

RELATIONAL INNOVATION AND THE PUBLIC BENEFITS OF COPYING

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As members of groups, our creative behavior and evaluations of others' innovations reflect a desire to extend the values of those groups and to challenge the values of outsiders. To be celebrated rather than vilified, innovators need to know the norms they are departing from. Eventually they also need an audience willing to embrace the new ways of seeing or behaving made possible by their work. To meet with success, therefore, creative endeavors must transform communities. These newly formed audiences then drive the cultural change that novel endeavors spark.¹

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I. INTRODUCTION

Pam Samuelson and I first met just before she joined the Berkeley Law faculty in 1996. By then, she had established herself as one of the pioneering scholars exploring the interface of computer software and intellectual property

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1. S. Alexander Haslam, Inmaculada Adarves-Yorno & Tom Postmes, *Creativity is Collective*, 23 SCI. AMERICAN (SPECIAL EDITION) NO. 5S, 26–31 (Jan 1, 2015); cf. WILLIAM PATRY, MORAL PANICS AND THE COPYRIGHT WARS 177 (2009) (“By definition, innovation requires creative and significant change from the past. Creativity involves a recasting of prior relationships and prior strategies: creativity is inconsistent with embalming existing relationships and existing business models. Creativity is change, not the status quo. Creativity is bottom-up, not top-down.”).

(IP) and had already published a dozen articles on that topic.² In contrast, I had just published my first full-length law review article, which addressed the then-recent *Computer Associates v. Altai* decision.³ Because of her welcoming and low-key manner, I had no idea that I should have been completely intimidated by her! And over the years, although I am fairly nonchalant about keeping in touch with people, Pam has consistently reached out just to catch up, such as when she visits Seattle annually to meet recipients of the Dovie Samuelson scholarship—a scholarship Pam and her husband Bob established in honor of Pam’s grandmother that is awarded to deserving undergraduate female science and engineering students at the University of Washington.⁴ Most recently, Pam sent me a brief message that nudged me to watch the movie “Past Lives,”⁵ a gorgeous film about being caught between two cultures—specifically Korean and American.⁶ Pam’s recent message to me was typical of her support of others in our invisible college of IP scholars. In turn, we acknowledge and articulate our huge debt of gratitude to Pam, not only for her path-breaking work and scholarly passion but also her consistent compassion towards others, which has helped to create and maintain our eclectic but cohesive community.

This mix of passion and compassion also inflects Pam’s approach to IP law. Her influential corpus largely explores the contested boundaries of copyright protection, frequently focusing on what is not or should not be protected. This emphasis should not be misinterpreted as antipathy towards copyright. Rather, her work is laser-focused on optimizing copyright’s public policy goals, in balance with other important social policy goals, including

2. It is beyond the scope of this essay to address software copyright, which is another major focus of Pam’s scholarship. See, e.g., Pamela Samuelson, Randall Davis, Mitchell D. Kapor & J.H. Reichman, *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2309 (1994); Pamela Samuelson, *Some New Kinds of Authorship Made Possible by Computers and Some Intellectual Property Questions They Raise*, 53 U. PITT. L. REV. 685 (1992); Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185 (1986).

3. *Computer Associates Int’l, Inc. v. Altai, Inc.*, 982 F.2d 693 (2d Cir. 1992).

4. Bob Roseth, *New Scholarship Provides Full Funding for Women Studying Science or Technology*, UW NEWS (June 16, 2000), <https://www.washington.edu/news/2000/06/16/new-scholarship-provides-full-funding-for-women-studying-science-or-technology/>.

5. Justin Chang, *Across Continents and Decades, ‘Past Lives’ is the Most Affecting Love Story in Ages*, NPR: MOVIE REVIEWS (June 9, 2023), <https://www.npr.org/2023/06/09/1180748796/past-lives-review-greta-lee-teo-yoo>.

6. As mentioned by several people at the symposium conference who (like me) come from non-dominant backgrounds, whether by geography or race or otherwise, it is rare yet so important to see oneself represented and to feel seen by others. Pam implicitly understood this when she sent me this message out of the blue.

human self-actualization achieved in part by interplay with pre-existing works. As she notes, even the oldest multilateral copyright treaty, the venerable 1886 Berne Convention for the Protection of Literary and Artistic Works, “recognizes the importance of promoting ongoing authorship by mandating that member states must adopt a right of fair quotation in their national copyright laws.”⁷

Pam’s signature style is to taxonomize a daunting body of caselaw in encyclopedic detail. Her goal is to discern and deduce broader patterns most relevant to the sometimes aligned and sometimes competing policy goals revolving around copyright. She has applied this method not only to copyright’s exceptions and limitations,⁸ but also to the continuum of categories that comprise copyright’s public domain,⁹ and most recently to the impact of artificial intelligence on copyright law.¹⁰

Inspired by and drawing upon Pam’s methods and ideas, especially a relatively recent article, *Freedom to Tinker*,¹¹ this Essay introduces the concept

7. Pamela Samuelson, *Justifications for Copyright Limitations & Exceptions*, COPYRIGHT IN AN AGE OF LIMITATIONS AND EXCEPTIONS 12, 25 (Ruth L. Okediji ed., 2017) (citing to Berne Convention for the Protection of Literary and Artistic Works, art. 10(1), (adopted Sept. 9, 1886), S. TREATY DOC. No. 99-27, 1161 U.N.T.S. 3 (amended Sept. 28, 1979); see also TANYA APLIN & LIONEL BENTLY, *GLOBAL MANDATORY FAIR USE: THE NATURE AND SCOPE OF THE RIGHT TO QUOTE COPYRIGHT WORKS* (2020).

8. Samuelson, *Justifications*, *supra* note 7 at 15 (these include “protecting authorial interests and promoting ongoing authorship, . . . user interests, . . . public interests, including those that promote public access to information, activities of nonprofit institutions, and functions of public institutions[.] . . . economic issues, such as fostering competition and innovation, exempting incidental uses that lack economic significance, and addressing market failures[.] political expedient ends[.] and the need for flexibility and adaptability over time”).

9. Pamela Samuelson, *Enriching Discourse on Public Domains*, 55 DUKE L.J., 783 (2006); Pamela Samuelson, *Mapping the Public Domain*, 66 LAW & CONTEMP. PROBS. 147, 151 (2003).

10. Pamela Samuelson, *Fair Use Defenses in Disruptive Technology Cases*, 71 UCLA L. REV. (forthcoming 2024).

11. Pamela Samuelson, *Freedom to Tinker*, THEORETICAL INQUIRIES IN L. (Jan. 1, 2016), at 565–66 (“I conceptualize freedom to tinker for the purposes of this Article as having several dimensions: it entails, first, an intellectual freedom to imagine what one might do with existing artifacts to learn more about them; second, an intellectual privacy and autonomy interest in investigating and exploring those artifacts in which one has a property or other legitimate interest, especially when the investigation is done in one’s own premises; third, a right to develop one’s skills by testing, analyzing, and interacting with existing artifacts; fourth, a liberty interest to learn from tinkering and to become a more actualized person as a consequence; fifth, a right to distill what one has learned from tinkering and disseminate the results of one’s research to others; sixth, a right to repair that which is broken and make other uses of artifacts as long as one is not harming the interests of others; seventh, a right to act upon and create new artifacts based on what one has learned through tinkering; and eighth, a *right to share with*

of *relational innovation*—that is, freedom to learn and to exchange knowledge within a specific innovation community. This term describes a significant part of the innovation ecosystem partially governed by copyright. Thus, it should be factored into any balance between copyright’s exclusive rights and access. Yet, as a public policy goal, relational innovation is often under-recognized by lawmakers and scholars interpreting the 1976 Copyright Act¹²—even by those who tend to identify as pro-access.

This Essay first presents two examples of communities in which relational innovation plays an undeniable and immediately discernible role. Building upon the work of Pam and other IP scholars, the Essay then explores the importance of learning as a public policy objective of copyright law. Following this exploration, it introduces and justifies the concept of relational innovation as an expression of important but partially concealed aspects of “the public benefits the copying will likely produce” articulated by the U.S. Supreme Court in its recent *Google LLC v. Oracle America, Inc.* decision (hereinafter *Google*).¹³ The Essay concludes by speculating on where relational innovation might fit into copyright’s doctrinal framework, both domestically and globally. It suggests that courts carefully consider the concept of “public benefits”—of which relational innovation is just one albeit significant type—throughout the analysis of all four fair use factors.¹⁴

Grounded theoretically in various scientific insights developed in the fifty years since the 1976 Copyright Act went into effect,¹⁵ relational innovation challenges the *homo economicus* template that has largely shaped judicial and other interpretations of that Act.

II. TWO EXAMPLES OF RELATIONAL INNOVATION

Consider this: Our legal profession generates a huge number of works protected by copyright. We use written words, which are the quintessential

others any new creations that are the fruits of one’s tinkering and build a community around this sharing.” (emphasis added)).

12. 17 U.S.C. §§ 101–810 (2022).

13. *Google LLC v. Oracle America, Inc.*, 593 U.S. 1 (2021). As Michael Carroll and Peter Jaszi have noted: “It remains to be seen what courts will make of this invitation to broaden the inquiry by taking public value added into account along with private monetary losses. But it is at least possible that the language in question will open up new and promising directions in fair use analysis.” Michael W. Carroll & Peter A. Jaszi, *The Triumph of Three Big Ideas in Fair Use Jurisprudence*, 99 TUL. L. REV. (Apr. 24, 2024).

14. 17 U.S.C. § 107 (2022).

