

PROTECTING INTELLECTUAL CAPITAL IN THE NEW CENTURY: ARE UNIVERSITIES PREPARED?

In recent years, intellectual property has become increasingly important to academic institutions throughout the United States. As universities rely more heavily on trademarks and patents for additional revenue, questions arise as to whether these institutions are sufficiently protected by their current intellectual property policies. This iBrief explores the policies promulgated by a variety of academic institutions and assesses whether these universities are adequately protected by their policies.

Academia is both an industry with marked similarities to many in the private sector and an institution uniquely charged with the discovery and promulgation of knowledge in our society. In both those guises, universities produce valuable patents, copyrights and other intellectual capital. From a strategic policy standpoint, important questions arise, both for these institutions and their corporate partners. Are intellectual property interests protected by the presence of valid university intellectual property policies, or is there cause for concern? In an effort to answer this question, this iBrief examines university policies for the purpose of determining which academic institutions, private or public—in the aggregate—are more likely to maintain protective policies. We conclude that disturbingly few institutions have promulgated intellectual property policies. Thus, there is cause for legitimate concern that financial investment in research is likely in many cases not to be protected. Industries funding academic research may need to review the scope and extent of their own contracts with academia as well as reconsider their associations with institutions that fail to maintain or implement protective intellectual property policies.

Establishing the Duty of Loyalty

The duty of loyalty, a seminal employment law concept, is based on the “servant’s” traditional common-law duty of loyalty to the “master.” Today, loyalty is often embodied in various forms of non-competition agreements, under which the employee expressly agrees to refrain from competing against or misappropriating the proprietary knowledge of the employer. American courts often will enforce such promises, if properly supported by legal consideration flowing to the servant.¹

¹ See, e.g., *American Mut. Liab. Ins. Co. v. Kosan*, 582 F. Supp. 269 (W.D. Pa. 1984); *George W. Kistler, Inc. v. O’Brien*, 464 Pa. 475 (Pa. 1975).

In some states, legislatures have seen fit to capture, or revise, the common law loyalty rules in statutes.² Non-competition policies, however, are usually embodied in an employment contract or employment policy. Non-competition clauses, as well as patent, inventions and trade secret rules of all sorts within contracts and policies have become standard within corporate industry. There exists no wide-ranging study of these strategic employment policies among academic institutions, which as an industry like many of those in the private sector also produces valuable patents, copyrights and other intellectual property. The growth of the “research for sale” industry by way of corporate-university partnerships begs the question: at these public and private institutions of higher learning, who owns what? Are corporate interests protected by the presence of valid university intellectual property policies, or should corporations be concerned?

Assessing the Policies – Our Methodology

The *Faculty Appointment Policy Archive*,³ a database of 241 randomly selected university employment policies or collective bargaining agreements compiled by the Harvard Graduate School of Education, serves as the foundation from which we are able to comparatively examine public and private academic institutional employment policies or agreements related to trade secrets, patents, inventions, trademarks, and copyrights. Unlike the for-profit sector of the economy, the tradition in higher education has been that faculty own their own creative and written works. The exception has been in the area of patents and inventions, over which institutions have held tighter control.

An initial review of the data found loyalty policies to be general clauses of dependability and reliability. Further, copyright policies were primarily related to a researcher’s adherence to copyright laws as they relate to the duplication of class materials for distribution and to the ownership of written works. Similarly, of the fourteen trademark policies found, half are related to the use of university logos and similar design, with the remaining related to intellectual property protection.

While we present a frequency analysis for each of these policies from the sample, we also delve deeper into those intellectual property policies, patent and inventions policies, which are more likely to hold corporate intellectual property interests. Clearly, the debate surrounding copyright issues and the ownership of online course material is sufficient to warrant a separate article. Rather, our analysis focuses on patent and invention policies. Following an assessment

² See, e.g., 5 CAL. BUS. & PROF. CODE § 16600 (West 1994); 6 DEL. CODE ANN. tit. 5, § 2707 (1993).

