily overlap since a patent's validity and strength can be diminished by the drafter's technical incompetence even where the drafter's legal competence is not an issue.

Part II of this Article describes the historical circumstances that led to the adoption of the exam requirement. Part III then describes the evolution of the exam from its first administration in 1934 and continuing to the present day. The story these exams tell is that the patent registration exam was the subject of continual tinkering by the Patent Office, with changes made at least every decade and sometimes every year. Notwithstanding these frequent adjustments, some patterns emerge. Specifically, for the first few decades of its history,

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and consistency, each exam is cited herein as "EXAM," preceded by the year of the administration, and if there were multiple administrations in a given year, also by the month (e.g., "OCT. 2003 EXAM"). Questions appearing on the morning section ("Part One") and afternoon section ("Part Two") of the exam are identified, respectively, as "(AM)" and "(PM)."

20. In addition, I collected exams from private collectors, the PTO's website, *see Past Exams, Questions and Answers*, USPTO, <http://www.USPTO.gov/ip/boards/oe/exam/pastexamresults.jsp> (last modified July 9, 2010), and the University of New Hampshire Law School's IP Mall website, *see USPTO Examinations & Answers on the Web*, IP MALL, [http://ipmall.info/hosted\\_resources/uspto\\_exams\\_answers.asp](http://ipmall.info/hosted_resources/uspto_exams_answers.asp) (last visited Aug. 4, 2012).
21. *See Patent Registration Examination Repository*, <http://www.patentofficestudies.org> [hereinafter PRER]. If the site's web address ever changes, an attempt will be made to ensure that the new address is identified.
22. 37 C.F.R. §§ 11.7(a)(2)(ii), (b)(1)(i)(C) (West 2012); GRB 2012, *supra* note 11, at 4–8. In addition, applicants must prove their good moral character and reputation. 37 C.F.R. §§ 11.7(a)(2)(i), (b)(1)(iii).
23. *See, e.g.*, Ralph D. Clifford, Thomas G. Field, Jr., & Jon R. Cavicchi, *A Statistical Analysis of the Patent Bar: Where are the Software-Savvy Patent Attorneys?*, 11 N.C. J.L. & TECH. 223 (2010) (arguing that the technical qualifications that one must possess to register before the PTO are biased against computer scientists and describing the effect of this bias on patent quality); Corey B. Blake, Note, *Ghost of the Past: Does the USPTO's Scientific and Technical Background Requirement Still Make Sense?*, 82 TEX. L. REV. 735, 757–63 (2004) (arguing for the elimination of the technical qualification requirement or, alternatively, the expansion of recognized disciplines).

the Patent Office endeavored to make the exam more rigorous and comprehensive. But as the twentieth century came to an end, practical considerations stemming from a shortage of funds and labor took precedence over quality when the PTO introduced changes to the exam that have had the effect of impairing its quality. I describe these failures in terms of modern psychometric standards that apply to professional licensure exams and conclude that the U.S. patent registration exam is today an invalid, unreliable, and unfair assessment of readiness to practice.

Part IV describes the consequences of the exam's failures, which include wasting the agency's and examinees' valuable time and resources and undermining confidence in the PTO's institutional legitimacy. Finally, Part V concludes that the exam likely has continued relevance and so is worthy of efforts to improve it. Among other things, I propose that the PTO outsource most of its exam-related responsibilities to an independent testing expert and enforce copyrights that consequently would attach to test forms, questions, and answers. These suggestions for change should not be too difficult to implement and would almost certainly improve the quality of the exam.

## II. THE ESTABLISHMENT OF THE PATENT REGISTRATION EXAM

The history of the U.S. patent registration exam is intertwined with the emergence of patent prosecution as an American profession. Both narratives begin with the Patent Act of 1836.<sup>24</sup>

### A. The Emergence of a Patent Bar

Prior to the passage of the 1836 Act, the U.S. patent system was a registration system that involved no substantive examination of patent applications.<sup>25</sup> Because the steps of registration were relatively straightforward,<sup>26</sup> it was presumed that inventors could, and usually would, prepare their own applications.<sup>27</sup> In 1836, however, Congress

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24. Kara W. Swanson, *The Emergence of the Professional Patent Practitioner*, 50 *TECH. & CULTURE* 519, 523 (2009).

25. Patent Act of 1793, ch. 11, 1 Stat. 318 (1793).

26. Under the registration system, in order to obtain a patent, an inventor was required to prepare an application, swear an oath that he believed his invention to be new and useful, and present these materials with a thirty-dollar fee to the office of the Secretary of State. *Id.* §§ 1, 11; see Daniel Preston, *The Administration and Reform of the U.S. Patent Office, 1790–1836*, 5 *J. EARLY REPUBLIC* 331, 332–34 (1985).

27. See Swanson, *supra* note 24, at 524. This was especially true if the inventor was literate and could read one of the pamphlets or treatises circulating around the country that detailed these steps for him. See KENNETH DOBYNS, *A HISTORY OF THE EARLY PATENT OFFICES: THE PATENT OFFICE PONY* 62 (1994) (describing William Thornton's pamphlet setting forth instructions detailing how to obtain a pat-



made a fundamental change to the patent system that gave inventors a strong incentive to outsource their patent procurement activities. That year Congress passed a law that changed the U.S. patent system from one of registration to one of examination.<sup>28</sup> No longer would applications issue as patents so long as they were formally correct. Instead, the only applications that would issue were those proven to be original, useful, and important.<sup>29</sup>

By toughening the standards for obtaining a patent,<sup>30</sup> the law created a new professional niche: the patent prosecutor, whose expertise was in drafting applications and negotiating their issuance by the newly purposed Patent Office.<sup>31</sup> Individuals claiming such expertise soon began offering their services to inventors. By 1860 there were nearly three-dozen patent agencies in Washington, D.C. and at least twice as many agencies located throughout the rest of the country.<sup>32</sup> By 1899, the number of patent practitioners had swelled to over 2,000.<sup>33</sup>

For much of the nineteenth century, inventors had a strong preference for patent prosecutors with prior work experience in the Patent Office or close professional affiliation with a former patent examiner.<sup>34</sup> Scientific training and experience was also considered highly relevant, as indicated by the prodigious scientific talent that comprised the Patent Office's examining corps.<sup>35</sup> Formal legal training,

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ent); see also Swanson, *supra* note 24, at 531–32 (describing the first American patent treatise, published in 1810, that was directed to inventors and included the form of a patent petition, specification, and affidavit).

28. The Patent Act of 1836, ch. 357, § 7, 5 Stat. 117 (1836), provided that upon the filing of a patent application, “the Commissioner shall make or cause to be made, an examination of the alleged new invention or discovery.”
29. *Id.* (obligating the Commissioner to issue patents on inventions that were “sufficiently useful and important” and that had not yet been invented or discovered in the U.S., patented or described in any printed publication in the U.S. or abroad, or placed in public use or on sale with the applicant’s consent or allowance).
30. Following the enactment of the 1836 Act, Charles M. Keller, the first patent examiner, rejected about seventy-five percent of the patent applications that he received. Robert C. Post, “*Liberalizers*” versus “*Scientific Men*” in the *Antebellum Patent Office*, 17 *TECH. & CULTURE* 24, 29 (1976).
31. Swanson, *supra* note 24, at 523. In the nineteenth and early twentieth centuries, those who procured patents on behalf of others were called “patent attorneys” even if they were not bar-admitted attorneys-at-law. See *id.* at 520 n.3. To avoid confusion caused by this particular phrasing and for the sake of consistency, this Article refers to professionals who procure patents on behalf of others as “patent prosecutors” or “patent practitioners.”
32. ROBERT C. POST, *PHYSICS, PATENTS AND POLITICS: A BIOGRAPHY OF CHARLES GRAF-TON* PAGE 160 (1976).
33. DOBYNS, *supra* note 27, at 200–01.
34. Swanson, *supra* note 24, at 526–27, 530.
35. The antebellum examiners’ impressive scientific qualifications and achievements are discussed in Post’s “*Liberalizers*” versus “*Scientific Men*” in the *Antebellum Patent Office*,” *supra* note 30.

by contrast, was not considered advantageous.<sup>36</sup> It is therefore not surprising that lawyers initially did not gravitate to the field.<sup>37</sup>

The same cannot be said for others who, although lacking any relevant administrative or technical experience, sought to profit from the public's growing appetite for patents and seek work as patent practitioners. A typical complaint about these individuals was that they were more interested in the number of patents they obtained for clients than their quality.<sup>38</sup> Usually these individuals charged contingency fees for their services, a practice that was appealing to inexperienced clients but usually defeated their interests because it encouraged practitioners to draft applications that they knew would be quickly approved, regardless of whether such applications accurately described what was actually invented.<sup>39</sup>

In 1861, Congress responded to complaints about these practices and, for the first time, imposed a kind of quality control on the prosecution profession.<sup>40</sup> Specifically, it allowed the administrative head of the Patent Office, the Commissioner of Patents, to refuse to recognize any person as a patent practitioner for "gross misconduct."<sup>41</sup>

Meanwhile, professional interest in the issue of competence was growing. Although patent prosecution was initially of little interest to lawyers, by the end of the nineteenth century, they were increasingly drawn to the field.<sup>42</sup> And with the influx of attorneys came a new preoccupation with distinguishing the competent practitioner from the incompetent.

The issue of competence was one that, beginning in the mid-nineteenth century, had consumed lawyers intent on strengthening their

36. Swanson, *supra* note 24, at 531.

37. *See id.* at 531 n.42.

38. *Id.* at 529–30; *see, e.g.*, 1 ANNUAL REP. OF COMM'R OF PATENTS 9 (1869) (admonishing those patent practitioners who were "more desirous of obtaining a patent of any kind and by any means than they are of obtaining one which shall be of any value to their clients"); 1 ANNUAL REP. OF COMM'R OF PATENTS 6 (1859) (stating that it was "a matter of regret that the present law affords so many facilities for the dishonest practices" of certain patent practitioners who seek to profit by "annoying and robbing honest inventors of their just rights rather than by an honorable practice of their profession").

39. Swanson, *supra* note 24, at 530. Contingency fee practices were criticized through the end of the 1800s and well into the 1900s. *See, e.g.*, 1 ANNUAL REP. OF COMM'R OF PATENTS 9 (1869) (disapproving of the solicitation of patents upon contingency fees on grounds that such arrangements encouraged practitioners to secure inferior patents "that they may secure their own fee"); ROGER SHERMAN HOAR, PATENT TACTICS AND LAW: WHAT THE INDUSTRIAL EXECUTIVE AND ENGINEER SHOULD KNOW ABOUT PATENTS 232–33 (rev. 1939) (arguing that contingency fee arrangements are never appropriate for patent prosecution work and advising patentees to avoid practitioners who used such arrangements).

40. Act of March 2, 1861, ch. 88, § 8, 12 Stat. 246 (1861).

41. *Id.*

42. *See* Swanson, *supra* note 24, at 535–36.

own profession—a goal they ultimately achieved in part by raising the standards of entry. In 1836, admission to the general bar was typically based on law-office training and made by oral examination that was widely considered perfunctory.<sup>43</sup> After 1900, however, bar admittance was increasingly conditioned on proof of formal education and passage of written examinations.<sup>44</sup>

The experiences of the growing numbers of law-trained patent prosecutors undoubtedly informed the regulations that eventually were adopted with the intent of restricting admission to the patent bar. These regulations also were influenced by the efforts of bar-admitted practitioners to recast the field as a primarily legal, as opposed to scientific, endeavor.<sup>45</sup> In advocating the primacy of formal legal training,<sup>46</sup> the organized bar sought not only to boost its stature within the patent community, but also to marginalize those who were not similarly credentialed.<sup>47</sup> Thus, although lawyers and non-lawyers had peacefully co-existed as patent prosecutors for decades, by the end of the nineteenth century, lawyer practitioners had largely renounced their lay brethren.<sup>48</sup>

The lawyer prosecutors would never convince Congress or the Patent Office to banish non-lawyers from the profession, and to this day the patent bar continues to include both lawyers and non-lawyers.<sup>49</sup> Nevertheless, as described in the next section, the lawyer prosecutors were successful in at least one critical respect: convincing policymakers to condition membership to the patent bar on the applicant's competence as demonstrated on a written exam.

## B. The Adoption of the Patent Registration Exam

The first time the Patent Office announced that it would not only expel practitioners, but also would have some say over their entry to the profession, was in 1869. That year, the then-head of the Patent

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43. *Id.* at 531.

44. *Id.* at 536–37.

45. *See id.* at 537–38.

46. *See, e.g.,* Richard Spencer, *The Patent Lawyer and the General Practitioner*, 81 U. PA. L. REV. 924, 935 (1933) (arguing that technical skill was less important than legal proficiency and even could be an impediment to practice). *But see* CHARLES W. RIVISE, *THE PREPARATION AND PROSECUTION OF PATENT APPLICATIONS* 43 (1933) (“[A]n inventor should not select an attorney without an engineering training of the best quality.”).

47. *See* Swanson, *supra* note 24, at 537–40, 543.

48. *See id.*

49. *See supra* note 11 and accompanying text. The use of the phrase “patent bar” is somewhat misleading as “bar” used in a professional context usually refers to a body of lawyers. *See* BLACK’S LAW DICTIONARY 168 (9th ed. 2009). Yet non-lawyers who are registered to practice before the PTO are typically viewed as members of the patent bar. *See, e.g.,* Clifford et al., *supra* note 23, at 226 n.7 (noting that the “patent bar” is used generally to refer to registered prosecutors).

Office, Commissioner Samuel Fisher, approved an amendment to the Patent Office's rules authorizing him to limit those who could practice before the Patent Office to those not only of "good moral character," but also of "intelligence."<sup>50</sup> Although the new rule did not define the requisite intelligence, it left no doubt that the issue of competence now had the Patent Office's attention.

Nevertheless, for the next several decades, the problem of "incompetent and unworthy persons" prosecuting patents on behalf of naive and often indigent inventors continued to trouble the Patent Office and embarrass the profession.<sup>51</sup> And so in 1897, the Patent Office took its boldest action yet. That year it announced that it would begin restricting practice to only those individuals whose names were entered on a registry.<sup>52</sup>

Initially, the requirements for registration of new practitioners depended on whether the applicant was an "attorney at law" or a lay practitioner.<sup>53</sup> An attorney at law was required to furnish a certificate establishing his good standing in any court, while a person "not an attorney at law" could be registered only upon filing a certificate from a judge that the person was, among other things, "competent to advise and assist [inventors] in the presentation and prosecution of their applicants before the Patent Office."<sup>54</sup> Eventually however, the Patent Office began requiring all potential registrants to provide proof

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50. See RULES AND DIRECTIONS FOR PROCEEDINGS IN THE PATENT OFFICE § 127 (Aug. 1, 1869) (quoted in *Sperry v. Florida ex rel Florida Bar*, 373 U.S. 379, 388–89 (1963)).

51. ANNUAL REP. OF COMM'R OF PATENTS xv (1897). In a report to Congress, Acting Commissioner A.P. Greeley described the sorry state of the patent profession under the "over-liberal rule of practice" allowing anyone of "intelligence and good moral character" to prosecute patents. *Id.* According to Acting Commissioner Greeley, this rule led to "not a few" patent practitioners being admitted to practice who should not have been, "with the result that, on applications badly prepared, and unskillfully and carelessly prosecuted," the Patent Office issued patents that, although valid, were worthless because they failed to adequately protect the underlying invention. *Id.*

52. See RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE § 17 (rev. 1897) [hereinafter RULES OF PRACTICE 1897]. Amended Section 17 is reprinted in *Official Registration of Patent Attorneys*, 77 SCI. AM., no. 8, 1897, at 115.

53. RULES OF PRACTICE 1897 § 17, *supra* note 52. The division doubtless reflected the influence of the attorney faction of the patent bar over the Patent Office at the time.

54. *Id.* Persons and firms actively engaged, or in the preceding five years had been engaged, in representing patent applicants before the Patent Office were, upon their written request, automatically entered on the registry. *Id.* Likewise, those who had been "regularly recognized as an attorney or agent" to represent claimants before the Department of Interior were registered upon establishing their dates of admission. *Id.* In 1922, Congress revised the patent laws to make explicit the Commissioner's authority to require all persons representing applicants before the Patent Office to demonstrate that they were "competent." Act of Feb. 18, 1922, ch. 58, § 487, 42 Stat. 389 (1922).

of one's possession of legal and technical competence.<sup>55</sup> Typically, this evidence took the form of affidavits confirming the applicant's patent-drafting skill and experience.<sup>56</sup>

Although the Patent Office claimed to be "closely scrutin[izing]" registration applications "for evidence of a possession and exercise of that knowledge of patent law and procedure requisite for proper protection of the applicant's rights,"<sup>57</sup> the agency could not overcome the inherent unreliability of the affidavit system. The problem, as described by one Commissioner, was that affidavits from colleagues were "subject to the great weakness of friendship."<sup>58</sup> Where a patent bar candidate was perceived to be "a good fellow"—that is, one who was "ambitious and . . . striving to climb the ladder to success"—the typical affiant was too willing to "help him along" by submitting an affidavit attesting to his competence.<sup>59</sup>

One alternative to the affidavit system was to follow the lead of the general bar and evaluate competence by way of a written examination. An early advocate of an exam-based registration system was Commissioner Edward Moore, who repeatedly urged Congress to enact a law that would condition admittance to practice on passage of an exam.<sup>60</sup>

Commissioner Moore's successor, however, flatly rejected this proposal. To Commissioner Thomas Ewing, it was less important that a patent prosecutor be proficient with patent laws and rules than that he be "in actual touch" with, and have the trust and confidence of, his clients.<sup>61</sup>

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55. See Comm'r of Patents, Order No. 2,743, *printed in* 298 OFFICIAL GAZ. 870 (May 23, 1922) (amending RULES OF PRACTICE IN THE UNITED STATES PATENT OFFICE § 17).

56. See Memorandum from Thomas E. Robertson to Dr. Dickinson (Aug. 2, 1933) [hereinafter Robertson Memorandum] (on file with author) (describing the affidavit system that was then in place and had been "for some years past").

57. ANNUAL REP. OF COMM'R OF PATENTS xi (1919).

58. Robertson Memorandum, *supra* note 56.

59. *Id.*; accord *Agric. Dep't Appropriation B. for 1937: Hearing Before the Subcomm. of H. Comm. on Appropriations in Charge of the Agric. Dep't Appropriation B. for 1937*, 74th Cong. 330 (1936) (statement of Conway Coe, Comm'r of Patents) (stating that the affidavit system was neither reliable nor satisfactory and permitted the admission of many practitioners who did not possess the necessary qualifications "to render inventors valuable and competent service"); ALF K. BERLE & L. SPRAGUE DE CAMP, *INVENTIONS AND THEIR MANAGEMENT* 181 (3d rev. ed. 1954) (noting that before the Patent Office moved to an examination system, the registration requirements "were so easy that many incompetent men were admitted").

60. See ANNUAL REP. OF COMM'R OF PATENTS x (1909); ANNUAL REP. OF COMM'R OF PATENTS xii (1908).

61. See ANNUAL REP. OF COMM'R OF PATENTS xiv (1915) (stating that it is more important for patent prosecutors to have knowledge of the invention sought to be patented than knowledge of the rules of patenting); ANNUAL REP. OF COMM'R OF PATENTS xiv (1914) (same).