15. See generally OXFORD HANDBOOK OF INTELL. PROP. RSCH.: LENSES, METHODS, & PERSPS. (Irene Calboli & Maria Lillà Montagnani eds., 2021).

mode of creativity regulated by copyright law. And much of our resultant work-product is both fixed and original, albeit perhaps more fact-bound than other types of creative works. Yet, putting aside the assertion of copyright in state law reporters, copyright enforcement by and large has not taken hold in our space.

Indeed, in the first copyright case to reach the Supreme Court, *Wheaton v. Peters*,¹⁶ the Court soundly rejected copyright protection of its own reporter's publications. More recently, in *Georgia v. Public.Resource.Org*,¹⁷ the Court reiterated the existence of a particular public interest attached to legal works—an access value that overrides copyright's exclusive rights. And despite the general lack of IP enforcement within the legal profession, we have managed to generate many new forms of expression that have led to creative legal arguments, concepts, doctrine, and theory.

Lawyers comprise a specific community of innovators. And we are also Exhibit A for the inadequacy of incentive theory¹⁸ to capture what is often at the core of innovation. Our community literally could not function if we were always looking over our shoulders (instead of standing on each other's shoulders¹⁹) to see whether what we just wrote is substantially similar to what someone else wrote or if we had to worry about paying statutory damages for what was copied from another. We even encourage rampant copying because we need to communicate with each other (and with non-lawyers) by using a shared knowledge base for the purpose of furthering our clients' interests, and without detriment to the development of law overall. One might even argue that this freedom to co-create the law with each other is an integral part of the common law method.²⁰

16. *Wheaton v. Peters*, 33 U.S. 591 (1834); accord *Matthew Bender & Co. v. W. Publ'g Co.*, 158 F.3d 674, 677 (2d Cir. 1998) (finding no copyright protection in various aspects of West's federal reporters).

17. *Georgia v. Public.Resource.Org, Inc.*, 140 S. Ct. 1498 (2020).

18. Eric E. Johnson, *Intellectual Property and the Incentive Fallacy*, 39 FLA. ST. L. REV. 623, 624 (2012) ("The whole idea of copyright and patent law is that people won't create or invent things without incentives. If people can just swoop in and make copies, the reasoning goes, these necessary incentives will be lacking. This is the classic economic argument for intellectual property law."); see also Glynn S. Lunney, Jr., *Reexamining Copyright's Incentives-Access Paradigm*, 49 VAND. L. REV. 483, 492–98 (1996).

19. ROBERT K. MERTON, ON THE SHOULDERS OF GIANTS: A SHANDEAN POSTSCRIPT (1965).

20. Kathryn Boling, What is 'the Rule'? Quotation Marks and the Role of Courts and Lawyers as Performers of the Common Law (unpublished manuscript) (on file with author) (arguing against the necessity of quotation marks for widely received and accepted legal rules).

As an innovation community, we have the luxury of caring less about copyright's statutory limitation of fair use,²¹ because tolerated sampling is an essential characteristic of what we do every day. To use Pam's terminology (in turn borrowed from Edward Felten),²² we have almost complete freedom to tinker with each other's works. Equally important, however, is that tinkering is an integral part of our relationships with each other. It is an exemplar of relational innovation, which stems from our needs both to belong to a community and to understand (as well as to challenge) others in this community via shared social meanings—which are fundamental human needs, as will be developed later in this essay.²³

Of course, our specific tribe of lawyers may be one that can function on business models that do not depend on copyright.²⁴ Nonetheless, we can partially extrapolate our own experiences as members of a group in which copyright is rarely (if ever) enforced against each other to other creative communities, such as the software developers²⁵ addressed in *Google*.

The *Google* majority opinion's analysis of fair use reflects the insight that many innovation communities would not function if copyright was enforced anytime an arguably protectible work is involved. For example, the fourth fair use factor is clearly very market oriented; it focuses on "the effect of the use

21. See 17 U.S.C. § 107.

22. Samuelson, *Freedom to Tinker*, *supra* note 11, at 565 (Computer scientist Edward Felten has articulated well why freedom to tinker matters to scientific researchers, defining the term as "your freedom to understand, discuss, repair, and modify the technological devices you own.") (citing Edward Felten, *The New Freedom to Tinker Movement*, FREEDOM TO TINKER (Mar. 21, 2013), <https://freedom-to-tinker.com/blog/felten/the-new-freedom-to-tinker-movement/>).

23. SUSAN T. FISKE, SOCIAL BEINGS: CORE MOTIVES IN SOCIAL PSYCHOLOGY 14–15 (4th ed. 2003); see also S. Alexander Haslam, Inmaculada Adarves-Yorno, Tom Postmes & Lise Jans, *The Collective Origins of Valued Originality: A Social Identity Approach to Creativity*, 17 PERSONALITY & SOC. PSYCH. REV. 384 (2013) ("Yet one could argue that there is a more fundamental importance to creativity, stemming from its functions for humans as a species. For humans possess specific abilities that separate them from other animals in nonphysical ways. In particular, over the course of their evolution, humans have evolved a capacity for culture. As a result, human societies are defined by embedded sets of shared norms and values that serve to create shared meaning for their members . . .").

24. Hal R. Varian, *Copying and Copyright*, 19 J. ECON. PERSPS. 121, 134–36 (2005) (outlining various business models in a world without copyright).

25. According to the amicus brief filed by the Developers Alliance, the "current case has implications that go far beyond the two litigants involved. In 2017 there were an estimated three million software developers in the United States, and their collective work added an estimated \$565 billion to the country's gross domestic product." Brief for Developers Alliance as Amicus Curiae Supporting Petitioner at 2, *Google LLC v. Oracle America, Inc.*, 593 U.S. 1 (2021) (No. 18-956).

upon the potential market for or value of the copyrighted work.”²⁶ Nonetheless, the Court held that the use of the Java application programming interfaces (APIs) at issue was justified because the APIs were not just assets for Oracle to deploy as sources of licensing revenue, but also served as a shared software environment familiar to many developers who were creating large amounts of third party applications precisely because of this familiarity.

As Google’s brief pointed out, “independent developers using Java have created *millions* of Android applications used by more than a *billion* people.”²⁷ The source of Java’s value lay, according to the majority, in the eventual widespread adoption of Java and its APIs by this larger innovation community, which outweighed the need for financial incentives to Oracle (or more accurately its predecessor Sun) for coming up with Java in the first instance. The Court captures this concern several times in the opinion.²⁸ For example, Justice Breyer’s majority opinion stated that:

*[W]e must take into account the public benefits the copying will likely produce. Are those benefits, for example, related to copyright’s concern for the creative production of new expression? Are they comparatively important, or unimportant, when compared with dollar amounts likely lost (taking into account as well the nature of the source of the loss)?*²⁹

Per incentive theory, the primary purpose of copyright’s exclusive rights is to prevent the kinds of economic free-riding to which the Court alluded here (and to which the dissent vociferously objected³⁰). Framed solely within the standard incentive justification for copyright, the Court’s reference to a

26. 17 U.S.C. § 107(4) (In determining whether a use made of a work in any particular case is a fair use, one of the factors to be considered is “the effect of the use upon the potential market for or value of the copyrighted work.”).

27. Brief of Petitioner at 9, *Google LLC v. Oracle America, Inc.*, 593 U.S. 1 (2021) (No. 18-956).

28. The majority referred to this concern not only in the context of the fourth fair use factor, but throughout its analysis of all four fair use factors. This is discussed more in Part V of this essay.

29. *Google*, 593 U.S. at 35 (citing to *MCA, Inc. v. Wilson*, 677 F.2d 180, 183 (2d Cir. 1981) (calling for a balancing of public benefits and losses to copyright owner under this factor) (emphasis added).

30. “By copying Oracle’s code to develop and release Android, Google ruined Oracle’s potential market in at least two ways. First, Google eliminated the reason manufacturers were willing to pay to install the Java platform . . . Second, Google interfered with opportunities for Oracle to license the Java platform to developers of smartphone operating systems.” *Id.* at 53–54 (Thomas, J., joined by Alito, J., dissenting).

mandatory analysis of the “public benefits the copying will likely produce”³¹ is awkward, if not startling. A more capacious economic analysis, however, could view this as a win for dynamic efficiency over static inefficiency because the benefit of encouraging overall innovation over the long term often outweighs the short-term reward via exclusive rights to the rightsholder for having come up with the innovation in question.³²

Indeed, the Court relied heavily on a different economic theory—network effects—which posits that when an innovation reaches the point of becoming an innovation community’s standard, then the community’s interest in access to this innovation prevails over the individual interest in enforcement of copyright.³³ As the Court stated, with a strong nod to the early computer software decision, *Lotus v. Borland*:³⁴

When a new interface, like an API or a spreadsheet program, first comes on the market, it may attract new users because of its expressive qualities, such as a better visual screen or because of its superior functionality. As time passes, however, it may be valuable for a different reason, namely, because users, including programmers, are just used to it. They have already learned how to work with it.³⁵

31. In a forthcoming article, Amanda Levendowski surveys 38 fair use cases other than Google that have explicitly invoked the term “public benefits” and concludes that this concept has been an underrecognized and undertheorized subfactor in the fair use analysis. Amanda Levendowski, *Fairer Public Benefit*, CARDOZO L. REV. (forthcoming 2025).

