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"Advancing Collaborative Strategy for Achieving Excellence"

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Protecting Intellectual Works of Public Universities Through Patent and Copyright: Is It a Better Approach for Access to Knowledge?

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ABSTRACT²⁵

The present paper discusses the current trend of some developing countries' public universities in their effort to achieve internationally recognised standard by increasing the number of published and patented works. Such intellectual works are protected under intellectual property (IP) regimes, particularly copyright and patent. This paper focuses on whether or not the protection of such intellectual works resulted from public universities are inline with the philosophical foundation of IP protection, including copyright and patent and inaccordance with the main mission of public university. It includes the history of protecting academic works under IP regimes in the developed nations and the current development of such protections. It analyzes the potential problems from the perspective of access to knowledge, innovation, research material, and public goods. Furthermore, this paper also analyzes whether or not protecting of such accademic works is a better approach for accomodating the University's interest in the publication and patent, as well as access to knowledge.

"A university should be a place of light, of liberty, and of learning".

Benyamin Disraeli,

Address to the House of Common, 1873²⁶

Introduction

The protection of academic works under intellectual property (IP) regime, particularly by a number of universities in developed countries is not a new emerging issue in the area of intellectual property rights (IPR). Nowadays there has been a huge concern

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²⁵ This paper is presented at the Association of Southeast Asian Institutions of Higher Learning (ASAIHL) 2013 International Conference, conducted at Universitas Airlangga, Surabaya, 30 April-3 May 2013.

²⁶ As cited in John Barlett, Familiar Quotation 502 (Emily Morison Beck ed., 15th ed. 1980) innTraci Dreher Quigley, "Commercialization of the State University; Why the Intellectual Property Protection Restoration Act of 2003 is Necessary", (2004) 152 U. Pa. L. Rev. 2001-2031.

among the scholars that protecting IPR of academic works to some extent does not easily meet the mission of university. In fact, in the area of copyright, some argue that copyright of academic works should be eliminated²⁷ because access to knowledge should be easier. While in the area of patent, some also argue that patenting the reasearch material and tool may inhibit further innovation.²⁸ The following sections discuss those issues.

Philosophical Foundation of Patent and Copyright

There are two arguments for justifying copyright. The first is the utilitarian-based theories which emphasize on ways of promoting the creation and the dissemination of new cultural and artistic objects. The second is natural right theories which believe that copyright ought to exist because it is appropriate to do without considering regulatory techniques to promote social, cultural and economic goals.²⁹

One of the most common utilitarian justifications for the protection of copyright usually refers to an incentive theory. Under this theory, copyright is provided as an incentive for third parties to invest in the creation, the production, and the dissemination of copyright works that bring benefit for the society. This incentive argument is based on the fact that the production of copyright works, like books, softwares, CDs or films, is usually very expensive. One way to return the initial investment is to charge very high prices because the number of copies is limited. However, this model has weaknesses because when such objects as books and films are sold in the market, they can easily be copied. If these works are not protected by copyrights, competitors and consumers can copy the products which are available in the market.

Books, CDs, films, softwares, etc, are originally produced from the author's thoughts; therefore, a right to recognize the property is called copyright. This argument rejects the idea that copyright is granted for the greater public interests as it is described by under the landmark decision of *Millar v Taylor*, stating that "it is not agreeable to the natural justice that a stranger should reap the pecuniary produce of another's work".³⁰ At the international level, this natural right theory is found at the Universal Declaration of Human Rights, which states that "everyone has the right to protection of the rnoral and material interests resulting from scientific, literary or artistic production of which (she) or he is the author."³¹

While in the area of Patents, the forms of IPR are regarded as the main vehicle for economic progress.³² As a result many countries have been attracted to introduce a patent system.³³ The outstanding IP academics, William Cornish and David Llewelyn,

²⁷ Steven Shavell, "Should Copyright of Academic Workd be Abolished?" (2010) 2 *Journal of Legal Analysis* 301-358.

²⁸ See Michele Boldrin and David K. Levine, *Against Intellectual Monopoly*, Cambridge University Press, New York, 2008.

²⁹ Mark J. Davison, Ann L. Monatti, and Leanne Wiseman, *Australian Intellectual Property Law*, (Cambridge, University Press, 2008) 187.

³⁰ *Ibid.*

³¹ Article 27 (2).

³² According to Carvalho, social welfare and economic growth depend, in part, on technological innovation, which not only facilitates a more efficient utilisation of scarcely available resources, but also provides access to new resources. See in Nuno Pires de Carvalho, *The TRIPs Regime of Patent Rights* (2nd ed, Kluwer Law International, the Hague 2005).