³ Harvard Graduate School of Education, FACULTY APPOINTMENT POLICY ARCHIVE (CD-ROM, 1999).

of present and past trends as well as an in-depth legal analysis, we conduct CHI-Squared analysis⁴ testing to determine whether the university's public or private status is independent to the existence of these intellectual property policies.

We offer the following hypotheses:

Test: 1

H₀: The public or private university status is independent of the existence of patent policies.

H₁: The public or private university status is not independent of the existence of patent policies.

Test: 2

H₀: The public or private university status is independent of the existence of invention policies.

H₁: The public or private university status is not independent of the existence of invention policies.

Industry's contributions to academia are approaching \$2 billion per year, representing a ten-time multiple of 1979 rates.⁵ It would seem logical that private institutions, motivated by funding opportunities, have a greater stake in the development of new patents and other forms of valuable intellectual property and thus have promulgated intellectual property right policies more so than public institutions. From our CHI-Squared and frequency analysis we can determine whether these intellectual property right policies are more prevalent at public or private institutions.

The Present Condition

Academics and corporate America have in the past maintained a symbiotic relationship, in that corporate funding or venture capital is expected, provided and received in exchange for equity in research findings and developments. "According to the National Science Foundation, corporate funding of academic labs has more than doubled over ten years, to close to \$2 billion in

⁴ The chi-square test measures the degree to which a theoretical frequency distribution corresponds to a frequency distribution of observed data. In this study, the authors theorized that, because historically private (especially private research or so-called "R-1") universities have relied more heavily upon research grants and other privately-funded R&D than their public sector counterparts, these private institutions would be better protected by adequate patent and other intellectual property policies.

1997.”⁶ This has clearly been disturbing to some in academia who argue that universities should be pursuing research for the sake of developing a body of knowledge in various disciplines rather than collaborating with private industry.⁷ Despite cries for an “untainted” academic environment, corporate/university yearning for collaboration was clearly displayed by the 1998 landmark deal between Novartis and the University of California, Berkeley. Novartis, the Swiss biotechnology and agrochemical institute is providing \$25 million over five years in addition to access to proprietary technology and DNA databases to UC Berkeley’s Department of Plant & Microbial Biology in the College of Natural Resources. In return, Novartis will receive first rights to negotiate for roughly thirty to forty percent of the discoveries made in the department.⁸

Funding sources and successes are plentiful, according to a 1999 survey by the Association of University Technology Managers. Including research agreements aimed at achieving scientific breakthroughs and contracts for the development of distance learning course materials, universities and colleges amassed more than \$576 million in royalties from inventions licensed to industry in fiscal 1998 and were awarded more than 2681 patents. The surveyed institutions also reported forming 279 start-up companies based on inventions by their faculty or graduate students.⁹

Past Trends

Many university/corporate resource agreements were developed during the 1980s in order to offset revenue shortfalls in more traditional categories of college revenue. Tuition increases made it difficult for parents to be full-payers and institutions often made deep discounts on their “sticker prices.” Federal research funding diminished. Meanwhile, rising overhead costs outpaced institutions’ ability to fund faculty research on their own. While universities were struggling to meet costs, corporate America shared similar economic difficulties.¹⁰ Downsizing became common, even popular in corporate boardrooms, as companies reduced and eliminated unprofitable units and functions – among them research and development departments. Corporate realization that R&D was intrinsic, indeed critical, to future industrial growth initiated a search for alternative production outlets.

⁵ Robert Buderer, *From the Ivory Tower to the Bottom Line*, 103 TECH. REV. 4, at 82-86.

⁶ Zinea Moukheiber, *Science for Sale*, FORBES, May 17, 1999, at 137.

⁷ Kristi Coale, *\$25 Million: Way to Go!*, N.Y. TIMES HIGHER ED. SUPP., Jan. 7, 2000, at 29-30.

⁸ Robert Sanders, *CNR, Novartis Seal \$25 Million Biotech Research Agreement*, U. CAL. BERKELEY PRESS RELEASE, Dec. 2, 1998.