32. Joseph E. Stiglitz, *Knowledge as a Global Public Good*, GLOBAL PUBLIC GOODS: INTERNATIONAL COOPERATION IN THE 21ST CENTURY 308, 311 (Inge Kaul, Isabelle Grunberg & Marc Stern eds., 1999) (“The gain in *dynamic* efficiency from the greater innovative activity [from intellectual property protection] is intended to balance out the losses from *static inefficiency* from the underutilization of the knowledge or from the underproduction of the good protected by the [intellectual property right].”).

33. Mark A. Lemley & David McGowan, *Legal Implications of Network Economic Effects*, 86 CALIF. L. REV. 479 (1998).

34. *Lotus Dev. Corp. v. Borland Int’l, Inc.*, 49 F.3d 807 (1st Cir. 1995).

35. *Google*, 593 U.S. at 38–39 (citing *Lotus Dev. Corp.*, 49 F.3d at 821 (Boudin, J., concurring)); see also *Google*, 593 U.S. at 37 (“[T]he jury also heard evidence that Sun foresaw a benefit from the broader use of the Java programming language in a new platform like Android, as it would further expand the network of Java-trained programmers.”). As Google pointed out in its brief, “[l]ike Sun before it, Oracle touted Java as a ‘free and open’ programming language. Millions of developers collectively invested incalculable effort in learning how to use thousands of non-copyrighted calls to create applications. Now Oracle says that it has the power to effectively lock those developers into programming for only its platform.” Brief of Petitioner at 28, *Google LLC v. Oracle America, Inc.*, 593 U.S. 1 (No. 18-956) (quoting Pet. App. 5a, 9a).

Numerous intellectual property scholars have argued that incentive theory only measures one very narrow dimension of what makes people innovate and may not be applicable at all in many cases.³⁶ And while the concept of network effects does explain some of the social dimensions of innovation, it is tightly linked to the standardization and interoperability concerns that are arguably more salient for works such as software than for other types of copyrightable works. This continuing over-dependence on narrow economic frames is peculiar in light of the wealth of insights about the nature of innovation that legal and other scholars have documented in the half century since the 1976 Copyright Act was enacted. It is to some of these insights we now turn.

III. COPYRIGHT LAW'S LEARNING OBJECTIVE

In *Unbundling Fair Uses*,³⁷ published many years prior to the Supreme Court's decision in *Google*, Pam made several important observations about the fair use doctrine. Organizing then-extant fair use decisions into what she called "policy-relevant clusters," she claimed that "policies [that] underlie modern fair use law include promoting freedom of speech and of expression, the ongoing progress of authorship, *learning*, access to information, truth-telling or truth-seeking, competition, technological innovation, and privacy and autonomy interests of users."³⁸ She argued that both Congress and courts have recognized that "research, scholarship, and teaching uses are often undertaken to promote learning by persons who are neither scholars nor would-be authors."³⁹

Unlike "teaching . . . , scholarship, or research," the promotion of learning *per se* is not explicitly listed in the statute as one of the six categories of potentially permissible downstream uses.⁴⁰ However, learning is surely implicit in those other categories, which center around the transmission of knowledge from and to others within specific communities. And it is arguably a relevant

36. It is beyond the scope of this essay to explore these critiques fully. However, *see, e.g.*, DAVID L. LANGE & H. JEFFERSON POWELL, *NO LAW: INTELLECTUAL PROPERTY IN THE IMAGE OF AN ABSOLUTE FIRST AMENDMENT* 68 (2009) ("[T]he assertion that exclusivity equals productivity is essentially thin or testimonial or theoretical, or some combination of the three, and 'believe' is the operative word. We do not know in absolute fact whether intellectual property regimes significantly encourage intellectual productivity, much less whether they are 'necessary.'") (citing Mark Lemley, *Reconceiving Patents in the Age of Venture Capital*, 4 J. SMALL & EMERGING BUS. L. 137, 139 (2000) ("The problem is that we don't have a clue how innovation works.")).

37. Pamela Samuelson, *Unbundling Fair Uses*, 77 *FORDHAM L. REV.* 2537 (2009).

38. *Id.* at 2537 (emphasis added).

39. *Id.* at 2545.

40. 17 U.S.C. § 107.

category in its own right in the context of U.S. copyright law's constitutional purpose of "promotion of Progress of Science."⁴¹ This interpretation of copyright's fundamental purpose accords with its fore-runner, the British statute often referred to as the Statute of Anne, but more precisely entitled "An Act for the Encouragement of Learning . . ."⁴² It is the general public for whom "Learning" is encouraged through the provision of copyright.⁴³

Indeed, Pam argued that personal use should be considered as a type of use that could be recognized beyond the six statutorily recognized uses⁴⁴ and described how personal use (and its corollary personal learning) is facilitated by the proliferation of technologies that affords greater availability by ordinary users to previously inaccessible information and knowledge.⁴⁵ Through digital networked technologies, this expansion of access to knowledge has amplified the magnitude of personal use (and concomitant personal learning) relative to copyright and its constitutional policy goals.

Other areas of IP, including trade secret law, also interface with personal use and learning. Sharon Sandeen, for example, advocates for an "employee's right to learn [as] a matter of human dignity, human development, and human rights because it respects how human brains collect, store, and process information. It recognizes that it is not possible for humans to excise the information that they perceive, process, and store in their brains and that society benefits greatly from their collective cognitive capital."⁴⁶ Employees' personal uses thus "[t]ypically, [] include[] skills and knowledge . . . learned throughout their life and while on the job. It can include what is known as tacit knowledge and is likely to be a part of an employee's memory."⁴⁷

41. U.S. CONST. art. I, § 8, cl. 8.

42. Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, During the Times therein mentioned, 1710, 8 Anne, c. 19 (Gr. Brit.). The first US Copyright Act of 1790 was similarly titled "An Act for the encouragement of learning, by securing the copies of maps, Charts, and books, to the authors and proprietors of such copies, during the times therein mentioned.", <https://www.copyright.gov/about/1790-copyright-act.html>.

43. Diane Leenheer Zimmerman, *The Statute of Anne and its Progeny: Variations Without a Theme*, 47 HOUS. L. REV. 965 (2010).

44. Samuelson, *Unbundling Fair Uses*, *supra* note 37, at 2587 (She terms this "Foreseeable Uses of Copyrighted Works Beyond the Six Statutorily Favored Purposes.").

45. The Supreme Court first encountered the power of personal uses in *SONY v. Universal City Studios*, 464 U.S. 417 (1984).

46. Sharon K. Sandeen, *The Employee's Right to Learn* (June 2024) ("From a societal perspective, the employee's right to learn recognizes the important contributions that employees make toward economic growth as idea generators, innovators, and entrepreneurs and the benefits to be derived from their 'collective cognitive capital.'").

47. *Id.*

One can extrapolate from employees to others who desire to satisfy their curiosity of ‘how things work’ such as the third-party developers who figured so prominently in *Google*. These software creators build upon their own personal knowledge base, including Java’s APIs, so that they may go on to be creators in their own right, by combining their current knowledge with their reimplementations efforts. Their personal uses for purposes of personal learning are not necessarily tied to teaching, scholarship, or research within formal educational settings, which (as noted earlier) are the explicit statutory categories associated with learning in the fair use doctrinal universe. Importantly, however, such learning can include knowledge gained from reverse engineering, a doctrine recognized in both copyright⁴⁸ and trade secret law.⁴⁹ And it can include knowledge gained from simply tinkering with publicly available sources, including non-secret sources placed in the open market.⁵⁰

How does a recognition of personal learning as a type of fair use then connect to a larger community of innovation? Another foundational copyright concept—the public domain⁵¹—may help to clarify this relationship. In addition to taxonomizing fair use, Pam has also methodically categorized how various concepts of the public domain overlap with copyright goals and policies.⁵² Many of these different conceptual approaches to the public domain

48. *Sega Enters. Ltd. v. Accolade, Inc.*, 977 F.2d 1510 (9th Cir. 1992). Pam recognized this kinship in *Freedom to Tinker*, *supra* note 11, at 599.

49. Sandeen, *supra* note 46 (“Thus, when trade secret doctrine is properly applied, employees have the right to learn from, retain, and use information that: is generally known among the public; is generally known within an industry or field of endeavor; could be easily gleaned from publicly available sources, including by reverse engineering available products”); *see also* ORLY LOBEL, TALENT WANTS TO BE FREE: WHY WE SHOULD LEARN TO LOVE LEAKS, RAIDS, AND FREE RIDING (2013); *cf.* CATHERINE L. FISK, WORKING KNOWLEDGE: EMPLOYEE INNOVATION AND THE RISE OF CORPORATE INTELLECTUAL PROPERTY, 1800–1930 (2009).

50. Sandeen, *supra* note 46 (“[E]mployees have the right to learn from, retain, and use information that . . . does not enjoy economic value due to its secrecy; or was not the subject of reasonable efforts to maintain its secrecy. Importantly, all these limitations on protectable information apply even if the source of the information was the employer, but employees also have the right to learn from other non-trade secret information.”).

51. The public domain is sometimes referred to interchangeably with or metaphorically as “the commons.” *See, e.g.*, JAMES BOYLE, THE PUBLIC DOMAIN: ENCLOSING THE COMMONS OF THE MIND (2010). However, the term “commons” can also have more specific meanings, based upon Elinor Ostrom’s work on commons governance. *See, e.g.*, Michael J. Madison, Brett M. Frischmann & Katherine J. Strandburg, *Constructing Commons in the Cultural Environment*, 95 CORNELL L. REV. 657, 665 (2010); *cf.* Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711 (1986).