As Commissioner Ewing's comments suggest, questionable practices continued to dominate complaints about the profession and command the Patent Office's attention. Indeed, it was not until reforms addressing these practices were enacted<sup>62</sup> that the Patent Office was ready to critically examine its registration procedures. By that time, James Newton had replaced Ewing as Commissioner, and unlike his predecessor, Commissioner Newton was plainly moved by the suggestion that admission standards were too lax.<sup>63</sup> In his 1919 annual report to Congress, Commissioner Newton stressed that the need to safeguard inventors "through a closer scrutiny" of candidates was a "pressing" one and warned that it might soon become necessary "to insist upon more extensive proofs of qualifications than have been required in the past."<sup>64</sup>

By the 1930s, that time had come. At the beginning of the decade, the title of Commissioner belonged to Thomas Robertson, who during his long tenure<sup>65</sup> had come to the conclusion that the Patent Office had "never seriously met its very heavy duty and obligation to determine the competency" of practitioners before registering them.<sup>66</sup> Reliance on affidavits was, in his opinion, "more or less perfunctory."<sup>67</sup> A different system was needed, one that was so "sufficiently severe that the qualifications of the applicant would be determined without question."<sup>68</sup> According to Commissioner Robertson, that objective could be accomplished by requiring every applicant to submit to a comprehensive and rigorous written examination.<sup>69</sup>

In the end, it was Commissioner Robertson's successor, Conway Coe, who finally implemented an examination-based registration system for the Patent Office. And so on March 12, 1934, Commissioner Coe signed an order amending Rule 17 of the *Rules to Practice in the United States Patent Office* to require that every person entitled to

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62. In 1916, Congress enacted a law that made it unlawful for any person practicing before any governmental department to use the name of a congressman, senator, or government officer in advertising. See Act of Apr. 27, 1916, ch. 89, 39 Stat. 54 (1916). Two years later, the Patent Office amended Rule 17 to require the Commissioner's approval of all advertisements, non-compliant practitioners being subject to suspension or disbarment. See ANNUAL REP. OF COMM'R OF PATENTS xiii (1918) (describing the new rule).

63. ANNUAL REP. OF COMM'R OF PATENTS xi (1919).

64. *Id.*

65. See *Thomas E. Robertson*, 15 J. PAT. OFF. SOC'Y 867, 867 (1933) (noting that Robertson held the position of Commissioner for over twelve years, which was longer than any of his predecessors).

66. Robertson Memorandum, *supra* note 56.

67. *Id.*

68. *Id.*

69. *Id.*

represent patentees before the Patent Office first pass a written examination.<sup>70</sup>

Today, the PTO continues to condition registration on passage of a written examination.<sup>71</sup> Over the decades, however, the exam has changed, both substantively and administratively, in almost every way. Those changes are the subject of Part III.

### III. THE DECLINE OF THE PATENT REGISTRATION EXAM

The patent registration exam has never been a picture of psychometric perfection. The remarkable range and frequency of the changes that the Patent Office made to the exam throughout the 1900s suggest that the exam was developed on an ad-hoc basis and with seemingly little regard to the standards of test design and administration eventually followed by almost every other major professional licensure body in the United States. Nevertheless, for much of the twentieth century, the Patent Office at least seemed interested in improving the quality of the exam, and as a result of its efforts, the exam generally became more rigorous and comprehensive over time.

Ironically, the positive progress the exam had made came to an end when interest in taking the exam exploded. Between the 1980s and the 1990s, the number of patent bar candidates more than quadrupled and the PTO's small enrollment staff became overwhelmed by the additional applications. The PTO responded by making a number of changes to the exam intended to reduce the work it created for the agency. Those changes seem to have accomplished the PTO's goal, but their price has been the exam's ability to meaningfully, reliably, and fairly assess candidates' readiness to practice in the field of patent prosecution.

#### A. Evaluating Exam Quality

The very act of evaluating the quality of an exam implies that there are standards by which to measure its successes and failures. In fact, standards for evaluating exams are well known and a focus of the measurement field known as psychometrics.<sup>72</sup>

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70. Comm'r of Patents, Order No. 3,206, *printed in* 440 OFFICIAL GAZ. 781 (Mar. 27, 1934). Amended Rule 17 was also published in the Patent Office Society's journal. *See Examinations Required for Registration of Patent Attorneys*, 16 J. PAT. OFF. SOC'Y 359, 359-60 (1934).

71. 37 C.F.R. § 11.7(b)(1)(ii).

72. Broadly defined, psychometrics is "the discipline concerned with the quantification and analysis of human differences" and "involves both the construction of procedures for measuring psychological constructs and the analysis of data consisting of the measurements made." Michael W. Browne, *Psychometrics*, 95 J. AM. STAT. ASS'N 661, 661 (2000).

According to psychometricians, there are three central concepts in test design and evaluation: validity, reliability, and fairness.<sup>73</sup> Validity “refers to the appropriateness, meaningfulness, and usefulness of the specific inference made from test scores”<sup>74</sup> and it is the most fundamental consideration in developing and evaluating tests.<sup>75</sup> Validity has several components, including completeness and congruence. Completeness exists where, among other things, the objectives of a test are adequately represented in test items.<sup>76</sup> Congruence exists if each item measures the knowledge, skills, and other matter that it is intended to measure.<sup>77</sup> “A test which does not accurately measure what it is supposed to measure is worse than useless; it is misleading.”<sup>78</sup>

A prerequisite to assessing the validity of the patent registration exam, then, is an understanding of its objectives. Today, the stated purpose of the exam is to ensure that each applicant “[p]ossesses the legal . . . qualifications necessary for him or her to render applicants valuable services” and “[i]s competent to advise and assist patent applicants in the presentation and prosecution of their applications before the [PTO].”<sup>79</sup> These objectives are consistent with those developed generally for professional licensure and other “high-stakes” tests: to dependably identify when a person possesses “knowledge and skills in sufficient degree to perform important occupational activities safely and effectively.”<sup>80</sup>

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73. See generally JOINT COMM. ON STANDARDS FOR EDUC. AND PSYCHOLOGICAL TESTING OF THE AM. EDUC. RES. ASS'N, AM. PSYCHOLOGICAL ASS'N., & NAT'L COUNCIL ON MEASUREMENT IN EDUC., STANDARDS FOR EDUCATIONAL & PSYCHOLOGICAL TESTING (1999) [hereinafter TESTING STANDARDS] (setting forth standards for these three concepts).

74. Janet W. Fisher, *Multiple-Choice: Choosing the Best Options for More Effective and Less Frustrating Law School Testing*, 37 CAP. U. L. REV. 119, 131 (2008) (quoting Rachel Slaughter et al., *Bar Examinations: Performance or Multiple Choice*, B. EXAMINER, Aug. 1994, at 7, 13).

75. TESTING STANDARDS, *supra* note 73, at 9.

76. See Greg Sergienko, *New Modes of Assessment*, 38 SAN DIEGO L. REV. 463, 466 (2001) (citing PATRICIA L. SMITH & TILLMAN J. RAGAN, INSTRUCTIONAL DESIGN 95 (2d ed. 1999)).

77. See *id.*

78. MICHAEL JOSEPHSON, 1 LEARNING & EVALUATION IN LAW SCHOOL 6 (1984); see also Lynn M. Daggett, *All of the Above: Computerized Exam Scoring of Multiple Choices Items Helps to: (A) Show How Exams Items Worked Technically, (B) Maximize Exam Fairness, (C) Justly Assign Letter Grades, and (D) Provide Feedback on Student Learning*, 57 J. LEGAL EDUC. 391, 393–94 (2007) (“An exam that is not valid is not worth much . . .”).

79. 37 C.F.R. §§ (a)(2)(ii)–(iii), (6)(1)(ii) (West 2012) (stating that candidates must pass the patent registration exam to assure the OED Director that they “[possess] the legal and competence qualifications” identified in the preceding subsection).

80. TESTING STANDARDS, *supra* note 73, at 156; see also Susan M. Case, *The Testing Column: Back to Basic Principles: Validity and Reliability*, B. EXAMINER, Aug. 2006, at 23, 23 [hereinafter Case, *Back to Basic Principles*] (noting the purpose of



The second major concept of test design and evaluation is reliability. Reliability is the consistency with which a test measures what it is supposed to measure.<sup>81</sup> For high-stakes licensing tests, reliability concerns include consistency across forms.<sup>82</sup> Each version of an exam is a “form,” and lack of reliability occurs where test-takers are advantaged or disadvantaged depending on the content and level of difficulty of the specific items that appear on the forms they are delivered.<sup>83</sup>

Variability in difficulty of test forms also creates an issue with fairness.<sup>84</sup> A fair exam is part of a fair process that assures that each test-taker is provided a comparable opportunity to demonstrate her knowledge and skills.<sup>85</sup>

Finally, the evaluation of a test is concerned with the cognitive depth that its items are designed to reach. “A valid, reliable and fair exam ought to test a wide spectrum of cognitive skills and it ought to test these skills at various levels of difficulty.”<sup>86</sup> Some psychometricians use Bloom’s taxonomy, a hierarchical structure of thinking skills, as a tool for gauging the cognitive depth of test items.<sup>87</sup> As revised in 2001, the cognitive process dimensions of Bloom’s taxonomy (in order from least to most cognitively complex) are: remember; understand; apply; analyze; evaluate; and create.<sup>88</sup>

Competence to prosecute patent applications engages all orders of thinking. At a minimum, competent patent practitioners must remember the applicable laws, rules, and practices—or at least how to find them—and must understand those laws, rules, and practices and how to apply them. Patent practitioners also must know how to analyze fact situations and evaluate alternative courses of action. Ultimately, patent practitioners must be able to create patent applications and make arguments in support of their acceptance in order to obtain

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“high-stakes examinations” tests used for licensure and certification “is to identify examinees who are sufficiently competent to practice in the area covered by the license”).

81. 1 JOSEPHSON, *supra* note 78, at 15.

82. Case, *Back to Basic Principles*, *supra* note 80, at 24.

83. *See id.*

84. Lee Schroeder, *Scoring Examinations: Equating and Scaling*, B. EXAMINER, Feb. 2000, at 6.

85. 1 JOSEPHSON, *supra* note 78, at 6.

86. MICHAEL JOSEPHSON, 2 LEARNING & EVALUATION IN LAW SCHOOL 369 (1984).

87. *See, e.g.*, Brian E. Clauser et al., *Testing for Licensure and Certification in the Professions*, in EDUCATIONAL MEASUREMENT 701, 706 (Robert L. Brennan ed., 4th ed. 2006); Gregory R. Hancock, *Cognitive Complexity and the Comparability of Multiple-Choice and Constructed-Response Test Formats*, 62 J. EXPERIMENTAL EDUC. 143, 143–44 (1994).

88. *See* A TAXONOMY FOR LEARNING, TEACHING, AND ASSESSING: A REVISION OF BLOOM’S TAXONOMY OF EDUCATIONAL OBJECTIVES 6 (Lorin W. Anderson et al. eds., abr. ed. 2001) [hereinafter BLOOM’S TAXONOMY].

the strongest patents for their clients in terms of both breadth of scope and likelihood of withstanding future challenges to their validity. The ideal assessment of competence to prosecute patents therefore will engage all orders of thinking.

These basic concepts of test design and evaluation serve as a technical anchor for the history that follows.

## B. Early Improvements

### 1. *The First Exams*

Pursuant to the revised *Rules to Practice in the Patent Office*, the first patent registration examination was administered on September 27, 1934.<sup>89</sup> The exam likely was closed-book, meaning that test-takers could not consult any outside materials while taking the exam.<sup>90</sup>

The exam was organized according to a two-part format.<sup>91</sup> Part One, titled “Patent Office Practice and Procedure,” set forth nineteen total questions that focused on the recall of specific procedural rules.<sup>92</sup> Some items were short-answer questions, otherwise known as “constructed-response” items because they require test-takers to construct their own answers.<sup>93</sup> Other items were yes-no questions, or “selected-response items” because test-takers answer them by selecting among defined choices.<sup>94</sup> All of the Part One test items were technically neutral. That is, they did not require any scientific knowledge or skill to understand or correctly answer.

Part Two of the examination, titled “Preparation of a Specification,” assessed applicants’ legal and technical proficiency by requiring them to draft a specification and five claims directed to a centrifugal

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89. 1934 EXAM. This first exam was subsequently published in the Patent Office Society’s journal. See *United States Patent Office Examination for Enrollment of Attorneys*, *supra* note 14.

90. It is highly likely that the exam was closed-book given that the Part One items required only the recall of specific rules and the exam would have been too easy if examinees had been able to consult the rules. 1934 EXAM. Of the exams in my collection, the first one to reference outside materials is the exam administered in April 1984, which provided that examinees could consult such materials while taking the exam. See APR. 1984 EXAM, Part One Directions. Given that the directions of previous exams were silent on this point, there is reason to believe that 1984 was the first year the patent registration exam was administered as an open-book exam.

91. 1934 EXAM.

92. *Id.* This count identifies each subpart of ten numbered questions as a separate question.

93. See Geoffrey P. Mason, *Test Purpose and Item Type*, 4 CAN. J. EDUC., no. 4, 1979, at 8, 10.

94. See *id.* The dichotomy in item formats between whether an item is created or selected is a fundamental one. THOMAS M. HALADYNA, *DEVELOPING AND VALIDATING MULTIPLE-CHOICE TEST ITEMS* 4 (3d ed. 2004).

air compressor.<sup>95</sup> The instructions included a brief description and two drawings of the invention and advised as to the breadth and specificity of claims permitted by the art.<sup>96</sup>

The next examination, administered in April 1935, followed the same format as the 1934 examination.<sup>97</sup>

## 2. *Substantive Improvements*

Having established the basic format of the exam, the Patent Office next set out to make its content both more challenging and reflective of the actual practice of procuring patents. It did so, first and almost immediately, by substantially increasing the volume of information tested. Thus, by 1939, the number of short-answer items and claim-drafting exercises had doubled.<sup>98</sup> Also by 1939, the time provided to complete the exam was set at six hours, where it remains to this day.<sup>99</sup>

Over the next several decades, the total number of exam items fluctuated as the exam became more comprehensive and its items more cognitively complex. This transformation came about in four overlapping stages. First, the Patent Office began drafting Part One items as detailed fact patterns. Whereas the Part One sections of the 1930s were comprised almost entirely of straightforward legal questions such as “What is an ‘assignment of the entire interest?’”<sup>100</sup> and “What constitutes a constructive reduction to practice?”<sup>101</sup> by the second half of the century, exams were dominated by fact-driven hypotheticals. A typical Part One item that appeared on the 1955 exam, for example, was based on the following scenario:

On February 10, 1954, Jones files a substitute application for one which became abandoned on February 5, 1946. An interference is declared between said substitute application and one filed by Brown on April 12, 1951. Jones files a motion to shift the burden of proof alleging that his abandoned application constitutes a constructive reduction to practice of the invention defined by the interference counts.<sup>102</sup>

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95. 1934 EXAM.

96. *Id.*

97. APR. 1935 EXAM.

98. See JUNE 1939 EXAM (containing thirty-nine questions—with each subpart identified as a separate question—in Part One and five claims for each of two inventions in Part Two); DEC. 1939 EXAM (containing fifty questions in Part One and five claims for each of two inventions in Part Two).

99. See JUNE 1939 EXAM (identifying three-hour time limits for each of Part One and Part Two); DEC. 1939 EXAM (same). For a brief period during the late 1980s and early 1990s, the PTO allowed seven hours to complete the exam (three hours for Part One and four hours for Part Two). See OCT. 1989 EXAM; APR. 1990 EXAM; OCT. 1990 EXAM. By 1991, however, the time limit had returned to six hours. See 1991 EXAM.

100. APR. 1935 EXAM Q. 7(AM).

101. DEC. 1939 EXAM Q. 15(AM).

102. 1955 EXAM Q. 8(AM).

In the August 1960 and February 1962 exams, the Patent Office added yet another layer of facts to those set out in each Part One item. That is, each item was based on a set of unique facts as well as a patent application and issued patent reproduced at the end of Part One.<sup>103</sup>

Second, at the same time that Part One items became more fact-dependent, the calls of those questions became more open-ended. In the 1930s and 1940s, most Part One items focused on the recall of highly specific information. For example, “On what date does a reissue patent expire?”<sup>104</sup> and “What property must an article possess to entitle the inventor to a design patent that is not required for a mechanical patent?”<sup>105</sup>—both questions that appeared on the June 1939 exam—assessed only the lowest Bloom’s critical thinking order of remember. Some items required only a “yes” or “no” for an answer.<sup>106</sup> When guessed, these items required no thinking at all.

Over the next three decades, however, questions asking applicants to describe what action they would recommend and what decisions they would expect gradually replaced those requiring applicants to identify dates and define legal terms. “How would you advise your client?”, “What must be done?”, “What is the proper procedure?”, and “What action by the examiner may be expected?”—which ended almost half of the Part One items on the February 1965 exam<sup>107</sup>—became common interrogatories. Moreover, applicants were increasingly expected to explain how they reached their conclusions.<sup>108</sup>

Corresponding to the trend favoring open-ended questions was a trend disfavoring binary ones. Whereas yes-no interrogatories regularly appeared on exams during the first fifteen years of the exam’s history,<sup>109</sup> by mid-century they had essentially disappeared.<sup>110</sup>

Third, the exam’s heightened complexity was reflected in the expanded background of inventions provided for drafting claims in Part Two. In 1939 and 1940, the exams required test-takers to draft claims based on, at most, half-page descriptions of inventions and a few

103. AUG. 1960 EXAM; FEB. 1962 EXAM.

104. JUNE 1939 EXAM Q. 5(c)(AM).

105. *Id.* Q. 10(c)(AM).

106. *See, e.g.*, JUNE 1939 EXAM Q. 1(a)(AM), Q. 4(a)(AM), Q. 5(d)–(e)(AM), Q. 6(e)(AM), Q. 9(b)(AM); DEC. 1939 EXAM Q. 8(AM), Q. 37(AM); DEC. 1940 EXAM Q. 8(AM), Q. 13(AM), Q. 32–33(AM); JAN. 1943 EXAM Q. 15(AM), 26(AM), 32–33(AM); 1945 EXAM Q. 2(AM), Q. 26(AM).

107. *See* FEB. 1965 EXAM Q. 3(AM), 5–7(AM), 8(b)(AM), 12(AM), 16–19(AM).

108. *See, e.g., id.* Q. 4(b)(AM), 6–7(AM), 9–10(AM), 13–14 (AM), 16–17(AM), 20(AM).

109. *See supra* note 106 and accompanying text.

110. None of the exams administered in 1952, 1954, 1962, 1964, or 1965 included yes-no test items. *See* 1952 EXAM; 1954 EXAM; FEB. 1962 EXAM; NOV. 1962 EXAM; 1964 EXAM; FEB. 1965 EXAM; NOV. 1965 EXAM.

drawings.<sup>111</sup> Those who took the June 1939 exam, for example, were asked to write a set of claims based on a description of an invention that was only four sentences long.<sup>112</sup>

By 1950, however, the descriptions of inventions had expanded to two or more pages in length and consisted of parts of specifications of issued patents.<sup>113</sup> Only five years later, test-takers were asked to draft claims based on complete specifications of issued patents.<sup>114</sup> In short, the trend was to provide more detailed descriptions of inventions and thereby make the drafting task both more complex and authentic.