³³ See generally in William Cornish and David Llewelyn, *Intellectual Property; Patent, Copyrights, Trade Marks and Allied Rights* (6th ed, Sweet & Maxwell, London, 2007) 120.

state that a patent provides 'two kind of impetus towards the technical efficiency, and hence the growing wealth, of the community as a whole'.³⁴ They further state that it can provide information related to the invention for the industry and public,³⁵ and through this information a patent encourages inventions and the subsequent innovative works. Later, the patent will put those inventions in practical use.³⁶

Similarly, Australian prominent academics, Jill McKeough, Kathy Bowrey and Philip Griffith highlight the potential benefit of a patent as summarised from the Second Reading Speech on the Patents Amendment Bill 1981 of Australia. It states that: The main purpose of a patent system is to stimulate industrial invention and innovation by granting limited monopoly rights to inventors and by increasing public availability of information on new technology. Patent procedures must achieve a balance among competing interest while remaining administratively workable.³⁷

In the USA, the Constitution had justified the enactment of patent legislation 'to promote the progress of science and useful arts'.³⁸ According to Eisenberg, the Court emphasized on the two mechanisms in analysing how patents promote scientific progress.³⁹ Firstly, patent monopoly provides an incentive to invest in research to make new inventions. Secondly, a patent system promotes disclosure of new inventions and thereby broadens the public storehouse of knowledge.⁴⁰

Social benefits are the fundamental premise of the patent system.⁴¹ Roger Blair and Thomas Cotter argue that: The society benefits when people conceive of new inventions; develop and commercialise new products incorporating those inventions (a process referred to as innovation, as distinct from invention); and publicly disclose information about their invention, so the others may learn from and improve upon those inventions.⁴²

Similarly, Graham Dutfield recognises that the existence of IPR primarily gives benefit to society.⁴³ The IPR especially patents are means for economic advancement that should contribute to the enrichment of society.⁴⁴ However, this social benefit of patents can only be achieved if the claimed invention is fully disclosed to the public during the registration processes.

³⁴ *Ibid* 134.

³⁵ *Ibid*.

³⁶ *Ibid*.

³⁷ Jill McKeough, Kathy Bowrey and Philip Griffith, *Intellectual Property; Commentary and Materials* (4th ed, Lawbook Co, Pyrmont, NSW, 2007) 313. Furthermore, they states that: The essence of the patent system is to encourage entrepreneurs to develop and commercialise new technology... Since a patent confers a limited monopoly over the use of the patented technology, the patent owner has the opportunity to make a profit from it, gaining a return on investment in innovation. The international character of the patent system makes a patent a useful tool in penetrating export markets.

³⁸ The US Constitution, Art I, § 8, cl 8.

³⁹ Rebecca S. Eisenberg, 'Patent and the Progress of Science; Exclusive Rights and Experimental Use' in David Vaver III (ed), *Intellectual Property Rights; Critical Concepts in Law* (Routledge, London, 2006) 84-144, 87.

⁴⁰ *Ibid*.

⁴¹ Roger D. Blair and Thomas F. Cotter, *Intellectual Property Economic and Legal Dimensions of Rights and Remedies* (Cambridge University Press, Cambridge, New York, 2005) 13.

⁴² *Ibid*.

⁴³ Graham Dutfield, *Intellectual Property Rights and the Life Science Industries, A Twentieth Century History* (Ashgate, England and USA, 2003) 27.

⁴⁴ *Ibid*, as Dutfield states that: This societal enrichment is provided by patent through the widest possibility availability of new and useful goods, services and technical information that derive from inventive activity, and the highest possible level of economic activity based on production, circulation and further development of such goods, services and information.

Despite those benefits, initially, the patent system also embodies principles of equity. Cornish and Llewelyn state that at various periods, patents have played a role as instruments of justice to the inventor.⁴⁵ They maintain that the 'social contract'⁴⁶ between the patentee and the inventor to disclose an invention to the public and in return to the exclusive monopoly granted to the inventor in the limited period of time, which exhibits a principle of equity.⁴⁷ This social contract lies in the administration process for granting patents.⁴⁸ The adoption of the social contract theory into the patent system was conducted by French economists like De-Bouffler and Louis Wolowski.⁴⁹ In the essence they argue that: The patent system constitutes a genuine contract between society and the inventor. If society grants him a temporary guaranty, he discloses the secret which he could have guarded; quid pro quo, this is the very principle of equity.⁵⁰

Mission of Public University and its Move towards "Enterprise University"

According to Burton A. Weisbrod, et al., the term of "mission" is commonly used for a higher education in which its meaning is simply assumed.⁵¹ Weisbrod also states that the concept and the mission in higher education have been written extensively by historians and philosophers of education.⁵² The majority of higher education's mission either in the developed or developing nations is to reach three social missions which include teaching, research and public service. These missions are also embraced by the American higher education today⁵³ as well as by the majority of developing countries' universities.

Teaching undergraduates has been traditional and it continues to be a primary goal of most universities even research universities. This research universities have the potential to contribute the achievement of a second element of the social mission of higher education, through performing basic research. This advances knowledge which is traditionally disseminated via publications for others to build upon currently transferred through patent, known as "technology transfer". Then, it is expected that the private firms has capacity to convert the knowledge into practice for the benefit of human life.

What is the most important for state-owned universities is social goal, that is public service. According to Weisbrod et al., it includes educating students not merely

⁴⁵ William Cornish and David Llewelyn, above n 9, 132.