52. Samuelson, *Enriching Discourse on Public Domains*, *supra* note 9. This comprehensive taxonomy builds upon and categorizes prior work by many other pioneering copyright

provide signposts towards not only personal use, but also the collective creativity resulting from a community of personal users.

To focus here on just a few scholars in this area, Michael Birnhack has emphasized the critical role of the public domain in fostering “personal self-development, learning, experiencing, imagining, speaking with others, creating new works for the benefit of ourselves and wider circles, starting from the immediate interlocutor and up to the entire community.”⁵³ Similarly, Julie Cohen has urged “more careful attention to creativity as a social phenomenon manifested through creative practice” and suggested that the public domain “is not a discrete preserve, but rather a distributed property of social space.”⁵⁴ David Lange (an early mentor of Pam’s and one of the first scholars to theorize about the public domain) has visualized a “dynamic and robust” relationship of the individual creator to the whole, one in which courts would recognize the “affirmative right of authors to imagine and bring into being new works, even if they thereby incorporate parts of existing creations.”⁵⁵ And Yochai Benkler has championed what Pam characterizes as an informational freedom approach to the public domain.⁵⁶ Exercised by individuals upon digital networked technologies, this freedom allows spatially and geographically distributed creators to engage in collective creativity.

Each of these insights about the public domain brings to mind how both members of the legal profession and software developers⁵⁷ create meaning with each other. And all of these nuances on the public domain recognize and

scholars. *See, e.g.*, Jessica Litman, *The Public Domain*, 39 EMORY L.J. 965 (1990); David Lange, *Recognizing the Public Domain*, 44 LAW & CONTEMP. PROBS. 147 (1981).

53. Samuelson, *Enriching Discourse on Public Domains*, *supra* note 9, at 805 (quoting Michael Birnhack, *More or Better? Shaping the Public Domain*, THE PUBLIC DOMAIN OF INFORMATION 59–86 (P. Bernt Hugenholtz & Lucie Guibault eds., 2005)).

54. *Id.* at 804 (quoting Julie E. Cohen, *Copyright, Commodification, and Culture: Locating the Public Domain*, THE PUBLIC DOMAIN OF INFORMATION 121–66 (P. Bernt Hugenholtz & Lucie Guibault eds., 2006)).

55. *Id.* (quoting David Lange, *Reimagining the Public Domain*, 66 LAW & CONTEMP. PROBS. 463 (2003)).

56. *Id.* at 121 (quoting Yochai Benkler, *Free as the Air to Common Use: First Amendment Constraints on Enclosure of the Public Domain*, 74 N.Y.U. L. REV. 354, 361–62 (1999) and citing Robert Merges, *A New Dynamism in the Public Domain*, 71 U. CHI. L. REV. 183, 184 (2004)); *see also* YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006).

57. Indeed, according to the Developers Alliance amicus brief in support of Google, “[s]oftware interfaces promote innovation by breaking complex software systems into large numbers of component parts that can be improved in parallel. Rather than a single author capable of limited creative iterations, software interfaces allow a multitude of authors to work simultaneously.” Brief for Developers Alliance, Google, *supra* note 25, at 16.

rely upon the social as well as individual aspects of creative activity. Fair use, which deems what would be otherwise unauthorized use to be non-infringing use, is a major means of moving protectible information into the category of unprotectible. It assigns that particular use (which would otherwise be infringing) to the public domain if, as Pam succinctly states, the public domain “is best understood as freedom from IP constraints.”⁵⁸ The overall result is to construct liability-free spaces of relational innovation, in which the individual has freedom to learn and to connect readily to others within a collective creative community.⁵⁹

IV. REVEALING RELATIONAL INNOVATION

These more capacious accounts of the roles of both fair use and the public domain in effecting copyright’s public policy goals reveal what is missing from *Google’s* stated justifications for the “public benefits the copying will likely produce.” Current judicial analysis of fair use heavily depends on some version of market theory. It assumes that copyright primarily exists to enable its individual rightsholders to—in popular parlance—monetize content. This judicial over-emphasis falls far short of addressing how best to promote innovation.⁶⁰ Because of this unduly narrow focus, the “public benefits” highlighted by the Court are at risk of being underestimated, undervalued, or even illegible. As Julie Cohen has aptly observed, “the distinction is between a social theory of creativity that embraces an eclectic range of methods, including economic methods, and an economic model of creativity that has room only for its own methods.”⁶¹

58. Samuelson, *Freedom to Tinker*, *supra* note 11. As Julie Cohen has observed, “the term ‘public domain’ functions metaphorically to describe the geographic and practical accessibility of the cultural commons.” JULIE E. COHEN, *CONFIGURING THE NETWORKED SELF: LAW, CODE, AND THE PLAY OF EVERYDAY PRACTICE* (2012)..

59. Samuelson, *Freedom to Tinker*, *supra* note 11. This discussion of the social functions of the public domain is reminiscent of Carys Craig’s feminist/dialogic approach (which Craig refers to as relational theory) to copyright. While Craig’s work is not focused on the public domain *per se*, relational theory involves situated discourse in which the context for a writer’s utterance shapes the sign’s meaning, which in turn is constantly renegotiated with others in relation to the self. CARYS CRAIG, *COPYRIGHT, COMMUNICATION AND CULTURE: TOWARDS A RELATIONAL THEORY OF COPYRIGHT LAW* (2011).

60. COHEN, *supra* note 58.

61. *Id.* And as she has documented extensively, current copyright law lacks a descriptively accurate theory of copyright-related creativity.

Strong versions of incentive theory⁶² miss many pre-market, post-market, and non-market activities that are essential to innovation, such as personal learning and personal use.⁶³ Furthermore, these versions view a community's innovation activities and motivations as an aggregation of individual atomized choices. Thus, they miss the key characteristic of innovation as emanating more organically from social relations within these communities (not to mention the specific cultures, groups, and societies that co-create upon a substrate of common understandings and shared meanings). As Stephanie Plamondon Bair and Laura Pedraza-Fariña recently observed, “[f]rom a sociological perspective, a key defining characteristic of . . . inventor[s] or artist[s] is [their] embeddedness in a community or communities of peer inventors or artists.”⁶⁴

Partially bucking incentive theory's sole emphasis on market-based analysis, the recent *Google* decision gives primacy to third-party software developers' freedom to use their general knowledge, skills, and experience (to borrow from the trade secret concept⁶⁵) to innovate within a specific knowledge ecosystem. The Court acknowledged that these benefits of relational innovation—personal learning and subsequent exchange of knowledge within a specific community—outweighed the harm to the copyright owner. The Court's reference to “the public benefits” afforded by copying thus implicitly acknowledged the large and growing body of copyright scholarship moving decisively away from reductive economic instrumentalist approaches that may over-depend on assumptions of liberal individualism and under-value the social aspects of innovation. The Court's reliance on a model of network effects is a start in the right direction, but is unnecessarily

62. Rochelle C. Dreyfuss, *Expressive Generativity: Trademarks as Language in the Pepsi Generation*, 65 NOTRE DAME L. REV. 387, 405 (1990) (coining term “if value, then right”).

63. Margaret Chon, *Prioritizing Intellectual Property's Freedom to Operate*, IMPROVING INTELLECTUAL PROPERTY: A GLOBAL PROJECT 7 (Susy Frankel, Margaret Chon, Graeme B. Dinwoodie, Jens Schovsbo & Barbara Lauriat eds., 2023).

64. Stephanie Plamondon Bair and Laura Pedraza-Fariña, *The Sociology and Psychology of Innovation: A Synthesis and Research Agenda for Intellectual Property Scholars*, 60 HOUS. L. REV. 261, 265 (2022); see also *id.* at 268 (“Until quite recently, IP scholarship all but ignored sociology's challenge to the “great minds” view of innovation. Accounts of innovation in the legal academy mirrored quite closely those post-Enlightenment traditions that [Science, Technology, and Society] scholarship sought to displace—portraying innovation as driven largely by technological and market forces and proceeding in a linear path towards the ever-increasing accumulation of knowledge.”); accord Andres Sawicki, *The Law of Creativity?*, CORNELL L. REV. (forthcoming 2024) (arguing that the Supreme Court acknowledged the sociology of creativity in *Bleistein v. Donaldson*).

65. Camilla Hrды, *The General Knowledge, Skill, and Experience Paradox*, 60 BOS. COLL. L. REV. 2409 (2019).

parsimonious as a theoretical frame, especially when considering the wealth of possible other rationales for non-infringement.

Even within the field of economics, more capacious models can further elucidate the “public benefits the copying will likely produce.” These include innovation economics, which posits that diffusion of people and ideas results in increased innovative capacity of individual firms as well as overall industries,⁶⁶ and other approaches that analogize knowledge to essential infrastructure;⁶⁷ highlight the critical importance of knowledge spillovers;⁶⁸ point to the generativity of open innovation frameworks,⁶⁹ and explore the so-called negative space of IP.⁷⁰

More community-centric lenses also include knowledge commons approaches, based on Elinor Ostrom’s path-breaking political economy work on governance of commonly held resources.⁷¹ And outside of economics, disciplines as disparate as cognitive science, management, neurobiology, psychology, sociology, as well as science, technology and society (STS) studies show the ubiquity of engagement with others in the creative process,⁷² often

66. Non-Compete Clause Rule, 88 Fed. Reg. 3482 (proposed Jan. 19, 2023) (to be codified at 16 C.F.R. pt. 910); ANNALEE SAXENIAN, REGIONAL ADVANTAGE: CULTURE AND COMPETITION IN SILICON VALLEY AND ROUTE 128 (1994).