⁹ Goldie Blumenstyk, *Colleges Reaped \$576 Million in Licensing Royalties in 1998, Survey Finds*, CHRON. HIGHER ED., Dec. 10, 1999, at A-44.

During the same period, the passage of the Government Patent Policy Act,¹¹ which became effective in July 1981, ended years of confusion over the ownership and commercialization of government sponsored research. Until that time, the ownership and commercialization of government-sponsored research was governed by twenty-six separate federal agency regulations. Specifically, this Act “established a presumption that ownership of all patent rights in federally funded research would vest in any contractor qualifying as a nonprofit research institution or small business.”¹² These federal policy changes led corporate R&D managers increasingly to approach research-producing universities that could help meet industry demand for growth and innovation. Determining that there would be mutual economic benefit, university administrators embraced the joint venture concept.¹³

Companies funding academic research were afforded exclusive rights to that research. Information that typically flowed freely now only flowed to one source, the company. Caught between the university’s need for resources and the company’s need for secrecy often compromised an academic’s ethical posture.¹⁴ Companies asserted control by insisting that funding would only be available in return for research secrecy and exclusive rights to the intellectual property produced. Enticed by the moneymaking opportunity, both universities and their faculty relinquished ownership rights and in doing so, their rights to an open exchange of knowledge and information.

Legal Perspective

Unless there exists a clear and unambiguous contract or policy, as is often found in corporate/academic partnerships, determining ownership of intellectual property within an academic environment is clearly an arduous task. There are few reported cases that address whether the educational institution or the faculty member owns the property created by the faculty member.¹⁵ In environments other than academia, it has long been established that the employer owns property created by an employee. This is stipulated under the “work made for

¹⁰ M.M. Scott, *Intellectual Property Rights: A Ticking Time Bomb in Academia*, 84 ACADEME 3, at 22-26.

¹¹ Government Patent Policy Act of 1980, 35 U.S.C. § 200-212 (2001).

¹² K.W. Heathington *et al.*, *Commercializing Intellectual Properties at Major Research Universities: Income Distribution*, 17 J. RES. ADMIN. 4, at 27-39.

¹³ Scott, *supra* note 10.

¹⁴ *Id.*

¹⁵ Georgia Holmes *et al.*, *Who Owns Course Materials Prepared by a Teacher or Professor? The Application of Copyright Law to Teaching Materials in the Internet Age*, 2000 BYU EDUC. & L.J. 165 (1999).

hire” section of the Copyright Act of 1976.¹⁶ Conversely, faculty members, under the principle of academic freedom, are typically allowed to own the property they created.¹⁷ In the past, administrators have left copyright issues unchallenged because the value of most copyrighted material was insignificant. However, with the advent of web-based and related multimedia software, universities are re-evaluating their stance on ownership of copyrighted intellectual property.¹⁸

Another significant factor causing universities to re-think their views is the commercialization of intellectual property. It is the hope of colleges and universities that commercializing intellectual property will help increase revenue to support further research. Commercialization also raises new issues of third party involvement, especially when large corporations are among the players. The concern is that corporations do not have the same commitment to research for academic advancement as universities. As a result, their involvement may hinder the researcher’s ability to publicize new information.¹⁹

Copyrights

Fair use is yet another issue affecting intellectual property rights and is a statutory defense to copyright infringement. The Copyright Act of 1976 establishes that certain uses of copyrighted works may be considered fair “for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research.”²⁰ There are four factors courts consider when determining fair use of copyrighted material: (1) whether the nature of the use is for commercial or educational purposes; (2) the nature of the copyrighted work itself; (3) how substantial the portion used is relevant to the entire work; and (4) what effect did the use have on the potential market value of the copyrighted work.²¹

The United States Constitution establishes that Congress shall have power “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writing and Discoveries.”²² This assertion permits Congress to grant a copyright to a person creating original literary, musical and artistic work.²³

¹⁶ 17 U.S.C. § 201 (2001).

¹⁷ Fred H. Cate *et al.*, *Copyright Issues in Colleges and Universities*, 84 *ACADEME* 3, at 39-45.