The final major substantive improvement to the patent registration exam was to introduce additional tasks to Part Two. Both exams administered in 1968 and 1970, for example, included claim-critiquing exercises in addition to claim-drafting exercises.<sup>115</sup> Similarly, both exams administered in 1978 required test-takers to prepare a complete response to a final office action, which could include amending claims,<sup>116</sup> and all of the exams administered between October 1979 and October 1983 required test-takers to draft abstracts of the described inventions in addition to claims.<sup>117</sup>

### 3. *Administrative Improvements*

Prior to 2004, the exam was a paper-and-pencil exam administered once or twice a year at various locations around the country. Every exam form that was administered on a given date was identical.<sup>118</sup> This meant that all candidates taking the exam on a particular date were subjected to the same assessment. Further, until 1984, the exam was closed-book; examinees were not allowed to bring any outside materials into the testing room.<sup>119</sup>

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111. See JUNE 1939 EXAM; DEC. 1939 EXAM; JUNE 1940 EXAM; DEC. 1940 EXAM.

112. JUNE 1939 EXAM (claims-drafting exercise directed to a "Process of Treating Coal").

113. *Compare, e.g.*, MAR. 1950 EXAM (requiring applicants to draft claims to an improved method of treating and stabilizing wheat germ), with U.S. Patent No. 2,085,421 ("Treating and Stabilizing Wheat Germ") (filed Oct. 9, 1934).

114. *Compare, e.g.*, 1955 EXAM (requiring applicants to draft claims to an improved method for making welded axle housings), with U.S. Patent No. 1,945,076 ("Method of Making Welded Axle Housings") (filed Sept. 11, 1930).

115. See FEB. 1968 EXAM; NOV. 1968 EXAM; MAR. 1970 EXAM; SEPT. 1970 EXAM.

116. See MAR. 1978 EXAM; SEPT. 1978 EXAM.

117. See OCT. 1979 EXAM; APR. 1980 EXAM; OCT. 1980 EXAM; 1981 EXAM; APR. 1982 EXAM; OCT. 1982 EXAM; APR. 1983 EXAM; OCT. 1983 EXAM.

118. This is confirmed by the PTO's provision of only one test form in response to each of my FOIA requests for the exam administered on particular dates and the PTO's release and publication of only one test form and set of model answers for each administration date once it began making exams publicly available.

119. See *supra* note 90 and accompanying text. After 1984, I found only three instances in which some portion of the exam was closed-book. See NOV. 1994 EXAM

Initially, responsibility for developing the patent registration exam was placed at least in part with the Patent Office's Board of Enrollment.<sup>120</sup> That group was later re-designated the Committee on Enrollment, and in 1985, all enrollment work, including the preparation and scoring of registration exams, was transferred to the PTO's new Office of Enrollment and Discipline (OED).<sup>121</sup> Nevertheless, from 1986 to at least 1993, the OED informally reached out to certain private practitioners and asked for their help in creating test items.<sup>122</sup> Although this practice was probably intended to save time spent on test development, it also represented a step toward ensuring that the exam reflected the actual practice of prosecuting patents.

In 1970, the Patent Office began stating on the exam the minimum scores required to pass it. Test-takers did not pass the exam unless they achieved the minimum score that applied to each of Part One and Part Two.<sup>123</sup> Beginning in 1973, however, if test-takers earned the minimum score on one section but not the other, they were required only to retake the section that they had failed.<sup>124</sup>

Although the exact standards the Patent Office used to score items on early exams are unknown, the agency at least created model answers for graders to reference, and one court that reviewed the grading process in 1952 found it to be reasonably and uniformly applied.<sup>125</sup> In any event, test-takers who believed the Patent Office erred in grading their answers could request a regrade, and if the agency denied

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(instructing that Part Two was closed-book); 1995 EXAM (same); 1996 EXAM (same).

120. See 1934 EXAM (noting that the "Board of Enrollment" approved test items).

121. See Cameron Weiffenbach, *Attorney Conduct and the U.S. Patent and Trademark Office*, 14 AIPLA Q.J. 73, 74–75 (1986) (describing the history of the placement of enrollment responsibilities within the PTO); see also 37 C.F.R. § 11.2(b)(2) (West 2012) (providing that the OED Director must prepare and grade registration exams).

122. Telephone Interview with Donald R. Dunner, Partner, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP (Apr. 13, 2012). Between 1986 and 1993, Mr. Dunner was one of several private practitioners asked on behalf of the OED to draft test items for possible use on the patent registration exam. Mr. Dunner submitted several pages of test items each time the request was made of him.

123. See, e.g., SEPT. 1970 EXAM (providing that, to pass, an examinee had to earn at least seventy-five of 125 points on Part One and at least forty-five of seventy-five points on Part Two).

124. See SEPT. 1973 EXAM, Notice (AM), Notice (PM). For the exception to apply, however, the test-taker had to pass the failed section on one of the next two test administrations. See *id.* The PTO ended this practice with the exam administered in April 1999. See USPTO, GENERAL REQUIREMENTS FOR ADMISSION TO THE EXAMINATION FOR REGISTRATION TO PRACTICE IN PATENT CASES BEFORE THE U.S. PATENT AND TRADEMARK OFFICE; EXAM DATE: AUG. 26, 1998, at 4 [hereinafter GENERAL REQUIREMENTS AUG. 1998 EXAM] (stating that the 1998 exam would be the last one where individual scores would be given for each section and that, beginning in 1999, examinees would "receive one score only").

125. *Cupples v. Marzall*, 101 F. Supp. 579, 582–83 (D.D.C. 1952).

them a passing score upon regrade, they could pursue judicial review of that decision.<sup>126</sup> The regrade-and-review option thus served as a check against poorly crafted items and unfair grading practices.

During the first few decades of the exam, there was never a concern that examinees might pass by memorizing old exam items, which would diminish the validity of the exam as a measure of readiness to practice. That is because the Patent Office did not publish or otherwise release test items or model answers.<sup>127</sup>

By 1973,<sup>128</sup> however, the Patent Office had changed its policy regarding availability of test items and model answers. Instead of maintaining exams in secret, the Patent Office provided test-takers the opportunity to purchase small sets of exams and their model answers for limited periods of time.<sup>129</sup> This had the effect of providing those who failed the exam with especially current material to study if they decided to retake it. Somewhat surprisingly, however, only a few persons—those involved in administering patent bar review courses—ever compiled and published the released exams.<sup>130</sup> Even then, the distribution of compilations was limited to course enrollees, and until the arrival of the internet in the 1990s, the exams could not be widely

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126. *See id.* at 581–83 (explaining the procedures provided by federal statute and the local rules of the United States District Court for the District of Columbia).

127. *Id.* at 582 (“[T]he practice of the Patent Office [is] to regard examination papers and grades thereon as confidential and to refuse applicants access to them . . .”). The only pre-1966 exception to this statement that I have found is the first patent registration exam in 1934, which was published in the Patent Office Society’s journal. *See United States Patent Office Examination for Enrollment of Attorneys*, *supra* note 14. Beginning in 1966, the Patent Office was required to provide those seeking judicial review of their failing grades with examination questions, their answers, and copies of approved answers. *DeLavey v. Reynolds*, 150 U.S.P.Q. 15, 16 (D.D.C. 1966).

128. Lynn Alstadt has been collecting old patent registration exams for over thirty years, and the 1973 exam is the oldest one in his collection. Telephone Interview with Lynn Alstadt, S’holder, Buchanan Ingersoll & Rooney PC (Nov. 4, 2011); *accord* Letter from Lynn J. Alstadt, Buchanan Ingersoll P.C. to Harry Moatz, Director, USPTO OED (Jan. 16, 2004), <http://www.uspto.gov/ip/rules/comments/representation/alstadt.jsp> (last modified July 4, 2009). The Patent Office likely changed its policy some time between 1968 and 1973. Interview with Paul Janicke, HIPLA Professor of Law, Univ. of Hous. Law Ctr., in Hous., Tex. (Nov. 17, 2011) (noting that when he studied for the patent registration exam in 1968, the Patent Office was not releasing old exams).

129. *See, e.g.*, USPTO, GENERAL REQUIREMENTS FOR ADMISSION TO THE EXAMINATION FOR REGISTRATION TO PRACTICE IN PATENT CASES BEFORE THE U.S. PATENT AND TRADEMARK OFFICE: APR. 1989 EXAMINATION, at 3 (allowing individuals to purchase copies of the previous three registration exams at a cost of \$15.00 each); GENERAL REQUIREMENTS AUG. 1998 EXAM, *supra* note 124, at 4 (same); *accord* Telephone Interview with Lynn Alstadt, *supra* note 128 (recalling that a test-taker could purchase an exam for a limited time after scores on that exam were released).

130. Interview with Paul Janicke, *supra* note 128.

and quickly disseminated in any other way. They therefore remained generally unavailable as test preparation materials.

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In summary, during the first five decades of the exam's existence, the Patent Office had made strides toward realizing the exam's potential as a rigorous assessment of competence that was reflective of actual practice. Fact-rich, clinical vignettes that concluded with open-ended queries replaced legal questions that tested recall and yes-no questions that applicants had a fifty percent chance of guessing correctly. In this way, the exam increasingly oriented itself toward the higher-order thinking skills of understand, apply, analyze, and evaluate. At the same time, claim-drafting exercises became more complex as the information provided to test-takers ballooned from a single drawing or paragraph to the complete, multiple-page specification of an issued patent. The exam added new exercises to Part Two, thereby providing a more comprehensive assessment of applicants' drafting and analytic abilities, and individuals taking the exam on a particular date were tested on the same items, removing the possibility that someone might pass because her version included easier items. Finally, for several decades the Patent Office did not publish test items and model answers, and even when it did begin releasing old exams, it did so for limited periods and only in response to individual requests.

### C. Recent Failures

Following the period of relative strength enjoyed by the patent registration exam from the 1950s to the early 1980s, its quality began to decline. That decline was fueled in part by the exam's move away from constructed-response items and toward multiple-choice items. By the late 1980s, multiple-choice items represented a substantial portion of Part One, as did, for a brief period, binary true-false items.<sup>131</sup> Multiple-choice items also began to supplement the drafting exercises in Part Two.<sup>132</sup> Finally, at the end of the twentieth century, the PTO converted the exam to one consisting exclusively of techni-

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131. *See, e.g.*, APR. 1989 EXAM (containing fifty multiple-choice items and fifty true-false items in Part One); OCT. 1989 EXAM (same); APRIL 1990 EXAM (containing eighty multiple-choice items in Part One); OCT. 1990 EXAM (containing seventy multiple-choice items in Part One); 1991 EXAM (containing fifty multiple-choice items in Part One).

132. *See, e.g.*, 1991 EXAM (containing claim-drafting exercises, office-response exercises, and multiple-choice items in Part Two); APR. 1992 EXAM (same); OCT. 1992 EXAM (containing claim-drafting exercises and multiple-choice items in Part Two).



cally neutral multiple-choice items<sup>133</sup> and began offering the exam via computer on almost every business day of the year.<sup>134</sup>

As a result of these changes, the exam today now suffers from at least five flaws that undermine its validity, reliability, and fairness. These flaws are: (1) the exam does not effectively evaluate a critical prosecution task: drafting patent claims; (2) many multiple-choice items that comprise the exam have been exposed yet continue to be recycled; (3) test forms are constructed and scored in disregard of best testing practices; (4) some items reproduce verbatim source material that is provided to and can be electronically searched by test-takers; and (5) many items are drafted in disregard of generally accepted drafting guidelines.

To be clear, I do not mean to suggest that these are the only ills that afflict the modern-day patent registration exam. It has been almost a decade since the PTO last officially released exam items, and the PTO has historically been reticent about its process of constructing and evaluating the exam. As new information comes to light about the exam's substance, development, and administration, so also may additional flaws. For example, the exam's time limits and "pass" score also may be defective depending on the information that is being used to validate them. But because the PTO has not yet released that information, it would be premature to criticize the PTO's decisions regarding those parameters.

Accordingly, the analysis that follows should be regarded not as an end point, but as a starting point for evaluating the quality of the patent registration exam.

### 1. *Elimination of Drafting Exercises*

The first major change to the registration exam was to eliminate all drafting and other performance items. This change was clearly not meant to enhance the integrity of the exam but instead was intended to reduce the strain on the Patent Office that had been created by the rapidly growing prosecution profession.<sup>135</sup> In 1973, the number of persons who took the exam was 490.<sup>136</sup> In 1986, the number of examinees was 722,<sup>137</sup> and in 1997, it was over 3,100.<sup>138</sup> In the meantime,

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133. The 1998 exam was the first exam to consist entirely of multiple-choice items. See 1998 EXAM.

134. The PTO began offering computer-administered exams in 2004. See Harry I. Moatz, OED Director, *Publication of Final Rules for Computerized Registration Examination*, USPTO (June 22, 2004), <http://www.uspto.gov/web/offices/dcom/olia/oed/finalrules.htm>.

135. OIG AUDIT, *supra* note 15, at 5.

136. COMM. ON ENROLLMENT, PTO, SEPT. 1973 EXAM MODEL ANSWERS (Nov. 27, 1973).

137. OIG AUDIT, *supra* note 15, at 5.

the number of requests for regrades also had skyrocketed, rising from 71 in 1985 to 267 in 1995.<sup>139</sup>

By the late 1990s, the problems created for the PTO by the heightened demand for exam-related services had reached crisis levels. The OED was spending considerably more time on enrollment work than it was on discipline work.<sup>140</sup> As a result, disciplinary investigations were not being expeditiously completed, some not even within the statute of limitations.<sup>141</sup>

Yet the PTO did not increase the OED's staff in an attempt to address the additional demands on its time. In early 1998, the OED consisted of only three enrollment staff members, the same number as in 1986.<sup>142</sup> Instead, the PTO responded by reworking the format and administration of the exam. The first change it made, which took effect in 1997,<sup>143</sup> was to eliminate all constructed-response items, including the claim-drafting exercises that had long been a staple of the exam and the only part to survive the many nips and tucks the exam had endured over the decades.<sup>144</sup> One year later, in 1998, the PTO populated the exam entirely with technically neutral multiple-choice items, and the patent registration exam remains to this day an exclusively multiple-choice one.<sup>145</sup>

By embracing multiple-choice items, the patent registration exam followed the high-stakes testing trend that had begun in the 1950s.<sup>146</sup> Much of the rise in popularity of multiple-choice items can be attributed to the fact that they can test more knowledge per unit of time than any other testing method and so can provide a more comprehensive assessment.<sup>147</sup> The scoring of multiple-choice items also is more reliable and efficient than that of constructed-response items—both important considerations for the PTO in the 1990s. Indeed, one of the chief complaints about the exam's claim-drafting exercises was that

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138. *The Results of the August 1997 Registration Examination*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/past/results/examresults1997aug.jsp> (last modified Feb. 24, 2010).

139. OIG AUDIT, *supra* note 15, at 5.

140. For one six-month period in 1997, staff spent 71% of their time on enrollment work and only 14% of their time on discipline work. *Id.*

141. *Id.* at 3–4.

142. *Id.* at 5.

143. *Compare* 1996 EXAM, *with* 1997 EXAM.

144. Of the sixty-nine pre-1997 patent registration exams reviewed for this Article, all of them included clam-drafting exercises or office-response exercises that included claim amendment.

145. *See* 1998 EXAM.

146. *See* Clauser et al., *supra* note 87, at 707.

147. *See* Geoff Norman, *So What Does Guessing the Right Answer Out of Four Have to Do With Competence Anyway?*, B. EXAMINER, Nov. 2008, at 18, 19–20; Howard J. Gensler, *Valid Objective Test Construction*, 60 ST. JOHN'S L. REV. 288, 289 (1986).

their grading was arbitrary and inconsistent.<sup>148</sup> The view that one had more room to argue the correctness of a Part Two answer than a Part One answer, together with the perception that a challenge to a Part Two score generally had a greater chance of being successful than a challenge to a Part One score,<sup>149</sup> doubtless contributed to the rise in regrade requests that eventually overwhelmed the agency.

But the PTO could have avoided the problems caused by regrade requests simply by refusing to entertain them, as the agency eventually did in 2004.<sup>150</sup> Moreover, although it takes less time to score multiple-choice items than constructed-response items, it may take more time to create multiple-choice items than constructed-response items.<sup>151</sup> If the patent registration exam is designed in accordance with psychometric standards, as it should be, one might expect only a modest net time savings in reverting to an exclusively multiple-choice exam.

Additionally, although scoring constructed-response items is inherently less reliable than scoring multiple-choice items, a high degree of consistency can be achieved through the development of detailed scoring rubrics and the calibration of graders.<sup>152</sup> That is the studied position of the National Conference of Bar Examiners (NCBE), the developer of several components of the general bar exam administered by the United States and its territories. Because the general bar exam is the only other exam that serves as a basis for law-related licensure determinations in the United States, the experiences of the

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148. See *Changes to Representation of Others Before the PTO*, 69 Fed. Reg. 35,428, 35,437 (June 24, 2004) (noting that the PTO's grading of the claims-drafting exercises was subjective and "subject to heightened dispute"); see also John R. Thomas, *Claim Re-Construction: The Doctrine of Equivalent in the Post-Markman Era*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 781, 799 (2005) [hereinafter Thomas, *Claim Re-Construction*] (noting "persistent complaints" about exam scoring prior to the elimination of claim-drafting exercises).

149. Interview with Paul Janicke, *supra* note 128.

150. Concluding that processing regrade requests was "not the best use of Office resources," the PTO finally scrapped the regrade program in 2004. See *Changes to Representation of Others Before the PTO*, 69 Fed. Reg. at 35,440. Thus, examinees can no longer challenge the validity of test items or the accuracy of model answers. Rather, "[n]otification of the examination results is final." 37 C.F.R. § 11.7(e) (West 2012); accord *In re* [redacted], R2006-001 (Dec. OED) (July 12, 2006), at 2 available at [http://des.uspto.gov/Foia/ReterivePdf?system=OED&flNm=0149\\_REG\\_2006-07-12](http://des.uspto.gov/Foia/ReterivePdf?system=OED&flNm=0149_REG_2006-07-12) (noting that even applicants who would have received a passing score but for a PTO error have no recourse other than retaking the exam).

151. See Cynthia B. Schmeiser & Catherine J. Welch, *Test Development*, in *EDUCATIONAL MEASUREMENT*, *supra* note 87, at 307, 327.

152. See Michael T. Kane, *The Role of Licensure Tests*, B. EXAMINER, Feb. 2005, at 27, 36; accord Schmeiser & Welch, *supra* note 151, at 328 (describing the development of sound scoring rubrics for constructed-response items).

NCBE are highly relevant to a discussion of the design of the patent registration exam.