67. BRETT M. FRISCHMANN, INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES (2012).

68. Brett M. Frischmann & Mark A. Lemley, *Spillovers*, 107 COLUM. L. REV. 257, 258 (2007) (“[W]e explain that in IP, unlike real property, a wide range of externalities matter, because IP rights are much less certain than property rights and because the decision to create a legal entitlement will determine whether or not a transaction must occur. Second, we suggest that there is no reason to think that complete internalization of externalities is necessary to optimize investment incentives; at some point, there are decreasing returns (in terms of improved incentives) to allowing property owners to capture more of the value from their inventions.”).

69. HENRY CHESBROUGH, OPEN INNOVATION: THE NEW IMPERATIVE FOR CREATING AND PROFITING FROM TECHNOLOGY (2003); Jeremy de Beer, *Intellectual Property and ‘Open’ Innovation: A Synthesis of Concepts*, OXFORD HANDBOOK OF INTELL. PROP. RSCH.: LENSES, METHODS, AND PERSPS. 714 (Irene Calboli & Maria Lilla Montagnani eds., 2021).

70. Kal Raustiala & Christopher Jon Sprigman, *When are IP Rights Necessary? Evidence from Innovation in IP’s Negative Space*, RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW (Vol. I—Theory) (Peter Menell & Ben Depoorter eds., 2016); KAL RAUSTIALA & CHRISTOPHER SPRIGMAN, THE KNOCKOFF ECONOMY: HOW IMITATION SPARKS INNOVATION (2012).

71. BRETT M. FRISCHMANN, MICHAEL J. MADISON & KATHERINE J. STRANDBURG, GOVERNING KNOWLEDGE COMMONS (2014).

72. See, e.g., COHEN, *supra* note 58, at 80 (“Within pre-existing cultural networks, individuals and communities appropriate cultural goods for interrelated purposes of consumption, communication, self-development, and creative play.”); Madhavi Sunder, *Intellectual Property in Experience*, 117 MICH. L. REV. 197, 250 (2019).

conducted within institutions specializing in the sharing and shaping of knowledge within specific communities,⁷³ including the workplace.⁷⁴ Anthropologist Agustín Fuentes attributes human creativity partly to the fact that “[h]umans have evolved to be supercooperators.”⁷⁵

Zeroing more closely into one of these non-economic disciplines, social psychologists have explored the key affective as well as cognitive drivers of human behavior, including creativity. These social psychological accounts of the creative process toggle between individual drives (often referred to as intrinsic motivation⁷⁶) and group norms.⁷⁷ One approach, social identity theory, simultaneously examines both personal and social identity (viewing oneself as a member of a group to which one belongs). According to this view, when

[S]ocial identity is salient, individuals derive relevant aspects of their sense of self from their membership of a particular group and value their own and others’ actions with reference to internalized

73. Bair & Pedraza-Fariña, *supra* note 64.

74. Sharon K. Sandeen, *Economic Growth Requires Idea Generators*, THE ELGAR COMPANION TO INTELLECTUAL PROPERTY AND THE SUSTAINABLE DEVELOPMENT GOALS 262 (Matthew Rimmer, Caroline B. Ncube & Bitu Amani eds., 2024).

75. AGUSTÍN FUENTES, *THE CREATIVE SPARK: HOW IMAGINATION MADE HUMANS EXCEPTIONAL* 7 (2017).

76. Various IP legal scholars have explored the importance of intrinsic motivation theory. *See, e.g.*, Joseph P. Fishman, *Creating Around Copyright*, 128 HARV. L. REV. 1333, 1359 (2015) (“[P]eople are more creative when motivated primarily by innate interest in a task, rather than a goal imposed by others. Because freedom and personal autonomy increase intrinsic motivation, it follows that they also increase creativity.”); *see also* Gregory Mandel, *To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity*, 86 NOTRE DAME L. REV. 1999 (2011); Jeanne C. Fromer, *A Psychology of Intellectual Property*, 104 NW. U. L. REV. 1441, 1460 n.116 (2010); *see also* Johnson, *supra* note 18, at 624 (“Contrary to orthodoxy, the great driver of artistic and technological progress is not external, but internal. Call it inherent motivation. People have an intrinsic drive to create. Business firms have natural reasons for innovating. The idea of inherent motivation may be counter-intuitive, but the evidence is compelling.”).

77. Haslam, Adarves-Yorno, Postmes & Jans, *supra* note 23, at 392 (“[T]he nature of a person’s creative activity depends on the content of group norms and the degree to which those norms are self-defining. When their social identity is salient, individuals engage in forms of creativity that involve following ingroup norms; but when their personal identity is salient, their creativity involves departing from those norms. Importantly, this analysis helps explain why creativity can involve acceptance and rejection of normative practices, and divergent thinking.”); *see also* THERESA M. AMABILE, *CREATIVITY IN CONTEXT: UPDATE TO THE SOCIAL PSYCHOLOGY OF CREATIVITY* 37–38 (1996) (Conceptually we—and most of the field—still endorse the spirit of Morris Stein’s (1953) definition of creativity as ‘that process which results in a novel work that is accepted as tenable or useful or satisfying by a group at some point in time.’”).

understandings of that group membership. . . One direct implication of this for creativity is that when social identity is salient . . . , a person's creative behavior and their evaluation of the creative behavior of others are likely to be informed by group values, preferences, and norms.⁷⁸

Although diverging in details, other social psychological models also emphasize the interplay among culture, society, and the individual.⁷⁹ Humanistic psychologist Ruth Richards writes, for example:

In our interdependent society, the study of social creativity is on the rise, and participatory and collaborative structures have become an important focus. . . Interpersonal and interactive creativity becomes all the more intriguing, since the criteria for everyday creativity of (a) originality and (b) meaningfulness apply quite nicely to authentic interchanges in the moment—to what one might call creative encounter . . . Furthermore, the introduction of caring relationships into the creativity conversation . . . shows the universal importance of everyday creativity in human encounter.”⁸⁰

Even those social psychologists who focus primarily on enhancing creativity through the cultivation of intrinsic motivation concede “the motivational potential of extrinsic reinforcers, while emphasizing the importance of maintaining the highest levels of intrinsic motivation in order to facilitate creative accomplishment.”⁸¹ In ascertaining the optimal conditions and settings for creativity, one researcher notes the importance of a nearby social system (or at least an advocate) that values the relevant form of creativity, a rich motivational milieu, access to information and new

78. S. Alexander Haslam, Inmaculada Adarves-Yorno, Niklas K. Steffens & Tom Postmes, *Inspired and Appreciated by the Group: The Social Identity Approach to Creativity*, OXFORD HANDBOOK OF GRP. CREATIVITY & INNOVATION 118, 120 (Paul B. Paulus & Bernard A. Nijstad eds., 2019).

79. Mihaly Csikszentmihalyi, *Society, Culture, and Person: A Systems View of Creativity*, NATURE OF CREATIVITY: CONTEMP. PSYCH. PERSPS. 325 (Robert J. Sternberg ed., 1988).

80. Ruth Richards, *Everyday Creativity: Process and Way of Life — Four Key Issues*, CAMBRIDGE HANDBOOK OF CREATIVITY 189, 206 (James C. Kaufman & Robert J. Sternberg eds., 2010).

81. Regina Conti & Teresa Amabile, *Motivation/Drive*, ENCYCLOPEDIA OF CREATIVITY 251, 258 (Mark A. Runco & Steven R. Pritzer eds., 1999) (“[A]lthough intrinsic motivation is necessary for high levels of creativity, extrinsic motivation is not always detrimental. Some extrinsic motivation may combine loosely with intrinsic motivation and thus boost overall levels of creativity. The [motivational synergy] theory proposes that this is most likely when intrinsic motivation is initially high and when the extrinsic motivators are perceived as supporting, rather than limiting, autonomy and skill development.”).

perspectives, as well as the transmission of completed projects to responsive and nourishing audiences, among other factors.⁸²

Various IP legal scholars have begun to explore the critical importance of social belonging⁸³ and pro-social emotions⁸⁴ in creative endeavors and processes. For example, Betsy Rosenblatt has observed that “belonging [to a group] is a basic, perhaps innate, human need.”⁸⁵ Her review of pertinent social science literature leads her to conclude that:

[C]reative communities are often well-suited to developing belonging: they unite people around types of creative endeavors, and they provide opportunities for people to experience a sense of competence and accomplishment. It seems, however, that some sorts of creative communities are more likely than others to foster a sense of belonging: those that provide opportunities for recognition, collaboration, and status, and those that embrace shared norms and facilitate trust among members.⁸⁶

As Rosenblatt pithily concludes regarding the constitutional copyright goal of “Progress,” “Stuff Isn’t Everything”⁸⁷ and “Money Isn’t Everything Either.”⁸⁸

These findings align with core social motives theory, pioneered by social psychologist Susan T. Fiske.⁸⁹ Core social motives theory posits that “fundamental, underlying psychological processes . . . propel people’s thinking, feeling, and behaving in situations involving other people. [These]

82. David M. Harrington, *Conditions and Settings/Environment*, ENCYCLOPEDIA OF CREATIVITY 323, 326–339 (Mark A. Runco & Steven R. Pritzker eds., 1999); *see also* David M. Harrington, *The Ecology of Human Creativity: A Psychological Perspective*, THEORIES OF CREATIVITY 143 (Mark A. Runco & Robert S. Albert eds., 1990).