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ 17 U.S.C. § 107 (2001).

²¹ Cate *et al.*, *supra* note 17.

²² U.S. CONST. art. I, § 8 cl. 8.

²³ Holmes *et al.*, *supra* note 15.

The “work made for hire” rule serves as an exception. In *Weinstein v. University of Illinois*,²⁴ a professor of pharmacy brought suit against his co-author, university administrators and the university alleging they published his article placing his name as the last author rather than as first author. By this action, the university deprived him of his property with out due process.²⁵ Weinstein received two negative evaluations and was given a terminal contract from the University of Illinois due to his failure to publish during his employment.²⁶ The federal district court found against Weinstein citing that the university owned the rights to the article, as it was a work for hire.²⁷

On appeal, the United States Court of Appeals for the Seventh Circuit found the 1976 Act broad enough to make all academic articles a “work for hire.”²⁸ The court further stipulated that the “work for hire” policy applied more to administrative reports than academic journal articles.²⁹ If the Dean of the College of Pharmacy sought to make the Weinstein article a work for hire, he would have had to attain an affidavit declaring that professors routinely ask for consent before they publish articles.³⁰ Further, any co-authors would have had to gain consent from the university before publishing.³¹ The Dean instructed Weinstein to publish but did not insist he gain the permission of the university to do so.³² Since faculty owned the copyrights to their articles, the court further ruled that the dispute between Weinstein and his co-author was a contractual dispute governed by state law.³³

Patents

In *Chou v. University of Chicago*, a patent rights case, researcher Dr. Joany Chou sued the university for the patent on research she conducted involving the alteration of DNA to change a virus from virulent to avirulent.³⁴ After Chou resigned, her advisor Dr. Bernard Roizman, chairman of the university’s Department of Molecular Genetics applied for three patents pertinent to the research.³⁵ Chou’s name was listed on only one of the patents.³⁶ Consequently, she filed a

²⁴ 811 F.2d 1091 (7th Cir. 1987).

²⁵ Holmes *et al.*, *supra* note 15.

²⁶ 811 F.2d at 1096.

²⁷ *Id.* at 1093-94.

²⁸ *Id.*

²⁹ *Id.* at 1094.

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.* at 1095.

³⁴ No. 99 C 4495, 2000 WL 222638 (N.D. Ill. Feb. 22, 2000), *aff’d in part and rev’d in part*, 254 F.3d 1347 (Fed. Cir. 2001).

³⁵ 254 F.3d at 1353.

complaint in the United States District Court for the Northern District of Illinois asserting that she was the inventor of all three patents but did not receive the financial benefits to which she was entitled.³⁷ Chou sought to be declared sole or joint inventor on one of the patents, and joint inventor on the other two.³⁸ The court dismissed two of the three claims, stating that as part of her employment with the university, she relinquished her rights and interests in the patents.³⁹ The court reasoned that Chou can dispute the rights to ownership of the diagrams, drawings, writings and documentation she created during her employment⁴⁰ but later dismissed her claim, with prejudice, determining that the chances of there being conversion and any significant damages were practically nil.⁴¹

Although it is true that most universities are prepared to let their professors enjoy the insignificant rewards of publishing an article, they have recently been formulating policies that assert their joint or full ownership over property that is created with the use of university materials or facilities.⁴² Most researchers use university office supplies, computers, books from the university library, a secretary employed by the university or a research assistant. Universities have wavered on enforcing these rights for two reasons: first, to avoid conflict with their faculty members and second, there was uncertainty about whether or not these policies were legally enforceable.⁴³

On July 3, 2001, the United States Court of Appeals for the Federal Circuit reversed the district court's decision in *Chou* on several key issues.⁴⁴ The threshold and most significant issue — one characterized by the appellate panel as being of first impression in U.S. patent law — was “whether a putative inventor who is obligated to assign her invention to another is entitled to sue for correction of ownership.”⁴⁵ The court answered this novel question in the affirmative, recognizing that a university's published patent policies could form an implied contract with an employee, such as a researcher or faculty member.⁴⁶ Thus, although Chou had never actually signed an express contract assigning the rights to any patentable inventions she developed, the

³⁶ *Id.*

³⁷ *Id.*

³⁸ 2000 WL 222638, at *1.