One component of the general bar exam developed by the NCBE is the Multistate Performance Test (MPT). Introduced in 1997 and now administered in thirty-six jurisdictions,<sup>153</sup> the MPT instructs examinees to draft a specific document (e.g., a memorandum or contract) based on a file of reference materials and legal authority.<sup>154</sup> To NCBE and the many MPT-administering jurisdictions, any decrease in validity caused by the inherently subjective nature of scoring MPT answers is offset by the increase in validity the MPT achieves by assessing basic lawyering skills that are related to but not fully measured by other exam components and by assessing those skills in circumstances that come closer to replicating real practice settings.<sup>155</sup>

Indeed, it is the MPT's strong relevance to the actual practice of law that makes it not only appealing to both examiners and examinees,<sup>156</sup> but also psychometrically sound. A licensure test is an assessment of professional competence and its validity necessarily depends on how well the test supports the inference made about examinees' readiness to practice based on their mastery or non-mastery of certain competencies.<sup>157</sup> This inference is supported where the tested competencies are considered critical for effective performance of common practice activities.<sup>158</sup>

For the general bar, competencies critical to common lawyering tasks include problem solving, legal and factual analysis, and effective communication in writing—the very tasks required by the MPT.<sup>159</sup> For patent prosecutors, competencies critical to common prosecution

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153. *MPT Jurisdictions*, NCBE, <http://www.ncbex.org/multistate-tests/mpt/mpt-jurisdictions/> (last visited Aug. 15, 2012).

154. *The Multistate Performance Test (MPT)*, NCBE, <http://www.ncbex.org/multistate-tests/mpt/> (last visited Feb. 8, 2012).

155. *Development of the MPT*, NCBE, <http://www.ncbex.org/multistate-tests/mpt/development-of-the-mpt/> (last visited Dec. 6, 2011).

156. Diane F. Bosse, *The MPT: Assessment Opportunities Beyond the Traditional Essay*, B. EXAMINER, Dec. 2011, at 17, 21 (“The MPT provides the opportunity to assess many of the skills that new lawyers need to practice law effectively in a way not available through other components of the bar exam.”); Charles S. Kunce & Scott E. Arbet, *A Performance Test of Lawyering Skills: Candidate Perceptions*, B. EXAMINER, May 1995, at 43, 44–47 (finding that applicants believe performance tests are a better measure of their ability to perform as attorneys than either multiple-choice items or essay questions and favor including performance tests on the bar exam).

157. See Kane, *supra* note 152, at 33.

158. *Id.* at 35; accord TESTING STANDARDS, *supra* note 73, at 157 (“Validation of credentialing tests depends mainly on content-related evidence, often in the form of judgments that the test adequately represents the content domain of the occupation or specialty being considered.”).

159. See Marcia A. Kuechenmeister, *A Performance Test of Lawyering Skills: A Study of Content Validity*, B. EXAMINER, May 1995, at 23, 23.

tasks include analyzing and preparing patent claims.<sup>160</sup> As Judge Giles Rich famously commented, in patent law, “the name of the game is the claim.”<sup>161</sup> “Because the patent claim is the basic source from which the subject matter of the patent right is determined, the words of the patent claim and their interpretation are fundamental to nearly all aspects of patent law.”<sup>162</sup> Claims are the first part of a patent application read by patent examiners during patent prosecution and the primary concern of judges and attorneys during patent litigation.<sup>163</sup>

Accordingly, of all the skills one must master to be considered a competent patent prosecutor, the art and science of drafting claims is among the most essential.<sup>164</sup> It is doubtless for these reasons that drafting exercises appear on the registration exams administered by so many foreign jurisdictions with robust patent systems. Indeed, of the ten foreign countries reporting the highest number of originating patent applications in 2008,<sup>165</sup> six administer registration exams that

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160. See, e.g., Jennifer Gordon, *Preparing and Prosecuting a Patent that Holds up in Litigation*, 841 PLI/PAT 781, 785 (2005) (“The standard recipe for competent preparation and prosecution of a United States patent [includes] . . . a proficiency for claim drafting . . .”).
161. Giles Sutherland Rich, *Extent of Protection and Interpretation of Claims—American Perspectives*, 21 INT’L REV. INDUS. PROP. & COPYRIGHT L. 497, 499 (1990).
162. MOY’S WALKER ON PATENTS, *supra* note 1, at § 4.1; see also FRED K. CARR, PATENTS HANDBOOK: A GUIDE FOR INVENTORS AND RESEARCHERS TO SEARCHING PATENT DOCUMENTS AND PREPARING AND MAKING AN APPLICATION 51 (2009 reprint) (“Claim drafting is the most important aspect of preparing a patent application. It is the claims that transform the invention into patent property.”).
163. Jason M. Nolan, *Formalism and Patent Claim Drafting: The Status of De Facto Independent Claims Under the Fourth Paragraph of 35 U.S.C. § 112*, 19 TEX INTEL. PROP. L.J. 263, 264 (2011); see also PATENT LAW HANDBOOK § 2:1 (2011) (“Proper claim interpretation is the requisite initial inquiry in determinations of patentability as well as patent infringement, invalidity, and enforceability.”); Dmitry Karshedt, *Limits on Hard-to-Reproduce Inventions: Process Elements and Biotechnology’s Compliance With the Enablement Requirement*, 3 HASTINGS SCI. & TECH. L.J. 109, 117–18 (2011) (“[C]laims remain the touchstone of USPTO’s determinations of patentability and of courts’ rulings on validity and infringement . . .”).
164. It also is exceedingly difficult to master. See, e.g., *Topliff v. Topliff*, 145 U.S. 156, 171 (1892) (“The specification and claims of a patent, particularly if the invention be at all complicated, constitute one of the most difficult legal instruments to draw with accuracy . . .”); John R. Thomas, *The Question Concerning Patent Law and Pioneer Inventions*, 10 HIGH TECH. L.J. 35, 52 (1995) [hereinafter Thomas, *Pioneer Inventions*] (explaining that claim drafting is “among the more difficult feats of technical writing”).
165. These are China, France, Germany, Italy, Japan, the Netherlands, the Republic of Korea, the Russian Federation, Switzerland, and the United Kingdom. See WORLD INTEL. PROP. ORG., WORLD INTELLECTUAL PROPERTY INDICATORS 126-28 tbl P1 (2010 ed.) (“Applications by Origin: Total”) [hereinafter IP INDICATORS], available at [http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/941\\_2010.pdf](http://www.wipo.int/export/sites/www/ipstats/en/statistics/patents/pdf/941_2010.pdf).

include drafting exercises.<sup>166</sup> And each of the four countries that do not at least requires its patent bar candidates to complete a formal apprenticeship, internship, or training program that presumably includes practice drafting patent applications.<sup>167</sup>

166. Ministry of Education and Science, *Administrativn'ii reglament ispolneniia Federal'noi sluzhboi po intellektual'noi sobstvennosti* [Administrative Regulations for Execution of Federal Service for Intellectual Property] §§ 11.4.1–3 (Oct. 5, 2009) (Russ.), available at <http://www.rupto.ru/> (Google translate version) (follow “Patent Attorneys” hyperlink; follow “Regulatory documents” hyperlink; follow “Administrative regulations” hyperlink) (Russian Federation’s qualifying exam includes claim-drafting tasks); Patent Attorney Ordinance of May 11, 2011 art. 8 (Switz.), available at <https://www.ige.ch/en/legal-info/legal-areas/patents/patent-attorney-act-and-patent-court-act/protection-of-the-professional-title.html> (follow “Patent Attorney Ordinance” hyperlink) (Swiss qualifying examination requires examinees to draft claims and the introductory part of a European patent application); Regulations for the Examinations for the Registration of Patent Agents & Trade Mark Agents 1991 (U.K.), available at [http://www.cipa.org.uk/download/2007\\_Exam\\_Regulations.pdf](http://www.cipa.org.uk/download/2007_Exam_Regulations.pdf) (one quarter of Advanced Papers component of U.K. registration examination (called the P3 paper) requires examinees to draft claims); *Examenreglement* [Examination Regulations], RADBOUD UNIVERSITEIT NIJMEGEN, CENTRUM VOOR POSTACADEMISCH JURIDISCH ONDERWIJS, <http://www.ru.nl/cpo/e> (Google translate version) (follow “Patent Attorneys Exam” hyperlink; follow “Examination Regulations” hyperlink) (last visited Feb. 1, 2012) (Dutch qualifying exam requires examinees to draft a patent application); *L'examen mention "brevets d'invention"* [The review stated patents], INSTITUT NATIONAL DE LA PROPRIÉTÉ INDUSTRIELLE, <http://www.inpi.fr/> (Google translate version) (follow “IP for you” hyperlink; follow “IP expert” hyperlink; follow “Review ‘qualified person in PI’” hyperlink) (last visited Feb. 1, 2012) (French qualifying exam requires examinees to draft one or more French patent applications); *Modalita di Iscrizione All'albo* [Mode of Enrollment], ORDINE DEI CONSULENTI IN PROPRIETÀ INDUSTRIALE, <http://www.ordine-brevetti.it/> (Google translate version) (follow “The Registered” hyperlink; follow “Method for the register” hyperlink) (last visited Feb. 1, 2012) (Italian qualifying exam requires examinees to draft a patent for an invention or utility model).

Notably, this list does not include the European Patent Office and Canada, both of which appear on other top ten patenting activity lists, see IP INDICATORS, *supra* note 165, at 126–28 tbl. P1 (“Applications by Office: Total”; “PCT International Applications, 2009: Receiving Office”; “PCT National Phase Entry, 2008: Office”), and both of which administer qualifying examinations that include drafting exercises, see *About the EQE*, EUR. PAT. OFF., <http://www.epo.org/learning-events/eqe/about.html> (last updated Mar. 29, 2012) (annual European Qualifying Examination requires examinees to draft claims and the introductory part of a European patent application); *Patent Agents Qualifying Examination*, CAN. INTELL. PROP. OFF., <http://www.cipo.ic.gc.ca/eic/site/cipointernet-internetopic.nsf/eng/wr00113.html> (last modified May 24, 2012) (annual Canadian registration exam requires examinees to draft a complete specification and claims).

167. Regulations on Patent Commissioning art. 11, 14 (promulgated by State Council, Mar. 4, 1991, effective Apr. 1, 1991) (China), available at <http://www.acpaa.cn/englishnew/content.asp?id=133> (Chinese patent agent applicants must complete a one-year apprenticeship with an authorized patent agency); Patent Attorney Act, Act. No. 49 of Apr. 26, 2000, arts. 7, 16-2 (Japan), available at <http://www.jpaa.or.jp/english/aboutus/pdf/PatentAttorneyAct.pdf> (Japanese patent attorney candidates must complete practical training before they can be registered); *Pat-*

By contrast, the United States neither includes claim-drafting exercises on its qualifying exam nor requires patent bar candidates to complete any kind of practical training program. Instead, it purports to assess the claim-drafting competency of candidates solely via multiple-choice questions on the patent registration exam. For example, one claims-oriented question that appeared on exams administered between 1999 and 2002 set forth a dependent Claim 2 and asked from which possible Claim 1 could Claim 2 *not* properly depend, where the only difference in the answer choices was the transition phrase.<sup>168</sup>

As this example illustrates, it is one thing to ask an examinee to select claim language among a handful of choices. It is quite another to require an examinee to analyze detailed technical documents and drawings describing an unfamiliar invention and then create valid claims of varying scope defining the invention.<sup>169</sup> The latter task engages the highest level of cognitive complexity<sup>170</sup> and supports test validity by simulating the actual practice of patent prosecution. The former task can engage only less complex cognitive dimensions<sup>171</sup> and does not occur in the real world.

In short, competence in drafting claims cannot fully be captured by a multiple-choice approach. Patent practitioners and scholars understand this intuitively,<sup>172</sup> and psychometricians working in related

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*ent Attorney Training*, DEUTSCHES PATENT-UND MARKENAMT, [http://www.dpma.de/english/the\\_office/training/index.html](http://www.dpma.de/english/the_office/training/index.html) (last updated Feb. 1, 2012) (German patent attorney candidates must complete an “almost three-year training under supervision of a patent attorney and at the patent authorities”); Telephone interview with Representative, Kor. Trade-Investment Promotion Agency (Nov. 29, 2011) (Korean patent attorney candidates must complete a one-year internship before they can be registered).

168. See, e.g., NOV. 1999 EXAM Q. 18(AM); OCT. 2000 EXAM Q. 35(PM); APR. 2001 EXAM Q. 35(PM); APR. 2002 EXAM Q. 22(AM).
169. See Thomas, *Pioneer Inventions*, *supra* note 164, at 55 (arguing that the extent to which the requirement to pass the exam “enhances claim drafting skills is dubious”); accord Douglas D. Roche, *Practice Skills Teaching and Testing as Part of the Bar Admissions Process*, B. EXAMINER, Feb. 1995, at 27, 29 (arguing that requiring bar applicants to use analytical skills in performance test items more closely approximates the reality of law practice “than presenting the applicant with a tidy, abbreviated set of uncontroverted relevant facts”).
170. Because the drafting of claims is the construction of an original product, it falls squarely within the most cognitively complex category of creation. See BLOOM’S TAXONOMY, *supra* note 88, at 85.
171. See Hancock, *supra* note 87, at 144 (noting that even proponents of the multiple-choice format concede that the synthesis level of Bloom’s taxonomy may be assessed only by constructed-response items).
172. See, e.g., John R. Thomas, *Discharging the Canons of Claim Construction: Exercises in Interpretation at the United States Court of Appeals for the Federal Circuit*, in U.S. INTELL. PROP. L. & POLICY 134, 155–56 (2006) (arguing that eliminating claim-drafting items from the patent registration exam “moves the patent bar in the wrong direction”; claim-drafting skills should be “emphasized, not ignored”); E-mail from John Pokotylo to USPTO (Nov. 6, 1996, 10:37:26),

contexts have reached the same conclusion after careful study of the matter.<sup>173</sup>

## 2. *Recycling Exposed Test Items*

Since 2004, there have been two modalities for delivering the registration exam to test-takers.<sup>174</sup> The first is a paper-and-pencil exam administered once a year.<sup>175</sup> The second, computerized modality is far more popular.<sup>176</sup> Under contract with the PTO, Thomson Prometric (Prometric), a commercial test service provider, administers the exam to candidates via computer at its hundreds of United States testing centers on almost every business day of the year.<sup>177</sup> Each individual taking the computer-based exam is delivered a unique form consisting of a mix of 100 multiple-choice items selected at random from a bank, or pool, of previously vetted items.<sup>178</sup> In other words, the items on each computerized form of the patent registration exam are recycled.

This type of test design is fairly common, especially for tests administered by computer, and it is not necessarily cause for concern so long as precautions are taken to limit the damage to test validity caused by item exposure. Perhaps the most basic and important of these precautions is eliminating any test item known to have been disclosed to test-takers outside of the test setting.<sup>179</sup> If disclosed items

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available at <http://www.uspto.gov/web/offices/pac/dapp/opla/comments/prop1996/34.pdf> (arguing that claim-drafting items should remain a part of the registration exam).

173. See Bosse, *supra* note 156, at 21; Jane Peterson Smith, *The July 1993 Performance Test Research Project*, B. EXAMINER, May 1995, at 36, 42.
174. See Moatz, *Publication of Final Rules for Computerized Registration Examination*, *supra* note 134.
175. *USPTO 2012 Administered Examination*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/uspto12administerexam.jsp> (last modified Mar. 27, 2012) (describing procedures for 2012 paper-and-pencil exam).
176. In fiscal year 2010, 3,490 persons paid the fee to take the computer exam, whereas only five persons paid the fee to take the paper-and-pencil exam. See USPTO, FY 2012 PRESIDENT'S BUDGET, App. 1 at 143 (Feb. 14, 2011), available at <http://www.uspto.gov/about/stratplan/budget/fy12pbr.pdf> (calculated by dividing fees collected for each of "Test Administration by Commercial Entity" and "Test Administration by USPTO" by their respective fee rates).
177. GRB 2012, *supra* note 11, at 10.
178. See *Registration Examination Questions*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/registration.jsp> (last modified Feb. 1, 2011); see also *Changes to Representation of Others Before the PTO*, 68 Fed. Reg. 69,442, 69,443 (Dec. 12, 2003) (noting that the computer-administered exam would be populated by "a slate of questions randomly selected from a large data bank of questions and answers").
179. See Susan M. Case, *The Testing Column: Examination Security*, B. EXAMINER, Aug. 2003, at 31, 33 (noting that producers of high-stakes tests "are obligated to eliminate exposed test material from the item pool and generate new items"); accord *Nat'l Conference of Bar Examiners v. Saccuzzo*, No. 03CV0737BTM(NLS),



are not removed from the rotation, an exam has the potential of being converted from an assessment of one's mastery of core competencies into an assessment of one's ability to memorize old questions and answers. When this occurs, the exam does not measure what it is supposed to measure and so is invalid.

In the past decade, the patent registration exam has developed a reputation for reusing exposed items.<sup>180</sup> I sought to determine whether this reputation is justified. In so doing, I considered two different time periods: the period between 1998 and 2003, when the exam was administered only in paper-and-pencil form once or twice a year, and the period from 2004 to the present day, during which the exam has been administered via computer on an almost daily basis.

With respect to the first period, I reviewed, coded and compared each of the eleven exams administered between 1998 and 2003. These dates were chosen because they are, respectively, the year the exam assumed its modern-day, exclusively multiple-choice format, and the year the PTO officially released exam questions and answers for the last time.

I determined the number of repeats as follows. First, I coded all 1,100 items on these exams according to key names, inventions, concepts, and phrases. I then compared items with similar coding to determine if the later-in-time item was a repeat of an earlier-in-time item. I categorized a later-in-time item as a repeat if it was substantively identical in every respect to an earlier-in-time item, the designated answers were the same, and the answer explanations were substantially the same.

Many items that I categorized as repeats were word-for-word identical to the point that even typos were faithfully reproduced.<sup>181</sup> However, the use of a different actor name, a change in the order of answer choices, or a minor grammatical or stylistic change did not disqualify a question as a repeat of another. A date change was deemed substantive or not depending on the particular fact setting and doctrine(s) at issue.<sup>182</sup>

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2003 WL 21467772, at \*4-5 (S.D. Cal. June 10, 2003) (explaining that the NCBE had to retire all test items that defendants had exposed).

180. See generally *Questions Reportedly Asked in the Patent Bar Exam*, PATENT BAR QUESTIONS, [http://patentbarquestions.com/Questions\\_reportedly\\_asked\\_in\\_the\\_Patent\\_Bar\\_Exam](http://patentbarquestions.com/Questions_reportedly_asked_in_the_Patent_Bar_Exam) (last visited Aug. 15, 2012) (reporting known items that remain in the bank of test items that populate the computer-administered exams); *Repeat Questions*, MYPATENTBAR.COM, <http://mypatentbar.com/repeat-questions/> (last visited Aug. 15, 2012) (same).

181. Compare, e.g., APR. 2003 EXAM Q. 9(PM), with OCT. 2003 EXAM Q. 12(AM) (repeating typo "access t [sic] the application").

182. For example, one item on the October 2000 exam is identical to an item on the April 2001 exam except that there is an exactly three-year difference in the dates of the events described in the items. Compare OCT. 2000 EXAM Q. 16(PM), with APR. 2001 EXAM Q. 16(PM). The item on the April 2001 exam was counted as a

The results of my analysis are detailed in the online appendix to this Article.<sup>183</sup> As summarized in Table A, in the five years between 1999 and 2003 during which the PTO administered ten different exams,<sup>184</sup> almost a quarter of all test items—235 of 1,000—had appeared on at least one exam administered earlier in the period between 1998 and April 2003. Predictably, later-administered exams featured more repeats than earlier-administered exams. When the population was narrowed to the six exams administered between 2001 and 2003, the repeat count was 205 of 600, or 34% of all items.