83. Betsy Rosenblatt, *Belonging as Intellectual Creation*, 82 MO. L. REV. 91 (2017).

84. Rebecca Tushnet, *Economies of Desire: Fair Use and Marketplace Assumptions*, 51 WM. & MARY L. REV. 513 (2009); Margaret Chon, *Emotions and Intellectual Property Law*, 54 AKRON L. REV. 529 (2021).

85. Rosenblatt, *supra* note 83, at 96 (“Belonging is a ‘personal and contextually-mediated’ emotion that people experience when they feel (a) ‘secure, accepted, included, valued, and respected’ by a group; (b) ‘connected [] or integral to the group’; and (c) that their ‘values are in harmony’ with the group.”) (citations omitted).

86. *Id.* at 104.

87. *Id.* at 126.

88. *Id.* at 128. As Rosenblatt goes on to observe: “Valuing economic incentives while ignoring emotional ones such as belonging undervalues the multi-faceted nature of individual motivation and warps social concepts of who can be a creator by artificially dividing the world into corporate ‘makers’ and individual ‘consumers.’” *Id.* at 129.

89. FISKE, *supra* note 23.

motives [include] belonging . . . [and] understanding.”⁹⁰ Across many communities and cultures, these core social motives of belonging and understanding result in shared social representations that help bind people together within specific innovation spaces.

The core motive of belonging is “the idea that people need strong, stable relationships with other people.”⁹¹ Fiske claims that “[b]elonging, as the motive that makes us emphatically social beings . . . [and] aids our social survival.”⁹² Indeed, as legal scholars have pointed out in other contexts, belonging to a group is arguably a deep-seated and universal human need, the absence of which can and will render an individual as bereft as lack of food or water.⁹³

Most pertinent to IP and its mandate of encouraging creativity and inventiveness, Fiske claims that “[a]s people struggle to understand and make sense of their world, they share their theories with other people in an effort to reach agreement” resulting in “social representations” or “group meaning.”⁹⁴ Although core motive theory explores motives other than belonging and understanding,⁹⁵ these two motives are particularly relevant to a robust theory of relational innovation. The innate drive to belong to a group and to share (as well as to challenge and re-make) understandings within that group is an important catalyst of human creativity.

Drawing from various related strands of cultural and social theory, Madhavi Sunder similarly has claimed:

Learning by doing has a social dimension. [Economist Kenneth] Arrow describes the role played by personal contacts in the transmission of knowledge, as familiarity and trust facilitate

90. *Id.* at 12.

91. *Id.* at 15. This fundamental motive of belonging is driven more by affective responses than by cognitive responses and forms the basis for the other core motives that Fiske proffers, which are more cognition-based.

92. *Id.* at 21.

93. Danieli Evans, *Institutionalized Ostracism*, 29 MICH. J. RACE & L. (forthcoming 2024). Evans examines how belonging (and its flip side, ostracism) pervades different areas such as housing, education, and employment and concludes that “addressing institutionalized ostracism should be a compelling government interest—a responsibility of government as important as protecting people from physical violence.” *Id.*

94. FISKE, *supra* note 23.

95. *Id.* at 15. The full list of core motives includes “controlling, self-enhancing, and trusting,” in addition to belonging and understanding. Fiske sees these five as one of several possible interpretations of core motives; the list could be longer or shorter, depending upon the perspective of the researcher. *Id.* at 13; see also Gregg Henriques, *The BUC(k)ET Model of Core Social Motives*, PSYCH. TODAY (Feb. 6, 2024), <https://www.psychologytoday.com/intl/blog/theory-of-knowledge/202402/the-bucket-model-of-core-social-motives>

knowledge disclosure and acceptance. Individuals share knowledge through mentoring and apprenticeships with people they know and trust. Personal relationships can override efficiency in knowledge markets. As Arrow concludes, “The production of knowledge is thus basically different in character from the production of goods.”⁹⁶

In addition, Jessica Silbey’s ethnographic research underscores that the cultural characteristics of a specific creative communities, such as a community of professional photographers, may frame social norms and understandings that align with or diverge from copyright’s legal framework.⁹⁷ Peter Jaszi and Patricia Aufderheide have worked with specific creative communities, such as documentary film-makers, to create fair use norms and standards that can provide certainty in the face of the fair use doctrine’s famous ambiguity.⁹⁸ And Andres Sawicki sheds light on the importance of the specific “evaluators” within communities of “makers” that determine the path of creative progress.⁹⁹

These sociolegal and community-based models share the view of innovation as necessarily social and iterative, that is, arising within and from specific creative communities. They demonstrate that individual creativity is necessarily exercised within a group and that one of the quintessential human desires is to create meaning together with others, not by ‘bowling alone.’¹⁰⁰ Yet the paradigmatic, persistent, and ultimately misleading meme of innovation is of the lone genius plunking away on a typewriter (or keyboard), hoping someday to be a best-selling author—with little regard to the community in which that genius is situated.¹⁰¹

Returning to Pam’s article on tinkering, although one might visualize tinkering as a single person in a garage trying to fix a problem by themselves, it

96. Madhavi Sunder, *Intellectual Property in Experience*, 117 MICH. L. REV. 197, 235 (2019) (quoting Kenneth J. Arrow, *Classificatory Notes on the Production and Transmission of Technological Knowledge*, AM. ECON. REV., May 1969, at 29, 34).

97. JESSICA SILBEY, *THE EUREKA MYTH: CREATORS, INNOVATORS, AND EVERYDAY INTELLECTUAL PROPERTY* (2014).

98. PETER JASZI & PATRICIA AUFDERHEIDE, *RECLAIMING FAIR USE: HOW TO PUT BALANCE BACK IN COPYRIGHT* (2018).

99. Sawicki, *supra* note 64.

100. ROBERT T. PUTNAM, *BOWLING ALONE: THE COLLAPSE AND REVIVAL OF AMERICAN COMMUNITY* (2000); Lulu Garcia-Navarro, *‘The Interview:’ Robert Putnam Knows Why You’re Lonely*, N.Y. TIMES (July 13, 2024), <https://www.nytimes.com/2024/07/13/magazine/robert-putnam-interview.html>.

101. *Accord* Bair & Pedraza-Fariña, *supra* note 64, at 263 (“Humans are social animals, and despite the persistent myth that innovation is primarily the domain of the lone genius, innovation increasingly occurs in group settings like university research labs, startups, and large research firms.”).

is a highly socially embedded activity. I'll try to illustrate this with a tinkering experience of my own. Last summer, we had an accidental jibe while sailing on Lake Union in Seattle—and the boom broke off from the traveler car. (For readers unfamiliar with sailing lingo, this meant that we could not control the sail and we were a danger to ourselves and others on the lake.) Fortunately, after we got the boat under control and made it back home safely, we were able to figure out how to fix what was broken. The original manufacturer no longer supplied the critical (presumably patent protected) part, so we consulted the (presumably copyright protected) owner's manual and on-line discussion groups. This was the first step, but the process didn't stop there. Another crucial step was talking to employees at the local stores that catered to boat owners and that carried boating supplies, then to their recommendations such as local machine shops and rigging shops. After various discussions with experienced individuals who had worked with boat parts all their lives (and the inevitable trial and error), the boom was re-attached to the traveler, albeit in a way that was different from the original.

This demonstrates the interplay between codified and tacit knowledge, as well as personal and collective knowledge. It also shows the significance of permitting the flow of information across these different knowledge realms to reach an innovative solution to a problem. Of course, this example may be more apt for a patent or trade secret innovation conversation because it implicates the right to repair.¹⁰² But Pam argues that with the onset of copyright-protected software and other types of quasi-functional creative works, tinkering should not be actionable as copyright infringement either.¹⁰³ The informal information exchanges involved with tinkering and other innovative activities may be much more pervasive than the transactions of codified knowledge that are often the lodestar of intellectual property decisions. And they often lead to innovative insights that move the needle forward on our collective body of knowledge.

102. Samuelson, *Freedom to Tinker*, *supra* note 11, at 599. Aaron Perzanowski & Jason Schultz, *Digital Exhaustion*, 58 UCLA L. REV. 899, 913–15 (2011) (arguing that copyright exhaustion historically covers the right to repair).

103. Samuelson, *Freedom to Tinker*, *supra* note 11, at 594. Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575, 1650 (2002) (“For the traditional subject matters of copyright law, namely, artistic and literary works, reverse engineering has not been an issue because viewers and readers do not need to reverse-engineer these works to understand them. Yet as copyright’s subject matter expanded to include computer software, reverse engineering became a significant policy issue in copyright law as well.”); *see also* Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1993) (finding that reverse engineering software is fair use).

In *Freedom to Tinker*, Pam draws upon the well-developed literature on user-innovation and notes that

[Andrew] Torrance and [Eric] von Hippel coined the phrase ‘innovation wetlands’ to suggest . . . that legislation and other forms of regulation can have a “significant *negative* impact” on the “fragile” innovation ecosystem that enables user innovation to flourish.¹⁰⁴

While the environmental metaphor of “innovation wetlands” powerfully conveys the importance of the protecting the overall knowledge eco-system (or put another way, cultivating a robust public domain), it arguably reinforces our relative nonchalance towards human relational concerns. Both our information environment *and* our social relationships with each other are fragile. The core policies of copyright law ought to recognize the fundamental importance (and fragility) of both.

As I have written previously, “we may overestimate the potential of content (digital or otherwise) by itself to promote knowledge. Creating content and creating knowledge are vastly separate projects.”¹⁰⁵ Creating knowledge depends upon healthy, robust, and trust-infused social relations within a community. Harry Collins terms some of what is discussed here collective tacit knowledge and refers to a strong version of this as “Social Cartesianism” by which he means “[t]he collectivity, rather than the individual, is the location of the knowledge.”¹⁰⁶ Regardless of whether one subscribes to this or to less strong views of tacit knowledge, it is fair to say that we think (and tinker) together, therefore we are.