³⁹ *Id.* at *6.

⁴⁰ *Id.* at *3.

⁴¹ *Id.* at *6.

⁴² Robert Gorman, *Intellectual Property: The Rights of Faculty as Creators and Users*, 84 *ACADEME* 3, at 14-18.

⁴³ *Id.*

⁴⁴ *Chou v. Univ. of Chicago*, 254 F.3d 1347 (Fed. Cir. 2001).

⁴⁵ *Id.* at 1357.

⁴⁶ *Id.* at 1365.

facts that (1) her employment letter referenced the “administrative policies of the University,” and (2) these policies included the university’s patent policy, together satisfied the Seventh Circuit. The court then proceeded to find that, despite this assignment by implied contract, Chou retained interests as an inventor, which gave her standing to sue for correction of the patents to include her name.⁴⁷

One such interest is her reputation. “Chou argues that a reputational interest alone is enough to satisfy the requirements of ... standing. That assertion is not implausible. After all, being considered an inventor of important subject matter is a mark of success in one’s field, comparable to being an author of an important scientific paper.”⁴⁸ But beyond this reputational interest, the court found that as an inventor Chou is entitled to a share in gross royalties and up-front licensing fees, if any.⁴⁹

What can one conclude? The good news for universities and the corporations that partner with them is that “[a]side from ... relatively minor qualifications, employers have broad powers — consistently upheld by the courts — to claim employee inventions by contract,” and universities qua employers of faculty and research associates are no exception.⁵⁰ On the other hand, universities will be held to their published policies and will be required to give a share of royalties and license fees to all those research team-members found to be substantive contributors to the invention. Neither courts nor arbitrators will look kindly upon insider agreements that aim at cutting out low echelon team members from the fruits of the collective labors. University researchers, even “lowly” research assistants and post-docs, are well-advised to consult legal counsel prior to executing employment contracts, non-competition agreements, assignments of rights, or even acknowledgments of their receipt of and commitment to review employment policies.

Policy Review & Results

The Harvard Graduate School of Education, Faculty Appointment Policy Archive, provided a sample of 241 randomly selected university employment policies or collective bargaining agreements from a population of 1380 U.S. four-year institutions ranging across the Carnegie classifications. Surprisingly, considering the vast amount of valuable research produced at academic institutions, the results of our frequency analysis depict a low occurrence of

⁴⁷ *Id.* at 1366.

⁴⁸ *Chou*, 254 F.3d at 1359 (Fed. Cir. 2001).

⁴⁹ *Id.* at 1364.

⁵⁰ Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 HARV. J.L. & TECH. 1, at 4.

intellectual property rights policies, each at or below twenty percent of the sample. From Test 1, the estimated CHI – Square statistic was 5.2186 with a P-value of 0.0223. The critical value for this test is 3.8418. The null hypothesis is rejected. In test 2 results, the estimated CHI – Square statistic was 5.1979 with a P-value of 0.0226. The critical value for this test is 3.8418. The null hypothesis is also rejected. What this means, in layman's terms, is that (1) the majority of universities which responded to the survey either had no such policies or policies which were clearly inadequate, and (2) these statistics are reliable predictors of the state of affairs across higher education as whole.

Based on a sample of universities, it is also evident that public or private status is a predictor of the existence of patent policies. From our frequency and CHI-Squared analysis, we can predict that patent and invention policies are more prevalent at public than private institutions. This finding contradicts our previously stated hypothesis that private institutions, seeking income through the development of valuable patents and other intellectual property, would have promulgated intellectual property policies more so than public institutions. It suggests to us that in the increasingly competitive environment of higher education, public universities are emulating their private-sector counterparts in questing for corporate research dollars, presumably to compensate for the stinginess and (during the past two years) impecunious positions of many state treasuries.

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