Apr. '99	Nov '99	Apr. '00	Oct. '00	Apr. '01	Oct. '01	Apr. '02	Oct. '02	Apr. '03	Oct. '03
1	9	8	12	37	20	28	46	52	22

The highest number of repeats appeared on the April 2001, October 2002, and April 2003 exams. Respectively, those exams featured thirty-seven, forty-six, and fifty-two repeats. The last data point is worth special consideration because it means that over half of the items on the April 2003 exam were substantively identical in every respect to items appearing on recently-administered exams—and none any earlier than the year 2000.<sup>185</sup> Moreover, the majority of the fifty-two repeats on the April 2003 exam were published on the PTO's own website prior to the exam's administration.<sup>186</sup>

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repeat because the doctrine at issue was 35 U.S.C. § 102(b) (West 2012), which did not change in the six months between the administrations of the exam. In addition, the designated answers and their explanations were identical. *Compare* OCT. 2000 EXAM, Afternoon Session Model Answers, *with* APR. 2001 EXAM, Afternoon Session Model Answers.

183. See PRER, *supra* note 21.

184. The 1998 exam is not included in the calculation of repeats because it is the first exam in the population and so by definition cannot include any repeats.

185. See PRER, *supra* note 21.

186. Prior to the April 2003 exam, the PTO published the October 2001, April 2002, and October 2002 exams and their model answers on its website. See USPTO, GENERAL REQUIREMENTS BULLETIN FOR ADMISSION TO THE EXAMINATION FOR REGISTRATION TO PRACTICE BEFORE THE UNITED STATES PATENT AND TRADEMARK OFFICE: EXAM DATE: TUESDAY, APRIL 15, 2003, at 8, *available at* <http://www.uspto.gov/web/offices/dcom/olia/oad/grb0403.pdf>. Thirty of the fifty-two repeats on the April 2003 exam appeared on those three preceding exams. See PRER, *supra* note 21. An individual preparing for the April 2003 exam who did nothing more than study the three exams posted on the PTO's website therefore could have earned thirty of the required seventy points to pass through simple memorization. (The April 2003 exam did not include beta-test items and so applicants were required to correctly answer seventy of the exam's one hundred items to receive a passing score. See APR. 2003 EXAM, Directions.)

In 2004, the PTO stopped releasing exam items to the public and so one cannot know for certain the extent to which items appearing on the 1998–2003 exams continue to be recycled. Still, there is ample anecdotal evidence that many of these items frequently appear on today’s computerized test forms. This evidence is in the form of information posted on the several websites and discussion boards that have sprung up around the exam.<sup>187</sup> Although the accuracy of these web reports may seem suspect, given the purported timeliness of many reports (sometimes within hours of a test-taker completing the exam) and the seemingly genuine interest in helping others expressed by posters, there is reason to believe that the reports are generally made in good faith and reflect actual test experiences.<sup>188</sup>

According to these internet reports, many items that appeared on exams administered between 1998 and 2003 are included in the bank of scored items that is now the raw material for each computerized exam form. One blogger in July 2010, for example, identified thirty-two items from the 1998–2003 exams that appeared on the exam the blogger took earlier that day.<sup>189</sup> More recently, in April 2012, a poster identified thirty-six repeats from the 2000–2003 exams that appeared on her exam form.<sup>190</sup>

Patent bar candidates are not only identifying specific “old” test items that are still in circulation, but they also are reconstructing the fact patterns, question calls, and even answer choices of post-2003 “new” items.<sup>191</sup> They are then reporting when reconstructed items appear on the particular forms they are delivered. One poster in Sep-

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187. See, e.g., MyPATENTBAR.COM, <http://mypatentbar.com> (last visited Aug. 15, 2012); PATENT BAR QUESTIONS, <http://www.patentbarquestions.com> (last visited Aug. 15, 2012).

188. A strong community spirit has developed among those who frequent these websites and discussion boards. Now that the exam is offered via computer on a near-daily basis, there is at any given time always a population of individuals preparing for the exam and always a population of individuals who recently took it. As individuals move from the first group to the second, many express a desire to help those whose shoes they once filled. See, e.g., New Agent, Comment to *Repeat Questions* (Aug. 12, 2011, 12:42 AM), *supra* note 180 (“I am paying it forward to all the past commenters that helped me to pass. . . . I will check back to the site in a few days if anyone has any questions.”).

189. *Passing Grade*, LEGAL ALIEN’S LAW SCHOOL BLOG (July 7, 2010), <http://legalalieninlawschool.wordpress.com/tag/mpep/>.

190. GW, Comment to *Exam Questions and Concepts*, MyPATENTBAR.COM (Apr. 26, 2012, 11:17 AM), <http://mypatentbar.com/current-questions>.

191. See, e.g., chemEEE, Comment to *Exam Questions and Concepts* (Nov. 10, 2011, 11:41 PM), *supra* note 190 (attempting reconstruction of seventeen new items that appeared on the exam the poster took three days earlier); accord AgentB, Comment to *Exam Questions and Concepts* (Aug. 21, 2011, 10:02 PM), *id.* (thanking posters who reconstructed on the website answers to questions on exams that they failed and then subsequently reviewed at the USPTO office).

tember 2011, for example, identified ten post-2003 reconstructed items that appeared on the exam he took earlier that day.<sup>192</sup>

Because each computer-delivered exam consists of a random mix of items, the number of exposed items appearing on any given form will vary. But between published 1998–2003 test items and reconstructed post-2003 items, the total number of questions familiar to a test-taker who has used the internet as a study tool can easily be in the dozens.<sup>193</sup>

In sum, the patent registration exam's reputation for recycling exposed items is well deserved, and the PTO's persistence in this practice severely undermines the exam's validity, reliability, and fairness.

### 3. *Disregard of Best Practices Regarding Test Form Construction and Scoring*

Over the years, the testing community has developed certain generally accepted standards, or best practices, related to the construction and scoring of high-stakes licensure exams. These best practices are derived from at least six decades of research, and although they continue to be tested, refined, and adapted to new testing technologies, there is widespread consensus as to their basic contours and vital role in supporting test validity.<sup>194</sup>

As already mentioned, we know little about the process by which the PTO develops the patent registration exam, but what is known confirms that the process does not comply with at least three best practices that support exam validity. The first is that individuals practicing in the field at issue should be involved in the test development process.<sup>195</sup> In conformance with this standard, the NCBE's process for developing the Multistate Essay Examination (MEE), for example, includes review of each essay item by outside content experts, who are usually practicing attorneys.<sup>196</sup> Newly licensed attorneys then pretest the essay items by answering them under exam conditions, completing detailed questionnaires, and participating in group debriefing sessions with pretest administrators.<sup>197</sup> The NCBE

192. Robbie, Comment to *Repeat Questions* (Sept. 12, 2011, 6:33 PM), *supra* note 180.

193. See, e.g., Keener, Comment to *Repeat Questions* (May 20, 2012, 9:47 PM), *supra* note 180 (stating that only "10 or so" questions appearing on the exam the poster took that day "were completely new" in that they neither were published 1998–2003 test items nor reconstructed post-2003 items).

194. See Schmeiser & Welch, *supra* note 151.

195. See, e.g., Clauser et al., *supra* note 87, at 706–07.

196. See Judith A. Gundersen, *A New Mix of Questions on the Multistate Essay Examination*, B. EXAMINER, Aug. 2006, at 6, 6–7, 10.

197. *Id.* at 7–10.

follows a similar process in developing the performance-based items on the MPT.<sup>198</sup>

By contrast, the PTO develops the patent registration exam without any input from practitioners. Although it informally involved private practitioners in the item development process during at least the 1980s and 1990s,<sup>199</sup> the PTO no longer follows this practice—apparently due to its understanding that item writing is an “inherently governmental function” under the Federal Activity Inventory Reforms (FAIR) Act that cannot be outsourced.<sup>200</sup> The PTO’s quality assurance supervisory examiners (among others) apparently vet some test items,<sup>201</sup> but the input of those who supervise or review the PTO’s grant or denial of patent applications is no substitute for the input of those who draft them. Although both types of professionals work in the field of patent prosecution, their jobs are defined by different objectives, responsibilities, and skill sets. The patent registration exam, therefore, lacks important evidence in the form of practitioner input to support its validity.

Another best test construction practice concerns the comparability of alternate test forms. According to standards developed and periodically updated by a joint commission representing the three main associations of testing professionals in the United States, different versions of a test should be prepared to the same specifications and represent the same content.<sup>202</sup> By design, however, alternate forms of the computerized patent registration exam are not comparable in terms of the subject areas they are testing. After all, each test form is constructed by random selection of items from a bank of previously vetted items, apparently without regard to variability in subject matter or cognitive complexity of the selected items. This construction process creates a fairness issue in that an examinee’s score depends at least in part on the specific subjects and tasks the examinee focused on during preparation and the extent to which those subjects and tasks happen to be represented on the form the examinee is delivered.

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198. See Judith A. Gundersen, *Happy Birthday, MPT!*, B. EXAMINER, Nov. 2007, at 18, 20, 23.

199. See *supra* note 122 and accompanying text.

200. See Changes to Representation of Others Before the PTO, 69 Fed. Reg. at 35,435. The Federal Activities Inventory Reform Act of 1998, Pub. L. No. 105-270, 112 Stat. 2382 (codified at 31 U.S.C. § 501 note, at sec. 5(2)(A) (West 2012)), was designed to promote executive agencies’ compliance with Office of Management and Budget (OMB). Circular A-76 Revised, May 29, 2003, [http://www.whitehouse.gov/omb/circulars\\_a076\\_a76\\_incl\\_tech\\_correction](http://www.whitehouse.gov/omb/circulars_a076_a76_incl_tech_correction) (last visited Oct. 4, 2012).

201. Changes to Representation of Others Before the PTO, 69 Fed. Reg. at 35,433, 35,439 (identifying the various PTO personnel involved in item writing and vetting).

202. TESTING STANDARDS, *supra* note 73, at 157.

A construction process based on random selection also creates a validity issue. The judgment that a licensure test is valid is usually heavily dependent on evidence that the exam is complete in the sense that it adequately represents the content domain of the specialty under consideration.<sup>203</sup> Yet the extent to which particular subjects are covered on the patent registration exam necessarily differs from form to form, and the PTO has provided no assurance that the subject matter mix of items appearing on a particular form is representative of the actual practice of patent prosecution.

Finally, alternate test forms should not only be comparable in content, but also comparable in difficulty. If there is no attempt to ensure comparable difficulty, scores earned on those forms will not be reliable and it will be impossible to derive meaning from variations in pass rates.<sup>204</sup> For example, if Examinee 1 receives a score of 50 out of 60 on Form A and Examinee 2 receives a score of 40 out of 60 on Form B, that might mean Examinee 1 is more knowledgeable than Examinee 2, but it also might mean Form A is an easier test than Form B.<sup>205</sup> Similarly, a pass rate of 80% on Form A and a pass rate of 70% on Form B could mean Form A examinees are generally more knowledgeable than Form B examinees, or it could mean that Form A is an easier test than Form B. While this ambiguity might be acceptable for teacher-made high school, college, and even law school examinations, it is intolerable when what is at stake are professional licensing decisions.<sup>206</sup>

Consequently, those who develop and administer high-stakes exams adjust for variability in content, typically through a process known as equating. Equating, or weighting, involves calculating what portion of the differences in scores on alternate test forms is due to differences in knowledge as opposed to differences in item difficulty.<sup>207</sup> After this calculation is made, raw scores are adjusted to eliminate the effects of differences in difficulty.<sup>208</sup> Thus, if Form A is found to be somewhat easier than Form B, Examinee 2's raw score of

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203. *Id.*

204. See Michael J. Kolen, *Scaling and Norming*, in EDUCATIONAL MEASUREMENT, *supra* note 87, at 155, 163.

205. Schroeder, *supra* note 84, at 7. Of course, the difference in scores might be attributable to other variables. It might mean, for example, that Examinee 1 has done a better job than Examinee 2 of picking up on language clues in items that should have been but were not eliminated during test development.

206. *Id.* at 6; accord Case, *Back to Basic Principles*, *supra* note 80, at 25 (explaining that those who develop and administer high-stakes tests are "obligated to ensure that their examination scores maintain the same meaning over time").

207. Schroeder, *supra* note 84, at 7-8.

208. See *id.*

40 out of 60 might be adjusted upward to an equated, or weighted, score of 45.<sup>209</sup>

For high-stakes examinations, raw scores are the least useful kind of scores because they lack contextual information about test difficulty and the performance of other examinees.<sup>210</sup> The NCBE therefore recommends that raw scores not be reported or used in bar exam calculations.<sup>211</sup> The NCBE's Director of Testing recently emphasized that to disregard this advice would be to oppose the near-universal practice of the industry.<sup>212</sup>

Count the PTO among those ignorant or dismissive of this advice. Of the one hundred items on each patent registration exam form, ninety are scored.<sup>213</sup> To pass, one is required to correctly answer sixty-three (70%) of the ninety scored items, all of which are equally weighted.<sup>214</sup> In other words, the determination of whether examinees have passed or failed the patent registration exam is based on the absolute number of items that they answer correctly—their raw scores. The exam therefore suffers from all of the serious issues with validity, reliability, and fairness that are associated with raw scoring practices.

The PTO's failure to adjust scores for difficulty of test items also makes it impossible to glean meaning from the exam's pass rate over time. Historically, that rate has experienced large fluctuations. For example, in the one-year period between April 1986 and April 1987, the pass rate decreased by 40%.<sup>215</sup> Before 1998, the most likely explanation for the pass rate variability was the frequent changes to the type, number, and assigned point values of test items. Notably, however, the wide variability has persisted even in recent years during which the exam's multiple-choice composition and assigned points-per-item have remained constant. For example, 52% of examinees

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209. *Id.* at 8–9. In the alternative, Examinee 2's raw score might be translated to an arbitrary scale in a process known as scaling. *See id.* at 9.

210. Douglas R. Ripkey, *Interpreting Performance on Bar Examinations—Which Score Types Make the Grade?*, B. EXAMINER, Nov. 2004, at 25, 25–26.

211. Susan M. Case, *The Testing Column: Things That Will Not Affect Bar Passage Rates—And Things that Will*, B. EXAMINER, June 2011, at 25, 26.

212. *See id.* (“I am not aware of any other standardized or professional licensing exam that provides raw scores . . .”).

213. *See Registration Examination Questions*, *supra* note 178.

214. *Id.*; *Unofficial Examination Results*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/unofres19aug05.jsp> (last modified Feb. 22, 2010); *see also Exam Highlights*, PLI, <http://www.pli.edu/Patentbarreview/exam.aspx> (last visited Dec. 14, 2011) (noting that questions are weighted equally).

215. *See* Letter from Cameron Weiffenbach, Director, OED, to Joseph A. DeGrandi, Beveridge, DeGrandi & Weilacher (Oct. 10, 1989) (on file with author) (identifying an overall pass rate of 67% on the April 1986 exam (83% passing Part One and 68% passing Part Two), and 27% on the April 1987 exam (68% passing Part One and 27% passing Part Two)).

passed the April 2000 exam, whereas only 37% passed the exam administered in October of that same year.<sup>216</sup>

More recently, the pass rate has held within a narrower range of 55–59%.<sup>217</sup> Because the exam uses raw scores to determine passage, however, we cannot know what accounts for even these differences in pass rates, nor should we assume that they were fairly produced.

#### 4. *Reproduction of Source Materials in Test Items*

The PTO not only reproduces exposed items on exam after exam, but it also reproduces in some items language lifted directly from the pages of the Manual of Patent Examining Procedure (MPEP). Prepared and published by the PTO since the 1940s, the MPEP sets forth the United States patent laws and rules, describes their interpretation and application, and outlines the current procedures that patent examiners are required or authorized to follow in the examination of patent applications.<sup>218</sup> Patent examiners use the MPEP so extensively that it is commonly called the “bible” of patent law.<sup>219</sup> Not surprisingly, it is the source of the vast majority of items appearing on the patent registration exam.<sup>220</sup>

The practice of reproducing specific language from the MPEP in test items undermines the validity of computer-administered exams given that to correctly answer those items, test-takers need only find where in the MPEP the language was lifted. And making that match can be quick and easy, as examinees themselves frequently assert,<sup>221</sup> because every computer that delivers the patent registration exam provides the materials from which questions and answers are drawn,

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216. *Compare The Results of the April 2000 Registration Examination*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/past/results/examresults2000apr.jsp> (last modified Feb. 24, 2010), with *The Results of the October 2000 Registration Examination*, USPTO, <http://www.uspto.gov/ip/boards/oed/exam/past/results/examresults2000oct18.jsp> (last modified Feb. 24, 2010).

217. *See Exam Results*, *supra* note 16.

218. *See* MPEP Forward (8th ed. Rev. 8, July 2010).

219. *See, e.g.*, ROBERT C. FABER, *FABER ON MECHANICS OF PATENT CLAIM DRAFTING* § 1:1, at 1–2 n.3 (6th ed. June 2011) (“Since the Manual normally operates as the examiner’s bible, its mandates should [normally] be followed to the letter . . .”).

220. *See Source Materials for the Registration Examination*, USPTO, [http://www.uspto.gov/ip/boards/oed/aia\\_regexamsourcematerial2012sep4.jsp](http://www.uspto.gov/ip/boards/oed/aia_regexamsourcematerial2012sep4.jsp) (last modified Sept. 5, 2012) (identifying source materials).

221. *See, e.g.*, *Tips for Test Day*, SMALL ENTITY (Nov. 5, 2010), <http://www.smallentity.com/patent-bar-exam/tips-for-test-day/49> (“Did you know that most of the questions on the Patent Bar Exam use verbatim language from the MPEP? It’s true. If you find yourself struggling over a ‘which of these is/isn’t in accord with Patent Office practice’ type question, pick a few key words out of each answer choice and search the relevant MPEP section. More often than not, you’ll find exactly what you’re looking for.”).



including an electronic, searchable copy of the MPEP.<sup>222</sup> Thus, examinees can input into the search function of the electronic MPEP a specific word or phrase that appears in an item and quickly locate every instance in a chapter where that word or phrase appears. If the item was taken directly from the MPEP, one of these matches will reveal the answer.

Morning item ten of the October 2003 exam, which is reportedly still in circulation,<sup>223</sup> illustrates how this process works. Item ten asks:

In accordance with the patent laws, rules and procedures as related in the MPEP, definiteness of claim language under 35 U.S.C. 112, second paragraph must be analyzed, not in a vacuum, but in light of:

- (A) The content of the particular application disclosure.
- (B) The teachings of the prior art.
- (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.
- (D) The claim interpretation that would be given by one possessing expert skill in the pertinent art at the time the invention was made.
- (E) (A), (B) and (C).<sup>224</sup>

Because Chapter 2100 (“Patentability”) of the MPEP is a known source of a disproportionate number of exam items,<sup>225</sup> savvy test-takers who do not know the answer to item ten might begin their search for the answer there. If they search Chapter 2100 for the word “vacuum,” the computer will show six matches, one of which is the following language from § 2173.02:

Definiteness of claim language must be analyzed, not in a vacuum, but in light of:

- (A) The content of the particular application disclosure;
- (B) The teachings of the prior art; and
- (C) The claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made.<sup>226</sup>

The question having been lifted almost verbatim from the MPEP, the answer to item ten, of course, is (E).<sup>227</sup>

222. For an online tutorial explaining how to search the MPEP provided during the exam, see *Prometric Online Sample Test*, PROMETRIC, <https://www.prometric.com/demos/uspto/starthere.htm> (last visited July 25, 2012). In particular, see the “Searching through the PDF Viewer” screenshot.