V. POSSIBLE DOCTRINAL DIRECTIONS

If this argument in favor of recognizing relational innovation is (or mostly is) persuasive, then what is next? Justice Breyer’s concern with “the risk of creativity-related harms to the public”¹⁰⁷ expresses the undue burden placed on socially embedded activities within particular creative communities, i.e., relational innovation, through the over-protection of copyright. But this

104. Samuelson, *Freedom to Tinker*, *supra* note 11, at 566 (quoting Andrew W. Torrance & Eric von Hippel, *The Right to Innovate*, 2015 MICH. ST. L. REV. 793, 802).

105. Margaret Chon, *Sticky Knowledge and Copyright*, 2011 WIS. L. REV. 177, 185. “In short, people and their relationships—including their quirks and their ability to connect, as well as their possible disconnects—are critical for knowledge diffusion” and ensuing follow-on innovation. *Id.* at 192; *see also* Eric von Hippel, “*Sticky Information*” and the Locus of Problem Solving: *Implications for Innovation*, 40 MGMT. SCI. 429, 430–31 (1994).

106. HARRY COLLINS, TACIT AND EXPLICIT KNOWLEDGE 59 (2010).

107. *Google LLC v. Oracle America, Inc.*, 593 U.S. 1, 40 (2021).

concern—now apparently a required part of the fair use analysis—finds an uneasy home within the fourth fair use factor, which is primarily concerned with market-based harms to the copyright holder. The fourth factor does not explicitly weigh market harms against benefits to innovation communities. In other words, the *Google* majority was missing a doctrinal tool because there is currently no welcoming space in the statute or extant caselaw for the acknowledgement of relational innovation values.

Where might courts find a legal hook for these public policy concerns? In the U.S. context, at least three possibilities are obvious candidates. One is to expand the constitutional understanding of the Progress Clause, which arguably, courts have already done. For example, the *Google* decision itself begins with a pronouncement of the Progress Clause with some additional gloss beyond its plain text:

Copyright and patents, the Constitution says, are to “promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” Art. I, § 8, cl. 8. Copyright statutes and case law have made clear that copyright has practical objectives. It grants an author an exclusive right to produce his work (sometimes for a hundred years or more), not as a special reward, but in order to encourage the production of works that others might reproduce more cheaply. At the same time, copyright has negative features. Protection can raise prices to consumers. It can impose special costs, such as the cost of contacting owners to obtain reproduction permission. *And the exclusive rights it awards can sometimes stand in the way of others exercising their own creative powers.*¹⁰⁸

108. *Id.* at 1195 (emphasis added); *see also id.* at 1203 (“To the extent that Google used parts of the Sun Java API to create a new platform that could be readily used by programmers, its use was consistent with that creative ‘progress’ that is the basic constitutional objective of copyright itself.”).

In these sections of the majority opinion, the Court echoes Pam’s concluding words in *Unbundling Fair Uses*:

Copyright law promotes the public good by protecting authors and other rights holders from uses of their works that unfairly appropriate the commercial value of their work. But copyright also promotes the public good when subsequent authors are able to draw upon existing works in making and preparing to make new works, when members of the public are able to use copyrighted materials in a way that allows them to make a range of reasonable uses that pose no meaningful likelihood of harm to the markets for protected works, and when developers of new technologies provide new opportunities for the public to make such reasonable uses.

Samuelson, *Unbundling Fair Uses*, *supra* note 37, at 2617.

Imbuing the Progress Clause with substantive meaning is an important and already established mode of constitutional interpretation. The Court has interpreted key terms of this clause, such as “Authors” and “Writings.”¹⁰⁹ Similarly, the Court could recognize and articulate an understanding of relational innovation within the instrumentalist term “Progress of Science.” What if, rather than simply acknowledging that copyright can be an impediment to creativity, as in the quote above, courts affirmatively state that the progress of “Science” is furthered through encouraging and supporting relational innovation?

A second, constitutionally avoidant, approach would embed relational innovation concerns into a fifth fair use factor since, as Pam and others have noted,¹¹⁰ the legislative history to the 1976 Act does not foreclose the development of additional factors.¹¹¹ The statute’s four statutory factors are non-exclusive, and Congress foresaw that the courts would continue to develop and shape fair use doctrine through the common law-making process.¹¹² In practice, however, courts do not frequently move beyond these factors.¹¹³ So while this is doctrinally feasible, it is perhaps a less viable path

109. Edward Lee, *Prompting Progress: Authorship in the Age of AI*, FLA. L. REV. (forthcoming) (relying on constitutional interpretations of authorship to argue that “Author” should be construed to include AI-assisted human creativity); cf. Christophe Geiger, *Reconceptualizing the Constitutional Dimension of Intellectual Property*, INTELLECTUAL PROPERTY AND HUMAN RIGHTS (Paul Torremans ed., 2020) (linking IP with the universally recognized right to culture and science).

110. Samuelson, *Unbundling Fair Uses*, *supra* note 37.

111. “The bill endorses the purpose and general scope of the judicial doctrine of fair use, but there is no disposition to freeze the doctrine in the statute, especially during a period of rapid technological change. Beyond a very broad statutory explanation of what fair use is and some of the criteria applicable to it, the courts must be free to adapt the doctrine to particular situations on a case-by-case basis.” H.R. REP. NO. 94-1476, at 65–66 (1976), *quoted in* Samuelson, *Unbundling Fair Uses*, *supra* note 37).

112. RESTATEMENT OF THE LAW, COPYRIGHT, ch. 6, § 6.12 cmt. a, at 3 (AM. L. INST., Draft Apr. 2024) (“The use of the word “include” in the statutory language means that the fair use inquiry, the “equitable rule of reason” referred to in the legislative history, is not necessarily exhausted in a particular case through consideration of the four statutory factors, and that courts can consider other factors when relevant.”).

113. According to copyright scholar Lydia Loren, at least two reported decisions have articulated a factor beyond the four statutory factors. *DC Comics Inc. v. Unlimited Monkey Bus.*, 598 F. Supp. 110, 119 n.2 (N.D. Ga. 1984) (considering as a “fifth factor” weighing against fair use that defendant’s skits “have been sold on the strength of their association with plaintiff’s originals, not on the strength of defendant’s imagination and originality”); *Wojnarowicz v. Am. Fam. Assn.*, 745 F. Supp. 130, 146 (S.D.N.Y. 1990) (“[I]t is highly significant to the scope of fair use that plaintiff accepted public funds to support his artwork. This fact broadens the scope of the fair use exemption because of the strong public interest, protected by the First Amendment, in free criticism of the expenditure of federal funds.”).

forward. Nonetheless, given the heavy weight that the existing fair use factors place on market-based harms, courts might express relational harms via a separate factor.

A third possibility is to embed the relational innovation value in the analysis of all four of the existing statutory factors. This approach resembles the structure of the *Google* opinion itself, which threaded its public interest concerns into each of the four factors, ending with a factor four exclamation point regarding “the public benefits [of] copying.”¹¹⁴ In its discussion of the first fair use factor, which instructs courts to evaluate the purpose and character of the use, the Court states that “Google . . . provided a new collection of tasks operating in a distinct and different computing environment”¹¹⁵ and that the jury heard that the “reimplementation of interfaces is necessary *if programmers are to be able to use their acquired skills*”¹¹⁶— and thus finds that Google’s use of the APIs was transformative.

With respect to the second fair use factor, the nature of the work, the Court observes that,

[u]nlike many other programs, its value in significant part derives from the value that those who do not hold copyrights, namely, *computer programmers, invest of their own time and effort to learn the API’s system. And unlike many other programs, its value lies in its efforts to encourage programmers to learn and to use that system so that they will use (and continue to use) Sun-related implementing programs that Google did not copy.*¹¹⁷

And as to the third factor, the amount and substantiality of the portion used, the Court notes that

Google copied those lines not because of their creativity, their beauty, or even (in a sense) because of their purpose. It copied them

Email from Lydia Loren, Professor of L., Lewis & Clark L. Sch., to Margaret Chon, Donald & Lynda Horowitz Endowed Chair for the Pursuit of Just., Seattle Univ. Sch. of L. (Feb. 24, 2024) (on file with author).

114. *Google LLC v. Oracle America, Inc.*, 593 U.S. 1, 26–40 (2021). Amanda Levendowski notes that pre-*Google* courts have toggled between the first and fourth fair use factor as a locus for articulating the “public benefits” sub-factor, and that a post-*Google* case, *Am. Soc’y for Testing & Materials v. Public.Resource.Org, Inc.*, No. 22-7063, 2023 WL 5918491 (D.C. Cir. Sept. 12, 2023), analyzes “public benefits” under factor one. Levendowski, *supra* note 31.

115. *Google*, 593 U.S. at 31.

116. *Id.* (emphasis added). “If the API labels change, then either the software wouldn’t continue to work anymore or the developer . . . would have to learn a whole new language to be able to use these API labels.”

117. *Id.* at 28–29 (emphasis added).