223. See *Repeat Questions*, *supra* note 180 (marking this item with an asterisk, which means that “numerous” individuals have reported seeing this item on recent exam forms).

224. OCT. 2003 EXAM Q. 10(AM).

225. See, e.g., *Tips for Test Day*, *supra* note 221 (“If you don’t know the relevant section, [Chapters] 700 and 2100 are great places to start. The vast majority of your test questions will be taken from these two sections.”).

226. MPEP § 2173.02 (8th ed. Rev. 8, July 2010). One can perform this same search using the electronic copy of the MPEP published on the PTO’s website at <http://www.uspto.gov/web/offices/pac/mpep/index.htm> (last visited Feb. 25, 2012).

227. OCT. 2003 EXAM, Morning Session Model Answers.

But the test-taker does not even have to input a distinct word like “vacuum” to find the correct answer. If instead the test-taker searches Chapter 2100 for the phrase “teachings of the prior art,” the computer will show just four matches, including the same language from § 2173.02.<sup>228</sup> Thus, regardless of whether the test-taker’s strategy is to search a distinct word like “vacuum” or a generic phrase like “teachings of the prior art,” within seconds the answer will reveal itself.

Admittedly, this process will not work for every test item. Its success is likely limited to purely legal items. Moreover, not every purely legal item represents a single uninterrupted paragraph of the MPEP. Sometimes the call of the question and answer choices are reproductions of language appearing in different paragraphs of an MPEP chapter, or even in different chapters, and so for those who do not immediately know the answer, multiple searches may be necessary. Although it takes longer to locate an answer via multiple searches than a single search, it still can be done well within the 3.6 minutes on average a test-taker has to answer each item,<sup>229</sup> especially when the test-taker can quickly narrow the chapters to search.

It is no mystery why the PTO might be inclined to draft items that reproduce the MPEP. This practice hastens the process of item creation, and reducing the costs of the patent registration exam has long been a priority of the OED’s. It also enhances scoring reliability. Each item must have one and only one answer and the correctness of that answer must be indisputable, especially now that regrade requests are no longer entertained.<sup>230</sup> What more objective way to establish the correctness of an answer choice than by identifying it, word for word, in the MPEP? Further, if facility in navigating the MPEP is a mark of a competent patent prosecutor, searching the MPEP is an appropriate exam task.

The problem is not so much with the task but its result. Most importantly, reproducing MPEP language in test items while allowing examinees to electronically search the MPEP for that language undermines the exam’s validity because it allows test-takers to earn points on questions they substantively might not know anything about or that they might not even have closely read.

In addition, this test-taking strategy is divorced from the way patents are actually prosecuted. A real-life prosecution problem and its solution do not present themselves exactly as written in the MPEP. And a patent prosecutor does not choose among five defined answers to that problem by typing into her searchable MPEP a word unrelated

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228. See *supra* note 226.

229. Test-takers are given 180 minutes to complete each set of fifty test items. GRB 2012, *supra* note 11, at 21. This averages to 3.6 minutes per item.

230. See *supra* note 150 and accompanying text.

to the general problem at hand, such as “vacuum,” or a generic prosecution phrase, such as “teachings of the prior art.”

In sum, takers of the modern patent registration exam will not encounter problems in practice as some of them are presented on the exam and will not identify solutions to those problems in practice the way they are allowed, even encouraged, to identify them on the exam.

##### 5. *Disregard of Generally Accepted Item-Drafting Guidelines*

Finally, the testing industry not only recognizes best practices related to test construction and scoring, but it also recognizes generally accepted guidelines related to drafting multiple-choice items. Some of these guidelines are intended to eliminate distraction, difficulty, and bias that increase the number of examinees who answer items incorrectly, but not in a pattern related to their mastery of the subject area.<sup>231</sup> Others are intended to minimize “clueing” through the use of language that suggests the correct answer or helps examinees eliminate incorrect choices.<sup>232</sup>

Many drafting guidelines—such as the directives to avoid excessive verbiage, trivial content, and trick items—are context-dependent and evaluating whether an item complies with them (or not) requires a trained eye.<sup>233</sup> But at least six guidelines are straightforward, and whether an item complies with them is not difficult to determine. These six guidelines are as follows.

First, actors should be referenced by common descriptors (“the attorney”) rather than by letters (“A”)<sup>234</sup> or proper names (“Able”).<sup>235</sup>

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231. See Susan M. Case & Beth E. Donahue, *Developing High-Quality Multiple-Choice Questions for Assessment in Legal Education*, 58 J. LEGAL EDUC. 372, 382–83 (2008); Mary Sandifer, *Testing, Testing: Avoiding Bias in Testing*, B. EXAMINER, Nov. 2001, at 39, 39.

232. See Fisher, *supra* note 74, at 131 (noting answer options should not be written so as to provide clues to the less knowledgeable but more test-savvy examinees). In addition, some guidelines, such as the recommendation not to use proper names, may minimize the chance that an item and its correct answer will be remembered if it already has been exposed. For example, a test-taker might know the correct answer to the item concerning Tribell’s aromatherapy kit, see OCT. 2003 EXAM Q. 16(AM) (a well-known item on the patent registration exam that is reportedly still in circulation, see *Repeat Questions*, *supra* note 180), not because the test-taker understands and can apply the relevant rules but because she studied that item and Tribell’s name is especially memorable.

233. In a study evaluating the validity of thirty-one multiple-choice item-drafting guidelines based on the consensus achieved in twenty-seven educational testing textbooks and twenty-seven research studies and reviews, these three guidelines were unanimously endorsed when cited. See Thomas M. Haladyna et al., *A Review of Multiple-Choice Item-Writing Guidelines for Classroom Assessment*, in APPLIED MEASUREMENT IN EDUCATION 309, 312, 314 (2002).

234. John Garfinkel, *General Observations: Structuring a Law Exam*, in 2 JOSEPHSON, *supra* note 86, at 390.

235. Case & Donahue, *supra* note 231, at 378; Sandifer, *supra* note 231, at 40–41.

Pejorative and “cute” names (“Dr. Sunshine” or “Overcharge Plumbing Co.”) also should be avoided.<sup>236</sup> Second, question calls should not be negatively framed (“Which of the following is *not* . . .”).<sup>237</sup>

Third, an item should never be drafted as a “K-type.”<sup>238</sup> K-type items use Roman numerals to provide two sets of options, the second of which refers back to the first.<sup>239</sup> Fourth, answer choices should not include frequency terms and absolutes such as “always,” “rarely,” and “never.”<sup>240</sup> Fifth, no answer choice should be the equivalent of “all of the above.”<sup>241</sup> And sixth, items must be free of punctuation, spelling, sentence structure, and other grammatical errors.<sup>242</sup>

A review of the October 2003 exam, which was the last patent registration exam released by the PTO, reveals widespread noncompli-

236. Garfinkel, *supra* note 234, at 390.

237. Case & Donahue, *supra* note 231, at 380, 387; Fisher, *supra* note 74, at 128–29; Haladyna et al., *supra* note 233, at 316–17; *see also* Randy A. Ellsworth et al., *Multiple-Choice Test Items: What are Textbook Authors Telling Teachers?*, 83 J. EDUC. RES. 289, App. 2 at 292 (1990) (identifying this guideline as one of twelve commonly identified in a survey of thirty-two educational psychology and educational measurement textbooks). The OED has been aware of this guideline at least since 1989, when it urged practitioners helping it with item drafting to “[a]void wording questions in the negative because of a greater likelihood to be answered incorrectly . . .” Q&A Guidelines from Cameron Weiffenbach, OED Director (enclosed with Memorandum from Jan Jancin, Jr., Int’l Business Machines Corp., to Donald Dunner, Finnegan, Henderson, Farabow, Garrett & Dunner (May 27, 1989)) (on file with author).

238. Case & Donahue, *supra* note 231, at 381–82; Haladyna et al., *supra* note 233, at 324–26

239. Case & Donahue, *supra* note 231, at 381. For example, the following is a K-type test item, where the answer choices are designated (A)–(D):

Which of the following would be proper for an attorney to consider in determining the basis for hourly fees after an initial consultation?

I. The novelty and difficulty of the questions involved in a particular case.

II. The fee customarily charged in the locality for similar legal services.

III. Whether the client is a lawyer or a member of the attorney’s immediate family.

IV. The length of the initial consultation.

(A) I and II, but not III and IV

(B) II and III, but not I and IV

(C) I, II, and III, but not IV

(D) I, II, III, and IV

*Id.* at 381.

240. *Id.* at 383; Ellsworth et al., *supra* note 237, at App. 2 at 293.

241. Ellsworth et al., *supra* note 237, at App. 2 at 293; Haladyna et al., *supra* note 233, at 319. The OED has been aware of the clueing potential of these kinds of questions since at least 1990. *See* Memorandum from Jan Jancin, Jr., Int’l Bus. Machs. Corp., to PTO Q&A Board (Mar. 17, 1990) (on file with author) (passing along the PTO’s request to avoid these kinds of answer choices because test-takers “have caught on to” the fact that they are frequently the ones designated as correct).

242. *See* Schmeiser & Welch, *supra* note 151, at 348; Haladyna et al., *supra* note 233, at 314.

ance with just these basic guidelines. As further detailed in the online appendix to this Article, of the one hundred items on that exam, at least fifty-five items incorrectly identify actors, follow a K-type format, are negatively framed, include frequency terms in answer choices, include “all of the above” as answer choices, or include one or more typographical or grammatical errors.<sup>243</sup> At least fifteen items suffer from multiple violations.<sup>244</sup>

Notably, this count does not include the many context-dependent drafting guidelines regarding, among other things, clarity, brevity, and scope that are of equal if not greater importance in item drafting. If the items on the October 2003 exam were evaluated for compliance with these additional guidelines, the number of poorly crafted items would almost certainly be higher.<sup>245</sup>

The problem with poorly crafted items is a fundamental one: they fail to assess what is intended and therefore are invalid. Of course, if the items on the October 2003 registration exam are not representative of those now appearing on the exam, there would be less reason for concern. As discussed in subsection III.C.2, however, many items on the October 2003 exam were not only repeated verbatim from earlier exams, but also reportedly remain in the pool of scored items from which today’s computerized test forms are drawn. Further, there is no evidence that the PTO employees charged with drafting test items have recently (if ever) received training that might have improved the psychometric quality of any newly created items—much less the kind of consistent, high-quality training that experts consider critical to test development.<sup>246</sup> It is therefore likely that poorly constructed multiple-choice items continue to appear on, if not dominate, the typical exam form.

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The design and administration of the modern patent registration exam suffers from at least five defects. It no longer includes an evaluation of drafting ability even though the drafting of patent claims is the essence of patent prosecution. The practices of reusing exposed test items and phrasing items exactly as they appear in the MPEP (while providing examinees an electronically searchable copy of the MPEP) mean that an examinee’s passing score may be less a reflection of her competence than of her memorization talents and computer

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243. See PRER, *supra* note 21.

244. See *id.*

245. Examples of ambiguity in the October 2003 exam caused by, respectively, non-parallel structure and poor word choice are Q. 28(AM) (asking “Which of the following best explains why . . . the examiner should or should not be persuaded by the practitioner’s argument?” followed by answer choices that all begin, “Yes, because” or “No, because”) and Q. 5(PM) (including in an answer choice the language, “a description of distinguishing identifying characteristics”).

246. See Schmeiser & Welch, *supra* note 151, at 326.

skills. Finally, alternate computerized test forms are constructed and scored in an overly simplistic manner that does not reflect the realities of actual practice, and the multiple-choice items that now comprise the entirety of the exam are too often drafted in violation of generally accepted drafting guidelines.

#### IV. IMPLICATIONS

Together, these five defects cause the patent registration exam to fail in its fundamental purpose of distinguishing the competent from the incompetent practitioner. This Part considers the implications of that failure.

Andrew Perlman refers to entry requirements and other regulations that create the framework within which attorneys practice as structural rules.<sup>247</sup> By contrast, representational rules govern how attorneys must act in the context of attorney–client relationships.<sup>248</sup> Scholars have identified several objectives of, or justifications for, structural rules that define the legal profession.<sup>249</sup> Of particular relevance to this Article are the following justifications: protecting consumers against substandard services, especially in fields where information asymmetry is high and serious harms can result; creating positive externalities for agencies and the courts; and promoting confidence in attorneys and the legal system.<sup>250</sup> The first and second justifications, among other things, prevent inefficiencies, or economic harm; the third prevents reputational harm.

Evidence regarding the extent to which the modern-day exam causes economic and reputational harms is at this point largely thin and inconclusive. Nevertheless, there is reason to be concerned that the PTO's development and reliance on a fundamentally flawed exam wastes the agency's and examinees' valuable time and resources and undermines confidence in the PTO's institutional legitimacy. For at least these reasons, the poor state of the exam merits attention.

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247. Andrew M. Perlman, *Toward a Unified Theory of Professional Regulation*, 55 FLA. L. REV. 977, 983 (2003).

248. *Id.* at 982–83.

249. In a regulatory context, objectives and justifications are two sides of the same coin: a justification states why the regulation is needed (e.g., to minimize problems created by economic rents) whereas an objective states what the regulation will do once enacted (e.g., will minimize problems caused by economic rents).

250. See Benjamin Hoorn Barton, *Why Do We Regulate Lawyers?: An Economic Analysis of the Justifications for Entry and Conduct Regulation*, 33 ARIZ. ST. L.J. 429, 436–52 (2001) (examining the consumer-protection and economic-efficiency objectives); Perlman, *supra* note 247, at 992–98, 1010–19 (examining the image-preservation objective).

## A. Economic Harm

The patent registration exam fails in its stated purpose of ensuring that those who pass it can competently advise and assist clients in preparing and prosecuting patent applications.<sup>251</sup> Most immediately, this means the PTO is improperly refusing to register some individuals who are competent while improperly registering some individuals who are not. Examinees in the former group fail the exam and then have a choice: spend additional time and money retaking the exam until they pass,<sup>252</sup> or forego careers in patent prosecution altogether, thereby denying the public the benefit of the competent services they are actually capable of providing.

The problems posed by individuals in the latter group are more visible and potentially more serious.<sup>253</sup> These individuals pass the exam and are licensed, but then have to learn on the job what they should have known from day one. For some of these new practitioners, it may take more time to serve clients, and in the rendering of services, they may make more mistakes that decrease the value of their clients' patents.<sup>254</sup> There is reason to be concerned about this outcome given that patent prosecution is a famously complex field in which there can be substantial information asymmetry.<sup>255</sup> Moreover, where the harm is loss or damage of patent rights, inventors will too often be without a remedy given that it is usually difficult to establish causation and damages in such cases.<sup>256</sup> At the same time, practitioner incompetence can increase the costs to clients of obtaining pat-

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251. See *supra* note 79.

252. 37 C.F.R. § 11.7(b)(1)(ii) (West 2012) (providing that test-takers must wait thirty days and pay additional fees before retaking the exam). There is no limit to the number of times an applicant may take the patent registration exam.

253. See Susan M. Case, *The Testing Column: Standards on the MPRE*, B. EXAMINER, Feb. 2006, at 35, 37 (“In licensure exams, where the overriding concern is to protect the public, a standard-setting error which passes someone who should have failed is generally viewed as a more serious error than one which fails someone who should have passed.”).

254. See Thomas, *Claim Re-Construction*, *supra* note 148, at 798 (noting that a patent's quality depends in part on the legal competence of its drafter).

255. David Hricik, *The Risks and Responsibilities of Attorneys and Firms Prosecuting Patents for Different Clients in Related Technologies*, 8 TEX. INTELL. PROP. L.J. 331, 332 (2000) (quoting B. Joan Holdridge, *Malpractice of Patent Attorneys*, 7 CLEV.-MARSHALL L. REV. 345, 345 (1958)) (noting that patent prosecution is “extremely complicated” and that a patent prosecutor “has greater control over the processing of [a patent] application and the determination of the extent of the rights granted under the patent than is found in any other attorney-client relation[ship]”).

256. See Michael J. Lasinski & Richard M. Conroy, *Patent Attorney Malpractice: What's the Value of Nonexistent Patent Rights?*, LANDSLIDE, Jan./Feb. 2010, at 23, 25–26 (explaining the “considerable challenges” presented by such cases, including the difficulty of establishing the loss of a patent claim but-for the prosecutor's actions, the scope of the hypothetical patent right, and the damages incurred).

ents (and later correcting and defending them) and can impose costs on the PTO and courts by requiring them to spend time and resources addressing mistakes that knowledgeable and skillful practitioners do not make.

Ultimately, the extent to which incompetent representation is a problem for the prosecution profession, and the patent registration exam's contribution to that problem, are empirical questions that can only be settled with empirical data. One potential source of data is the PTO, which has publicly complained of its examiners having to address practitioners' mistakes that in some cases reflect an unawareness of even well-established rules and procedures.<sup>257</sup> In some cases these mistakes are brought to the attention of the OED, which is empowered to discipline practitioners for violating the codified rules to which they are bound.<sup>258</sup> Notably, the OED's disciplinary workload has increased in recent years. Between fiscal years 2008 and 2009, for example, the number of grievances reported to the OED rose from 163 to 204, and the number of investigations that became disciplinary matters more than doubled, increasing from twenty-seven to sixty-six.<sup>259</sup> However, the OED's published decisions suggest that ignorance of patent laws and procedures was at issue in relatively few of these cases.<sup>260</sup>

But that could be because clients find malpractice litigation to be a more attractive vehicle for bringing complaints of incompetence.<sup>261</sup>

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257. See, e.g., Changes to Representation of Others Before the PTO, 68 Fed. Reg. at 69,442, 69,453 (Dec. 12, 2003) (noting that the PTO receives relief-seeking petitions from practitioners that reflect an unawareness of well-established practices and procedures).
258. See 35 U.S.C. § 32 (West 2012) (empowering the PTO to take disciplinary action against any person who fails to comply with the regulations established under 35 U.S.C. § 2(b)(2)(D)); 37 C.F.R. § 10.20-10.112 (West 2012) (setting forth canons and disciplinary rules that bind members of the patent bar); *id.* §§ 11.19–11.61 (setting forth disciplinary procedures). One of these rules prohibits practitioners from handling legal matters they know or should know they are not competent to handle without associating with a competent practitioner. *Id.* § 10.77(a) (expanding on the ethical canon that patent practitioners should provide competent representation, *id.* § 10.76).
259. Harry I. Moatz, *Things to Consider If You Receive a Grievance from OED and Recent Disciplinary Actions at OED 1* (Dec. 7, 2009), <http://www.ipso.org/AM/Template.cfm?Template=/CM/ContentDisplay.cfm&ContentID=24705>.
260. See *In re Peter G. H. Hwang*, Proceeding No. D09-26 (USPTO Dir. May 27, 2009) (mistaken belief that could annotate declaration); *In re Flynn H. Barrison*, Proceeding No. D08-09 (USPTO Dir. June 18, 2009) (mistaken belief that could file certain documents). These decisions are posted in the PTO's "OED Reading Room" under the index "Decisions of the Office of Enrollment and Discipline." See *E-FOIA Postings of the Final Decisions of the Office of Enrollment and Discipline*, USPTO, <http://des.uspto.gov/Foia/OEDReadingRoom.jsp> (select "Discipline" in the "Decision Type" box; then search by date or other parameter).
261. For an example of a malpractice suit based on an error of basic patent law and procedure, see *Immunocept, LLC v. Fulbright & Jaworski, LLP*, 504 F.3d 1281



Although public data regarding prosecution-based malpractice claims is limited,<sup>262</sup> academics and practitioners seem to agree that patent prosecution is responsible for a growing portion of malpractice lawsuits.<sup>263</sup> In the opinion of David Hricik, whose scholarly work focuses on patent-related malpractice suits, complaints based on substantive errors are on the rise.<sup>264</sup> And according to news reports, a number of malpractice insurers have responded to the perceived risk by significantly increasing their rates for patent prosecutors.<sup>265</sup> Some will not cover patent prosecution work at all.<sup>266</sup>

But it is one thing to recognize that failure to master critical practice competencies is a problem for the profession. It is another to claim a causal link between a low-quality registration exam and incompetent client service. Admittedly, that cannot yet be done. The dynamics of administrative disciplinary actions and malpractice litigation are complicated; their rates of incidence can be affected by a host of factors, including heightened awareness of potential patent

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(Fed. Cir. 2007). There, a reputable Texas firm asked one of its new associates to prepare a patent application for a client and she drafted a key claim using the transition phrase “consisting of” instead of the more inclusive “comprising.” *Id.* at 1283; Non-Confidential Br. for Pls.-Appellants at 7–8, *Immunocept, LLC v. Fulbright & Jaworski, LLP*, 504 F.3d 1281 (Fed. Cir. 2007) (No. 2006-1432), 2006 WL 2630410, at \*7–8. As a result of her mistake, the claim as issued was so narrow as to be practically worthless. *Immunocept*, 504 F. 3d at 1283–85.

262. Data gathered by the American Bar Association, for example, does not identify the percentage of suits that concern patent prosecution as opposed to other IP specialties. See AM. BAR ASS'N STANDING COMM. ON LAWYERS' PROF'L LIAB., PROFILE OF LEGAL MALPRACTICE CLAIMS: 2004–2007, at 4 (2008). In any event, the data is limited given that nation's largest insurer of large law firms, the Attorneys' Liability Assurance Society (ALAS), did not participate in the ABA's study. ALAS declined my requests for information regarding its insureds' prosecution-related malpractice suits.
263. See, e.g., Leigh Jones, *Patent Malpractice Claims Hit Firms; Higher Damages Make Firms Skittish*, NAT'L L.J., Dec. 10, 2007, at 1 (reporting a Kelley Drye & Warren partner's judgment that the number of patent prosecution malpractice claims “clearly is going up”); David Hricik, *Ten or So Ethical Issues in Patent Prosecution* 3 (Oct. 2009), [http://www.utcle.org/eLibrary/preview.php?asset\\_file\\_id=22463](http://www.utcle.org/eLibrary/preview.php?asset_file_id=22463) (noting that prosecution-based malpractice claims are on the rise).
264. See E-mail from David Hricik, Professor of Law, Mercer Univ. Sch. of Law, to Christi J. Guerrini (Jan. 16, 2012, 12:20 PM) (on file with author).
265. See, e.g., Ron Zapata, *Patent Malpractice Suits a Growing Threat*, IP LAW 360, at 5 (Nov. 14, 2007) (reporting the statement of a senior vice president of AON Affinity Insurance Services that many insurance carriers have significantly raised premiums or dropped patent firms since about 2001); Erik Sherman, *Under the Heel of a Malpractice Suit*, IP LAW & BUS. 36 (Apr. 1, 2008) (citing a risk management executive's understanding that patent prosecution is viewed in the industry as “representing a relatively high risk of liability”).
266. See Deirdre Gregg, *Patent Lawyers are Slammed by Insurance Rates*, PUGET SOUND BUS. J., (May 16, 2004, 9:00 PM), <http://www.bizjournals.com/seattle/stories/2004/05/17/story6.html> (describing one patent attorney's difficulty finding an insurer who would cover her patent law firm, noting that several insurers told her that they would not cover IP and patents).

value, increased litigiousness of clients, and the state of the economy.<sup>267</sup> Likewise, numerous factors unrelated to competence affect an insurer's calculation of its rates and scope of coverage.

Causation data might be developed in the future by comparing the quality of patents drafted by registered practitioners with those drafted by individuals who have not taken the exam but nevertheless are granted limited recognition to prosecute patent applications pursuant to 37 C.F.R. § 11.9.<sup>268</sup> A useful model may be a 1963 study conducted by the Department of Justice, which found that those who satisfied the requirements regulating entry into the prosecution profession made fewer drafting and prosecution mistakes, prosecuted applications with more "vigor," and required significantly less assistance from the PTO than those who did not satisfy the requirements.<sup>269</sup>

The implications of any comparative studies, however, are necessarily limited by the fact that a number of factors unrelated to entry requirements—such as substance abuse and depression—can affect professional competence. There is simply no guarantee that a practitioner's knowledge and skill will remain constant over time or that it will consistently be applied. Moreover, regardless of the quality of the exam, a newly minted prosecutor who passes it will still be ignorant of some matters and potentially make mistakes. As a practical matter, the patent registration exam will never be completely comprehensive, nor will it ever exactly replicate practice conditions. And a perfect score has never been (and likely never will be) required to pass the exam.<sup>270</sup>

267. See A. Samuel Oddi, *Patent Attorney Malpractice: An Oxymoron No More*, 2004 U. ILL. J.L. TECH & POL'Y 1, 6–8 (2004); J. Scott Larson, *Ethical Conflicts in Patent Prosecution: The Long-Felt Unmet Need for Uniform Guidance*, INTELL. PROP. & TECH. L.J., Dec. 2009, at 10, 11; Moatz, *Things to Consider*, *supra* note 259, at 1.

268. See Nathan Lewis, *Improving the Patent System for the 21st Century: Optimizing the Requirements to be a Member of the Patent Bar*, 8 COMPUTER L. REV. & TECH. J. 409, 425 (2004) (making this suggestion in reference to 37 C.F.R. § 10.9, the precursor to § 11.9).

269. H.R. REP. NO. 89-1141, at 4,176-78 (1965) (letter of James L. Parris, Dep't of Justice, Office of the Deputy Att'y Gen.). The Department of Justice (DOJ) reviewed the patent applications that had been prosecuted in the preceding ten years by attorneys granted limited recognition under Rule 342 of the Rules of Practice of the United States Patent Office in Patent Cases, which was a precursor to § 11.9. With respect to twenty-six of the thirty-eight total applications, the DOJ found "grossly informal" claims, a large number of "faulty" drawings, and an "excessive" number of both "insufficient" specifications and applications "refused a filing date because of the omission of parts required by law." *Id.* at 4,177. Further, all but two of the thirty-eight applications had been abandoned even though approximately sixty percent of them appeared to disclose patentable subject matter. *Id.* Lastly, the DOJ found that the time spent by PTO examiners in assisting persons granted limited recognition quadrupled "by comparison with the usual instances of comparable complexity." *Id.*

270. Further, even if causation could be established, the extent of the resulting injuries relative to those caused by other practices is not clear. It is possible that

In the end, the relationship between the exam's quality and practitioner incompetence, and the extent of any inefficiencies resulting from that relationship, remain open questions. Nevertheless, one cannot seriously dispute that the exam creates other kinds of economic harm. First, the PTO clearly wastes resources developing and relying on an exam whose results are essentially meaningless. Even if the amount of time and money that the PTO spends on the exam is small compared to the agency's other responsibilities, it still constitutes a misuse of valuable resources. Given the PTO's long struggle to secure sufficient funds and an adequate workforce,<sup>271</sup> the agency should be especially interested in ensuring that the time and money that it commits to the exam is wisely spent.

Second, requiring patent bar candidates to pass an exam that is not testing what it is supposed to test constitutes a waste of their time and resources, too. Candidates report spending anywhere from a couple of weeks to several months preparing for the exam, and while some base their studying on borrowed materials and information reported on free websites, others shell out as much as \$2,800 on review courses.<sup>272</sup> This is in addition to the \$200 that all candidates must pay the PTO just to secure a seat at the exam.<sup>273</sup> Particularly given that many examinees are law students,<sup>274</sup> many of whom are already shouldering a heavy workload and significant debt, we should be concerned about the misuse of examinees' scarce resources.

## B. Reputational Harm

Moving from economic to reputational harm, an invalid, unreliable, and unfair exam potentially undermines confidence in the prose-

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those who would not have passed the exam but for its invalidity are able to quickly get up to speed, and that their work in the meantime is closely supervised so that there is no injury to clients other than the normal inefficiencies that result when new practitioners are staffed on a matter. Where serious injuries do occur, one might be quicker to blame poor supervision practices than a poor entry exam. In any event, the negative externalities imposed by incompetent practitioners may be less harmful on balance than those imposed by knowledgeable practitioners who harm clients and create inefficiencies in other ways—for example, by neglecting deadlines.

271. See *supra* notes 2–5 and accompanying text.

272. See generally MyPATENTBAR.COM, *supra* note 187 (self-reporting various study strategies); *Patent Bar Review*, PLL, <http://www.pli.edu/Patentbarreview/default.aspx> (last visited June 19, 2012) (noting a non-student fee of \$2,795 and a student fee of \$1,845 to take patent registration exam prep course).

273. See GRB 2012, *supra* note 11, at 10. This fee applies to computer administration of the exam. The fee for paper-and-pencil administration of the exam is \$450. See *id.* at 10–11.

274. *Accord Frequently Asked Questions*, Response to *When is the Best Time to Take the Patent Bar Exam?*, PLL, <http://www.pli.edu/Patentbarreview/faq.aspx> (last visited June 19, 2012) (recommending that examinees take the exam during law school and not after they graduate).

cution profession in at least two ways. First, it provides assurance about the competence of practitioners that in some cases is false. The public is led to understand that an individual who has passed the exam, by virtue of that accomplishment, knows and can apply patent laws, rules, and procedures to prosecution tasks. When this does not hold true, there is a troubling disconnect between the symbol of the exam and the idea of competence that its passage is said to represent.<sup>275</sup>

As noted by John Thomas, the most reliable measure of a patent prosecutor's knowledge and skill is the litigation track record of issued claims that she has drafted.<sup>276</sup> But as a practical matter, that track record is virtually never available given that only a tiny fraction of patent claims are ever litigated and even fewer are ever construed by the judiciary.<sup>277</sup>

By contrast, all prosecutors must pass the patent registration exam; in fact, passage of the exam is the only qualification that licensed patent prosecutors necessarily have in common.<sup>278</sup> Unlike members of the general bar, who are required to have a law school (or equivalent) education that includes mandatory study of specific subjects,<sup>279</sup> members of the patent bar need not attend law school. Thus, because passage of the exam is sometimes the *only* evidence available to the public that a patent prosecutor possesses sufficient legal knowledge and skill to competently practice in the field, the public may be especially likely to rely on that evidence.

Second, the exam's fundamental flaws may undermine practitioners' attention to and respect for the patent rules, procedures, and skills that are the subject matter of the exam. In other words, conditioning entry into the profession on an exam that does not take its

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275. *Accord* Nat'l Council of Exam'rs for Eng'g & Surveying v. Cameron-Ortiz, 626 F. Supp. 2d 262, 267 (D.P.R. 2009) (noting that the public is harmed when the integrity of a secure test, such as the national standardized engineering exam, is compromised given that the public relies on the test scores as an assessment of an examinee's competence, knowledge, and skills); Nat'l Conference of Bar Exam'rs v. Multistate Legal Studies, Inc. (*MLS II*), 458 F. Supp. 2d 252, 262 (E.D. Pa. 2006) (explaining that the defendants' copyright infringement of bar exam questions and answers harmed the public given the exam's purpose of helping the States "maintain the integrity of the legal system and . . . protect the safety of their citizens").

276. Thomas, *Claim Re-Construction*, *supra* note 148, at 798.

277. *See id.*

278. Although patent bar members must satisfy a technical requirement, they can do so with a degree in any of thirty-two diverse subjects. *See* GRB 2012, *supra* note 11, at 4–8.

279. *See* NAT'L CONFERENCE OF BAR EXAMINERS & AM. BAR ASS'N SECTION OF LEGAL EDUC. AND ADMISSION TO THE BAR, COMPREHENSIVE GUIDE TO BAR ADMISSION REQUIREMENTS 2012, at 8–13 (2012) [hereinafter BAR ADMISSION REQUIREMENTS 2011], available at [http://www.ncbex.org/assets/media\\_files/Comp-Guide/Comp-Guide.pdf](http://www.ncbex.org/assets/media_files/Comp-Guide/Comp-Guide.pdf).

purpose seriously can send a message to practitioners that competence is an issue that they also need not take seriously. And the internalization of such a message can ultimately lead to a general decrease in commitment to competent service. One need only look to the experience with the Multistate Professional Responsibility Exam (MPRE) for an example of how low opinions of the quality of a professional licensure exam can be perceived as, or translate into, disinterest and even disrespect for the tested subject matter.<sup>280</sup>

As with economic harm, however, the exam's contribution to any reputational harm to the patent prosecution profession is an empirical question for which there is yet no answer. Some clients may not even be aware that patent attorneys and agents must be specially licensed by the PTO to prosecute patents. And sophisticated clients who are aware of the licensing process probably look beyond the basic requirements of registration to other factors, such as experience and reputation, when deciding whom to retain for their prosecution work. Likewise, many hiring partners likely view passage of the exam as a requirement that must be satisfied—rather than a true measure of competence—and rely on other proxies of competence, like grades, when making job offers.<sup>281</sup> Finally, it is not yet clear whether the patent registration exam is in fact being interpreted as the industry's

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280. Developed by the NCBE, the MPRE is a legal ethics exam that is required for admittance to the bars of most jurisdictions in the United States. See *Multistate Professional Responsibility Examination (MPRE)*, NCBE, <http://www.ncbex.org/multistate-tests/mpre/> (last visited Feb. 20, 2012). Scholars and practitioners have long expressed concerns about the negative message that the MPRE may be sending new attorneys about the legal ethics field by virtue of its reputation for being too easy to pass and irrelevant to actual practice. See, e.g., Leslie C. Levin, *The MPRE Reconsidered*, 86 KY. L.J. 395, 396–97 (1997–1998) (noting that although the MPRE “has done much to bring professional responsibility rules to the attention of bar applicants,” due to flaws in its design and content, “it also has unintentionally trivialized the subject”); Norman Redlich, *Testing for Professional Responsibility*, B. EXAMINER, Nov. 1981, at 18, 20–21 (worrying that with the MPRE, “[w]e now seem to be saying to students, ‘We will test for your knowledge of professional responsibility, but don’t worry too much about it. Sit down with the Code of Professional Responsibility for a few days, and you will pass it. If you don’t pass it the first time, take it a second, third or fourth time, take it whenever you want, and one way or another you will be admitted to practice.’”). For more recent expressions of concern, see Dane S. Ciolino, *Add Legal Ethics to “Real” Bar Exam*, LA. LEGAL ETHICS (Nov. 3, 2009), <http://lalegaethics.org/?tag=mpre> (“[T]he MPRE is a joke. . . . [M]ost [test-takers] spend 4–5 hours casually reading over a canned study guide. I’ve overheard law students talking about studying for the MPRE in terms of how many beers it involves rather than how many hours.”), and Bill Simon, Comment to *The MPRE*, LEGAL ETHICS FORUM (Oct. 27, 2009, 12:04 PM), <http://www.legaethicsforum.com/blog/2009/10/the-mpre.html> (“I find the test truly pernicious. If anyone takes it seriously, it portrays the field as thin and dumb.”).

281. That might be due, however, to their awareness of the exam's shortcomings.

general lack of interest in or obedience to the laws, rules, and practices that govern the profession.

When the focus of reputational harm shifts from the patent profession to the PTO, however, there is at least anecdotal evidence that the poor state of the patent registration exam is causing reputational harm to the agency. Indeed, during my private conversations with patent professionals, many of them—particularly newly licensed practitioners for whom the exam is still a fresh memory—expressed a low opinion of the exam’s quality and faulted the PTO for failing to improve it.

The PTO should be concerned about the effect of its mismanagement of the patent registration exam on its reputation. It has long been accused of doing a poor job of examining patents,<sup>282</sup> but the frequency and urgency of those accusations have intensified in recent years as concerns about the size of the examination backlog and a perceived decline in patent quality have intensified.<sup>283</sup> That the PTO is failing in its enrollment responsibilities adds credibility to the charge that it is failing in its patent-examining responsibilities. In response to the widespread disapproval of the PTO’s management of its patent-examining operations, the PTO has launched a number of initiatives directed at improving inventory management, patent quality, and personnel retention and training.<sup>284</sup> Continued mishandling of the patent registration exam, however, undermines whatever reputational gains these efforts are achieving and further erodes public confidence in the agency’s institutional legitimacy.

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For at least the reasons that the exam as currently developed and administered wastes time and resources and undermines confidence in the PTO, we should care about the fate of the patent registration exam. As to those who would nevertheless remain indifferent, perhaps the burden should be placed on them to prove that continued investment in, reliance on, and perpetuation of an invalid, unreliable, and unfair entry examination is the preferred course of action, or at least a harmless one.

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282. See *supra* note 5 and accompanying text.

283. See, e.g., Chris J. Katopis, *Perfect Happiness? Game Theory as a Tool for Enhancing Patent Quality*, 10 YALE J.L. & TECH. 360, 369 (2008) (citing the application backlog and “chorus of complaints” about patent quality as evidence that the state of the PTO is “dismal”).

284. See USPTO PERFORMANCE & ACCOUNTABILITY REPORT FISCAL YEAR 2011, at 15–21, available at <http://www.uspto.gov/about/stratplan/ar/2011/USPTOFY2011PAR.pdf> (describing these initiatives).

## V. THE FUTURE OF THE PATENT REGISTRATION EXAM

Assuming that burden cannot be sustained, the issue becomes what should be done with the patent registration exam. This section concludes by examining whether the patent registration exam is worth saving, and if so, how best to save it.

### A. Should Registration Continue to Be Conditioned on Evidence of Legal Competence?

A preliminary question in the analysis is whether the PTO should continue to limit registration to those who can demonstrate legal competence in the field. If not, the exam is not worth saving regardless of its merits compared to other assessment modes and regardless of what it might take to fix it.

A complete analysis of this question is beyond the scope of this Article, although it is worth noting that at least two points have already been raised that are relevant to the analysis. First, the United States continues to allow both lawyers and non-lawyer “agents” to practice in the prosecution profession.<sup>285</sup> Without any assurance that non-lawyer agents understand even the most basic legal doctrines and procedures, one might expect to see more prosecution mistakes that the PTO would then have to spend more time and resources addressing. If the PTO continues allowing non-lawyer agents to prosecute patents,<sup>286</sup> then, it seems that a legal competence requirement should at least apply to them.

Second, as noted in subsection III.C.1, many (if not most) jurisdictions with robust patent systems outside the United States have chosen to condition patent bar registration on a showing of legal competence, or completion of practical training during which such competence is attained,<sup>287</sup> or both.<sup>288</sup> Especially given this country’s early experience with an unregulated prosecution profession, it might be imprudent to now depart from the near-universal consensus on this matter.

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285. See *supra* note 11 and accompanying text.