*because programmers had already learned to work with the Sun Java API's system, and it would have been difficult, perhaps prohibitively so, to attract programmers to build its Android smartphone system without them.*¹¹⁸

These are clear judicial statements about the need for and value of personal learning and resultant relational innovation. They assign the increased value of the copyright-protected work to the personal uses that are made by the public of that work, in order to produce follow-on innovation. Conversely, a literal 'if value, then right'¹¹⁹ approach to IP inevitably ignores or minimizes the myriad benefits and interests that attach to the non-enforcement of those rights, whether they flow from applying an exception, limiting IP's scope, or raising a successful defense. This Essay advocates a pervasive approach towards the "public benefits" analysis, so that these benefits are considered holistically within each of the fair use factors against potential market harms to the copyright holder. By contrast, if a court confines its "public benefits" analysis to fair use factor four, with that factor's unilateral focus on market harms, it may be more likely to find against fair use. For example, in a post-Google case, *Hachette Book Group v. Internet Archive*, the district court found against fair use, based wholly on factor four.¹²⁰

Following the lead of the *Google* majority, courts could begin to articulate more explicitly the concept of relational use, which expresses the freedom to learn and to exchange knowledge within all sorts of innovation communities, rather than treating the software development community as exceptional. Such a judicial gloss would be akin to the transformative use concept that has so powerfully shaped the first fair use statutory factor,¹²¹ in turn influencing each of the other three factors. Few recent developments in the fair use doctrine are more important than this mandate in *Google* to rebalance fair use factors in the direction of the public interest in this (and possibly other) ways.

118. *Id.* at 34 (emphasis added).

119. Dreyfuss, *supra* note 62; see also Brett M. Frischmann, *Evaluating the Demsetzian Trend in Copyright Law*, 3 REV. L. & ECON. 649 (2006).

120. *Hachette Book Grp., Inc. v. Internet Archive*, 1:20-cv-04160-JGK (S.D.N.Y. Mar. 24, 2023).

121. Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1111 (1990). In *Google*, the majority discussed this judicial gloss in this manner: "Commentators have put the matter more broadly, asking whether the copier's use 'fulfill[s] the objective of copyright law to stimulate creativity for public illumination.' In answering this question, we have used the word 'transformative' to describe a copying use that adds something new and important." 593 U.S. at 29 (citation omitted) (quoting Leval, *supra*); see also *Andy Warhol Found. for Visual Arts, Inc. v. Goldsmith*, 598 U.S. 508 (2023) (interpreting the scope of transformative use in the context of a work of visual art).

Outside of the United States, jurisdictions have adopted enumerated exceptions and limitations, fair dealing provisions, or (in a few cases) a U.S.-style open-ended fair use provision.¹²² Arguably, some courts have expressed a relational innovation concern in their copyright jurisprudence. For example, the Canadian Supreme Court has interpreted its fair dealing statute to accommodate copying by teachers on behalf of their students.¹²³ Notably, some of the Justices criticized the Canadian Copyright Board, stating:

The teacher/copier shares a symbiotic purpose with the student/user who is engaging in research or private study. The Copyright Board's approach drives an artificial wedge into these unified purposes of instruction and research/private study by drawing a distinction between copies made by the teacher at the request of a student and copies made by the teacher without a prior request from a student. The word "private" in "private study" should not be understood as requiring users to view copyrighted works in isolation.¹²⁴

This is a judicial recognition of relational innovation in the traditional context of a formal educational learning community, which elevates the relationship of teachers and their students to a key copyright value. Analogously, the Delhi High Court has expansively interpreted its relevant educational exceptions to accommodate copying for educational purposes.¹²⁵ Within the European Union, some courts have stepped in "to clarify that 'exceptions' are not mere exceptions to a rule [of exclusive rights] but instead define positive, enforceable rights to use copyrighted works in certain circumstances."¹²⁶

In the multilateral context, Tanya Aplin and Lionel Bently have persuasively argued that "the quotation exception in Article 10 of the Berne

122. *See generally* COPYRIGHT IN AN AGE OF LIMITATIONS AND EXCEPTIONS (Ruth L. Okediji ed., 2017).

123. *Alberta (Educ.) v. Can. Copyright Licensing Agency (Access Copyright)*, [2012] 2 S.C.R. 345 (Can.).

124. *Id.* at ¶ 23. *Alberta (Minister of Educ.) v. Can. Copyright Licensing Agency*, 2012 SCC 37, 2012 CSC 37, 2012 CarswellNat 2419.

125. *The Chancellor, Masters & Scholars of the Univ. v. Rameshwari Photocopy Services*, 233 (2016) DLT 279 (subject to overrule by the Indian Supreme Court).

126. Christophe Geiger & Bernd Justin Jütte, *Copyright as an Access Right: Concretizing Positive Obligations for Rightholders to Ensure the Exercise of User Rights*, WOLTERS KLUWER COPYRIGHT BLOG (Mar. 13, 2024), <https://copyrightblog.kluweriplaw.com/2024/03/13/copyright-as-an-access-right-concretizing-positive-obligations-for-rightholderstoensure-the-exercise-of-user-rights/>) (citing to *Funke Medien v Bundesrepublik Deutschland* (<https://curia.europa.eu/juris/liste.jsf?num=C-469/17>)).

Convention constitutes a global mandatory fair use provision.”¹²⁷ This minimum standard, incorporated by reference into the TRIPS addendum to the WTO, states that:

It shall be permissible to make quotations from a work which has already been lawfully made available to the public, provided that their making is compatible with fair practice, and their extend does not exceed that justified by the purpose, including quotations from newspaper articles and periodicals in the form of press summaries.¹²⁸

Aplin and Bently explore the various possible meanings of “fair practice” in Article 10(1) and state that “[t]he reference to fair practice potentially invokes notions of distributive justice—that is, the fair allocation and reallocation of resources in society.”¹²⁹ I have argued separately that Berne Article 10(2)’s teaching exception provides a similar multilateral-sanctioned space to express values related to teaching and learning.¹³⁰ These are all expressions of the considerable public interest in copyright law.¹³¹

And of course, the doctrinal recognition of relational innovation is not confined to fair use or fair dealing. It is omnipresent in assessing the correct scope of copyright as well as its other exceptions and limitations such as the first sale doctrine.¹³² Many spaces exist within treaty, statutory, and common law to allow courts to reach beyond their current, almost unilateral focus on market values¹³³ and recognize the fundamental importance of relational innovation and other public benefits.

VI. CONCLUSION

Creativity and innovation depend upon human relationships within specific innovation communities—and these relationships must be recognized, nurtured, and protected in important part because of the deeply human and

127. Aplin & Bently, *supra* note 7.

128. Berne Convention, *supra* note 7.

129. Aplin & Bently, *supra* note 7, at 163. *See generally id.* at 163–67.

130. Margaret Chon, *Copyright and Capability for Education: An Approach ‘from Below’*, INTELLECTUAL PROPERTY AND HUMAN DEVELOPMENT: CURRENT TRENDS AND FUTURE SCENARIOS 218 (Tzen Wong & Graham Dutfield eds., 2010).

131. Along these lines, IP legal scholars such as Lateef Mtima argue in favor of IP values that promote access, inclusion, and empowerment. Lateef Mtima, *IP Social Justice Theory: Access, Inclusion, and Empowerment*, 55 GONZ. L. REV. 401, 416 (2019); *see also* JESSICA SILBEY, *AGAINST PROGRESS: INTELLECTUAL PROPERTY AND FUNDAMENTAL VALUES IN THE INTERNET AGE* (2023) (arguing for greater recognition of equality, privacy, and distributional justice values within IP).

132. 17 U.S.C. § 109(a).

133. *See generally* Chon, *Prioritizing*, *supra* note 63.

fundamental need to connect and communicate with others, within and across borders.¹³⁴ Hopefully this essay has highlighted some of the reasons identified by Pam and others as to why building and nurturing communities of tinkerers are of utmost importance and relevance to IP law and policy.¹³⁵ The legal community, including our IP community, is comprised of highly skilled tinkerers. Not coincidentally, our community is characterized by relational innovation at its best, made possible only by general non-enforcement of copyright. In this way, it is an apt illustration of the larger social policies that Pam and many others have advocated for in the half century since the 1976 Copyright Act went into effect.

We recognize Pam through her important advocacy on behalf of the public interest values in copyright as well as her consistent care for relationships within an IP scholarly community that endeavors to inform copyright law with the best social science knowledge available as copyright faces twenty-first century challenges. In short, Pam's support of so many in the IP community has resulted in an enormous amount of creative generativity characterized by two touchstones of relational innovation: a sense of collective belonging and freely shared (albeit frequently contested) understandings.

134. Haslam, Adarves-Yorno, Postmes & Jans, *The Collective Origins of Valued Originality*, *supra* note 23, at 384 (“Yet one could argue that there is a more fundamental importance to creativity, stemming from its functions for humans as a species. For humans possess specific abilities that separate them from other animals in nonphysical ways. In particular, over the course of their evolution, humans have evolved a capacity for culture. As a result, human societies are defined by embedded sets of shared norms and values that serve to create shared meaning for their members . . .”).

135. Samuelson, *Freedom to Tinker*, *supra* note 11, at 598 (“[I]t often makes competition and ongoing innovation more possible. But it also enables freedom of thought, study, inquiry, self-expression, diffusion of knowledge, and *building a community of highly skilled tinkerers*. In addition, freedom to tinker fosters privacy, autonomy, human flourishing, and skills-building interests of tinkerers.”) (emphasis added); *cf.* Margaret Chon, *Postmodern ‘Progress’: Reconsidering the Copyright and Patent Power*, 43 DEPAUL L. REV. 97, 145 (1993) (advocating for a “‘free use of faculties,’ as a type of property right (and as a type of civil right . . . [within a] commons of knowledge held in stewardship by the courts and guarded by them against over-appropriation”).