286. This issue is sufficiently important and interesting that I plan to address it in a future article.

287. See *supra* notes 165–167 and accompanying text.

288. For example, Canada conditions entry into the patent prosecution profession on both passage of a written examination and employment for at least twelve months either as an examiner in the Canadian patent office or “in the area of Canadian patent law and practice, including the preparation and prosecution of applications.” Patent Act, SOR/96-423 §§ 12–15.

## B. Should Registration Continue to Require Exam-Based Evidence of Legal Competence?

If registration continues to be conditioned on evidence of legal competence, the next question is what form that evidence should take. Should the PTO continue to rely on an examination-based system or should it adopt a different mechanism for assessing competence?

One popular alternative requires patent bar candidates to complete an apprenticeship, internship, or other formal training program.<sup>289</sup> Australia, for example, conditions registration on proof of at least two years of employment in a position providing experience in, among other things, drafting patent specifications.<sup>290</sup> A mandatory apprenticeship program is attractive for many reasons, not the least of which is that it can provide varied and meaningful experience in the field. Moreover, a kind of modified apprenticeship program is already in place for certain PTO employees who are exempt from the exam requirement as a result of their substantive work experience at the PTO.<sup>291</sup>

Any proposal to implement a required apprenticeship in the United States, however, is certain to meet resistance. Indeed, in 2004 the PTO rejected this very proposal on grounds that an apprenticeship program would be too difficult to properly administer.<sup>292</sup> Replacing or supplementing the exam with a mandatory apprenticeship is therefore not a realistic option at this point, although it should be given serious consideration in the future.

Another alternative is to register practitioners first and insist on evidence of legal competence later through a mandatory continuing education program of the kind already being considered by the PTO.<sup>293</sup> However, a one-hour, once-a-year online module that dis-

289. See Dale L. Carlson et al., *Re-thinking Patent Bar Admission: Which Bag of Tools Rules?*, 87 J. PAT. & TRADEMARK OFF. SOC'Y 113, 138–40 (2005) (proposing that the PTO condition eligibility to sit for the registration exam on completion of a one-year apprenticeship).

290. *Patent Regulations 1991* regs 20(3), 20(10), 20(11) (Austl.); see also PROF'L STANDARDS BD. FOR PAT. & TRADE MARKS ATT'YS, PRE-REGISTRATION EMPLOYMENT REQUIREMENTS FOR PATENT ATTORNEY REGISTRATION (Sept. 16, 2008), available at <http://www.psb.gov.au/> (follow "Pre-registration work experience Guidelines" hyperlink under "Guidelines" heading) (providing that for registration as an Australian patent attorney, a person must have been employed in a position that provides experience in skills such as drafting patents).

291. See 37 C.F.R. § 11.7(d) (West 2012).

292. Changes to Representation of Others Before the PTO, 69 Fed. Reg. at 35,437.

293. The PTO has proposed a rule mandating continuing education. See Changes to Representation of Others Before the United States Patent and Trademark Office, 68 Fed. Reg. at 69,453–54, 69,529 (proposing new 37 C.F.R. § 11.12). In 2008, it completed an online continuing education pilot program. See *PTO Completes Successful Pilot of Continuing Education for Practitioners*, USPTO, <http://www.pto.gov/main/homepagenews/2009feb02.htm> (last modified Feb. 2, 2009).



cusses new rules and offers “helpful hints” is no substitute for comprehensive training and educational programs that require weeks, months, or, in some cases, years to complete. The purpose of the former is to expand, update, or hone one’s understanding of a few subjects. The purpose of the latter is to confirm one’s baseline level of knowledge and skill as to all core subjects relevant to practice.

That confirmation can be provided by a written examination prepared and administered in a valid, reliable, and fair manner. The general bar and other major American professions—including medicine, architecture, and accounting—agree with this conclusion, as evidenced by their condition of licensure on passage of written exams.<sup>294</sup> There being no politically feasible and substantively comparable alternative at this time, then, the PTO should continue to condition registration on passage of an exam.

### C. Can the Patent Registration Exam Be Saved?

For all of the reasons explained in section III.C, however, the patent registration exam is in urgent need of an overhaul. This Article concludes by proposing changes to the design and administration of the exam that do not represent a major departure from current procedures and so may have a greater chance of being embraced. They also are more likely to be successful because they address the institutional limits that explain why the exam is a psychometric failure in the first place.

First, the PTO should eliminate all test items that have been exposed from the item pool. This includes all items appearing on exams administered before 2004 and all items appearing on later exams that have been reconstructed on the internet. As the number of websites and blogs that publish this information is still relatively small, it should not be too difficult to identify and eliminate these exposed old and new items.

A thornier question is how to deal with exposure of items in the future. The PTO should conform to industry standards and commit to identifying and eliminating those items, but doing so would require it to monitor the internet for instances of exposure or, at the very least, investigate reports of exposure by others. To ensure that the item

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294. See BAR ADMISSION REQUIREMENTS 2011, *supra* note 279 (legal profession); *Purpose of the USMLE*, U.S. MED. LICENSING EXAMINATION, <http://www.usmle.org/bulletin/overview/#purpose> (last visited Feb. 21, 2012) (medical profession); *The Basics*, NAT’L COUNCIL OF ARCHITECTURAL REGISTRATION BOARDS, <http://www.ncarb.org/Becoming-an-Architect/Architecture-Basics.aspx> (last visited Feb. 21, 2012) (architecture profession); *The Uniform CPA Examination: Purpose and Structure*, AM. INST. OF CPAs, <http://www.aicpa.org/BECOMEACPA/CPAEXAM/EXAMOVERVIEW/PURPOSEANDSTRUCTURE/Pages/default.aspx> (last visited Feb. 21, 2012) (certified public accounting profession).

bank does not become more shallow than it perhaps already is, the PTO also would need to create new items to replace the eliminated ones.

This ex post approach would address unauthorized disclosures only after they occurred and would do nothing to discourage future disclosures. A better, ex ante approach is needed. One option is to secure copyrights to all exam forms and items and then enforce them via litigation. There is a well-developed body of law supporting the copyrightability of standardized exam forms and multiple-choice items, including provisions for the deposit of “secure tests” with the Copyright Office,<sup>295</sup> and high-stakes exam developers regularly bring lawsuits to enforce those copyrights.<sup>296</sup> To my knowledge, every court that has considered the copyrightability of high-stakes, standardized exam forms and multiple-choice items has affirmed their protected status.<sup>297</sup>

The problem with a copyright solution, however, is that items on the patent registration exam are currently not entitled to copyright protection. That is because works prepared by federal employees are not subject to copyright<sup>298</sup> and the items on the patent registration exam are now drafted exclusively by PTO employees.<sup>299</sup> But there is

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295. See 37 C.F.R. §§ 202.20(b)(4), (c)(2)(vi) (providing for deposit of secure tests with the Register of Copyrights); Nat'l Conference of Bar Exam'rs v. Multistate Legal Studies, Inc., 692 F.2d 478 (7th Cir. 1982) (upholding the validity of regulations governing copyright registration of secure tests).

296. See, e.g., Educ. Testing Serv. v. Katzman, 793 F.2d 533 (3d Cir. 1986); *MLS II*, 458 F. Supp. 2d 252 (E.D. Pa. 2006).

297. See Nat'l Conference of Bar Examiners v. Saccuzzo, No. 03CV0737BTM(NLS), 2003 WL 21467772, at \*8 (S.D. Cal. June 10, 2003) (“[C]ourts have uniformly found that questions and test forms for secure examinations are subject to copyright protection.”); Educ. Testing Serv. v. Simon, 95 F. Supp. 2d 1081, 1089–90 (C.D. Cal. 1999) (same); *accord* 137 CONG. REC. S13,923 (daily ed. Sept. 27, 1991) (quoting the Register of Copyrights’ statement that the courts “have been particularly solicitous in protecting [secure tests]” given that they “are particularly vulnerable to having their utility obliterated by unauthorized disclosure”). Cf. *Faulkner Press, LLC v. Class Notes, LLC*, 756 F. Supp. 2d 1352, 1357, n.10 (N.D. Fla. 2010) (finding that a professor’s compilation of questions in his textbook and lecture notes were protected, but declining to find the protection extended to the underlying questions because, in contrast to questions featured on “a high-stakes test” like the MCAT that are “developed under rigorous psychometric standards,” the professor’s questions presented bare facts and the originality was only in their selection).

298. 17 U.S.C. § 105 (West 2012); see also *Katzman*, 793 F.2d at 540 (finding that there are multiple ways to create questions that test factual knowledge of “square roots or dangling participles” such that these questions can be protected under copyright law); *MLS II*, 458 F. Supp. 2d at 259 (rejecting the idea that multiple-choice bar exam items should receive “only limited protection because they test established legal rules within a relatively narrow set of formal constraints”).

299. Changes to Representation of Others Before the PTO, 69 Fed. Reg. at 35,433, 35,439.

no prohibition against copyright of works prepared under contract for the federal government<sup>300</sup> and so the PTO could simply outsource the development of the patent registration exam to an independent testing entity—of which there are several in the United States, including Prometric, with whom the PTO already contracts to administer its computerized exam forms.<sup>301</sup> The PTO might then require the entity to assign it the copyrights that would consequently attach to the patent registration exam's forms and items.<sup>302</sup> Regardless of whether the independent testing entity assigns the copyrights to the PTO, however, the obligation to enforce them should remain with the testing entity, who undoubtedly has more experience addressing security breaches than does the PTO.

Moreover, regardless of who holds the copyrights, provisions should be in place requiring the periodic release of “retired” test items to the public. Access to these materials is essential if evaluation of the quality of the exam and the PTO's performance of its enrollment responsibilities is to continue.<sup>303</sup> Additionally, releasing exam materials helps level the playing field for test-takers and is consistent with the practices of developers of other high-stakes exams, including the SAT and LSAT.<sup>304</sup>

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300. H.R. REP. No. 94-1476, at 59 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5672 (noting that 17 U.S.C. § 105 is not intended to prohibit copyright in works prepared under government contract).

301. A similar arrangement was struck between the U.S. Department of State and Educational Testing Service, an independent testing entity, with respect to the Foreign Services Officer Test. *See* *Educ. Testing Serv. v. Miller*, Civ. A No. 88-2819 (RCL), 1991 WL 212181, at \*1 (D.D.C. Sept. 30, 1991). The PTO can still choose to be an active participant in the test development process. Especially if the PTO makes clear in its contract with the independent testing entity that all copyrights in test items are to be held exclusively by that entity, the PTO's participation in item development should not void any copyright protection. *See id.* at \*3.

302. *See* 17 U.S.C. § 105 (West 2012) (providing that the U.S. government is not precluded from receiving and holding copyrights transferred to it by assignment); *Miller*, 1991 WL 212181, at \*3 (noting that a government agency may receive by assignment and enforce copyrights in works commissioned by it, even where the agency is involved in creating the works). However, this could be viewed as an unlawful attempt to end-run the prohibition against copyright of government works. *See* H.R. REP. No. 94-1476, at 59 (noting that where a Government agency commissions a work for its own use merely as an alternative to having one of its own employees prepare the work, there may be no right to copyright protection).

303. Of course, much of this Article's description of the exam's evolution might not have been possible if its test forms and items had been copyright protected.

304. *Full Practice Test*, COLLEGE BOARD, <http://sat.collegeboard.org/practice/sat-practice-test;jsessionid=QljyQs2LQBZ7ybdvNWDSvGN1GGSyvT11MTQhBXPzjTVJytPm6gLZ!1544631465!-2108560895> (last visited Aug. 16, 2012) (publishing official SAT test items); *LSAT Prep Materials*, LAW SCHOOL ADMISSIONS COUNCIL, <http://www.lsac.org/jd/LSAT/lsat-prep-materials.asp> (last visited June 19, 2012) (publishing an official LSAT test).

However, the PTO insists that it cannot outsource the development of items on the patent registration exam because that activity is an “inherently governmental function” under the FAIR Act.<sup>305</sup> Such functions are defined as those “so intimately related to the public interest as to require performance by Federal Government employees.”<sup>306</sup> The PTO has not provided reasons for its conclusion that outsourcing test development is prohibited conduct, although there is reason to question the correctness of that conclusion in light of the September 2011 policy letter issued by the Office of Management and Budget that clarifies the meaning of “inherently governmental.”<sup>307</sup> That letter lists twenty-four activities that are inherently governmental and provides that non-listed activities are inherently governmental if they involve the exercise of either federal sovereign powers (e.g., arresting a person) or discretion that commits the government to a course of action or otherwise preempts federal officials’ decision-making authority.<sup>308</sup>

Applying this three-step analysis, first, test development activities are not among the twenty-four activities listed in the policy letter.<sup>309</sup> Second, test development does not involve the exercise of federal sovereign powers akin to arresting persons. And third, expanding the testing expert’s existing role to include test development and even scoring of performance items would not commit the PTO to any course of action or preempt its authority if the PTO retains control over the test developer’s conduct, the final exam product, the grading criteria, and ultimately, the selection of persons eligible for registration.<sup>310</sup>

The conclusion that test development is not an inherently governmental function is further supported by the experience of the Department of State (DOS) with the Foreign Service Officer Test (FSOT). Just as passage of the patent registration exam is required to register for the patent bar, passing the FSOT is an essential step in the process of applying to become a Foreign Service Officer with the DOS. Since 1998, the FSOT has been created, administered, and scored for the DOS by ACT, an independent test developer.<sup>311</sup> Before then (go-

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305. See *supra* note 200 and accompanying text.

306. 31 U.S.C. § 501 note, at sec. 5(2)(A) (West 2012).

307. Publication of the Office of Federal Procurement Policy (OFPP) Policy Letter 11-01, Performance of Inherently Governmental and Critical Functions, 76 Fed. Reg. 56,227, 56,236–42 (Sept. 12, 2011); see also *id.* at 56,227 (providing that the definition of “inherently governmental function” set forth in OFPP Policy 11-01 “replace[s] existing definitions in regulation and policy”).

308. See *id.* at 56,237–38, app. A at 56,240–41.

309. See *id.* app. A at 56,240–41.

310. See *id.* at 56,237 (providing that activities may be outsourced where contractors do not decide the overall course of action and where agency officials can override contractors’ actions).

311. See U.S. DEP’T OF STATE, GUIDE TO THE FOREIGN SERVICE OFFICER SELECTION PROCESS 3, <http://careers.state.gov/uploads/c3/aa/c3aaf51ecdde77b983c7d763bc7>

ing back as far as the 1980s), the exam was designed and administered for the DOS by Educational Testing Service, another independent test developer.<sup>312</sup> Given its long history of outsourcing test development activities, the DOS does not appear to be overly concerned that these kinds of contracts run afoul of federal acquisition laws.

If the PTO may legally outsource the development of the patent registration exam, it should consider following the DOS's lead and doing so. The validity, reliability, and fairness of the patent registration exam would almost certainly improve as a result. Unlike government agencies, those in the multibillion-dollar-a-year business of constructing and delivering standardized exams stay current on the psychometric literature and modify their practices as industry standards change. Rather than trying to develop psychometric expertise in-house or expanding its staff to include measurement experts, the PTO simply could enlarge the scope of its existing contract with Prometric (or one of Prometric's competitors) to include drafting test items and constructing test forms in accord with industry standards.

Additionally, the PTO should consider authorizing the independent testing expert to use a scoring system that takes into account differences in exam difficulty and ensures that scores have the same meaning over time. The move to an equated scoring system might require that the exam be administered less frequently than every business day.<sup>313</sup> Nevertheless, ensuring the reliability and fairness of scores is, on balance, more important than the scheduling inconvenience that some test-takers might face if the exam is offered less frequently during the year.

The changes described above would address four of the five fundamental problems with the exam described earlier in this Article. The fifth concerns the test's composition entirely of multiple-choice items. As argued in subsection III.C.1, the absence of claim-drafting exercises undermines the value of the exam as a measurement of readiness to practice and so these exercises should be reintroduced to the exam. Further, the PTO and the independent testing expert with whom it contracts should work together to develop both the exercises and the criteria by which to evaluate responses to them.

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d20b0/3-0\_FSO\_RegGuide.pdf (last visited Feb. 21, 2012) (directed to the selection of candidates in the years 2012 and 2013); *ACT's Professional Development Services Plays Role in Foreign Service Officer Selection*, 47 ACTIVITY, Spring 2009, at 1, 2, available at <http://www.act.org/activity/spring2009/profdev.html>.

312. See *Educ. Testing Serv. v. Miller*, Civ. A No. 88-2819 (RCL), 1991 WL 212181, at \*1 (D.D.C. Sept. 30, 1991).

313. Accord Susan M. Case, *The Testing Column: Would Computer-Based Testing Eliminate Test Administration Woes?*, B. EXAMINER, Aug. 2007, at 33, 33-34.

Admittedly, reintroducing claim-drafting exercises would increase the potential for arbitrary and inconsistent grading, which threatens exam integrity. Arbitrary and inconsistent grading can be kept to a minimum, however, if the graders are well trained and the grading rubric is sufficiently detailed and developed simultaneously with the drafting exercises, as best testing practices dictate they should be.<sup>314</sup> Further, if it develops a sufficiently detailed scoring rubric, the PTO can also outsource the grading task to the expert's staff. Although grading constructed-response items can take longer than grading multiple-choice items and so there may be some delay in delivering scores, that delay need not be unreasonable if enough individuals are assigned to the grading task. Alternatively, the PTO and expert might follow the example of computerized performance testing in other professions and develop claim-drafting exercises that can be scored by computer.<sup>315</sup>

If claim-drafting exercises are reintroduced, the exam would necessarily transform into an assessment of not only legal proficiency, but also technical proficiency, since both are required to successfully draft claims. Because technical proficiency can be established by proof of education or training in a diverse array of disciplines,<sup>316</sup> there is probably no single field of invention that would be fair to test. It would therefore be necessary to give test-takers an option of the technical field in which to draft claims—e.g., the option to draft claims to a mechanical, electrical, or chemical invention—as the PTO frequently did before eliminating claim-drafting exercises from the exam in 1997.<sup>317</sup>

Implementing these suggested changes would almost surely increase the cost of developing and administering the patent registration exam. And it is possible, perhaps even likely, that the PTO would pass on the additional cost in the form of new or increased fees. Although those who are affected may oppose such measures, they are surely better than the alternative: continuing to invest in, rely on, and perpetuate an entry requirement that has little value to the profession.

## VI. CONCLUSION

The patent registration exam has the distinction of being the only U.S. bar examination that is created and administered by the federal government. It might also be the most psychometrically flawed. On the one hand, proficiency with patent laws, rules, and procedures is

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314. See Schmeiser & Welch, *supra* note 151, at 328, 334–35, 343.

315. See Clauser et al., *supra* note 87, at 702–03.

316. GRB 2012, *supra* note 11, at 4–8.

317. See, e.g., FEB. 1968 EXAM; MAR. 1978 EXAM; OCT. 1987 EXAM; APR. 1993 EXAM.

deemed so important that it must be demonstrated on a written exam before one may practice in the field of patent prosecution. On the other hand, sufficient care has not been taken to ensure that the exam actually accomplishes its purpose. It is time the PTO took seriously again its obligation to ensure the minimum competence of those entering the patent prosecution profession. By implementing several thoughtful administrative changes, the PTO can set the patent registration exam back on course toward becoming a valid, reliable, and fair exam that is respected by the profession and worthy of the public's trust.