⁴⁶ Meir Perez Pugatch (ed), *The Intellectual Property Debate; Perspective from Law, Economics and Political Economy* (Cheltenham, UK; Northampton, MA; Edward Elgar, 2006) 4.

⁴⁷ William Cornish and David Llewelyn, above n 9, 132.

⁴⁸ Mark J. Davison, Ann L. Monotti, and Leanne Wiseman, *Australian Intellectual Property Law* (Cambridge University Press, Melbourne, 2008) 10, states that: The registration process is meant to produce a social contract between the patentee and society by ensuring the full disclosure of the invention in return for which the patentee receive exclusive property rights in respect of their patent for a limited period of time. Upon the expiration patent, the invention becomes available for all to use and exploit for free.

⁴⁹ Meir Perez Pugath (ed), above n 22, 4.

⁵⁰ *Ibid.*

⁵¹ Weisbrod, Burton A, Jeffrey P. Ballou, Evelyn D. Asch, *Mission and Money; Understanding the University*, (Cambridge University Press, New York, 2008) 2.

⁵² See for example, Scott, John D, "The Mission of the University; Medieval to Post Modern Transformation," (2006) *Journal of Higher Education*, 77 (1);1-39.

⁵³ Weisbrod, above n. 27.

to increase their earning power but make them successful to give contribution to society. Besides, it includes recognizing a responsibility for bringing benefits to the larger community.⁵⁴

However, during the last two decades, some universities in both developed countries and developing countries including Indonesia have moved to "Enterprise University". This new institutional type constitutes a new phrase in the history of university. Marginson and Considine prefer to use the term "Enterprise University" rather than "academic capitalism", "entrepreneurial university", or "corporate university" although all of those terms have the same character that is "one dimensional institution solely dominated by profit-seeking, an organisational culture totally reduced to the business form".⁵⁵

Furthermore, Marginson and Considine argue that 'enterprise' captures both economic and academic dimensions and the manner in which research and scholarship survive. However, the 'enterprise' is now subjected to new competition and demonstrable performance. In addition, they argue:

Enterprise is as much as about generating institutional prestige as about income. In the Enterprise University, the economic and academic dimensions are both subordinated to something else. Money is a key objective, but it is also the means to amore fundamental mission: to advance the prestige and competitiveness of the university as an end in itself. At the same time, academic identities, in their variations, are subordinated to the mission, marketing and strategic development of the institution and its leaders.⁵⁶

One of the important characteristics of enterprise university is the establishment of IP and Transfer Technology Offices. These Offices are expanded to develop patents and licence for commercial purpose, and the universities are confronted by the question on how to manage the patents. Like enterprises, the universities would like to bring profit as much as possible to advance their mission. However, in practice, there has been disharmony between the mission to make knowledge available to all people and the search of the revenue from patents which usually require restrictive license.

Some examples can be noticed based on the condition above. The University of Minnesota rejected student pressures to use its patent control on an anti-AIDS drug, so that the licensee reduced its retail price in Africa.⁵⁷ Similarly, Harvard University rejected pressure to divest its investments on mutual funds and labour standards in factories in Asia.⁵⁸

Similarly to patent, in the area of copyright, the cost of copyright-protected materials and computer software, as the barriers in gaining access to texts and

⁵⁴ *Ibid.*, 3.

⁵⁵ Simon Marginson and Mark Considine, *The Enterprise University; Power, Governance and Reiventon in Australia*, (Cambridge University Press, Cambridge, UK, 2000) 4-5.

⁵⁶ *Ibid.*, 5.

⁵⁷ Weisbrod, Burton A, Jeffrey P. Ballou, Evelyn D. Asch, n. 27, 287-288.

⁵⁸ *Ibid.*

other teaching materials, also becomes the main concern of many scholars.⁵⁹ Since the universities and its academics tend to protect their intellectual works through copyright, there has been a question about access to knowledge.⁶⁰ This question has already become a big issue since 1960s before the conclusion of the Berne Convention in which developing countries acquire rights to translate books and materials into their own national languages and to acquire licences and reprint rights to publish books that were originally published elsewhere, or not distributed in Asia or Africa. Gaining concessions of both demands would not only assist transfer of knowledge, but make such materials much more accessible to students and teacher as well. Unfortunately, such concessions can not be concluded even after seven-year campaign to add an appendix to the Bern Convention.⁶¹

History of Protecting Academic Works under IP Regimes in the Developed Countries

The history of protecting academic works under IP regimes can not be divorced from the history of patenting publicly funded research in the United States. From 1960s to 1970s there was a very clear institutional boundary between commercial and non commercial research. However, it did not prevent the movement of valuable information, ideas, and scientists between commercial and non commercial research institution. Non commercial research (curiosity-driven research) focused on fundamental science and filed very few patents. The funding of this research was driven by peer-competition on the basis of scientific merit and reputation of individual researcher.⁶² This approach is inline with the current state of research policy that has been developed in developing countries including Indonesia. The result of fundamental research becomes a part of public domain through scientific scholarship and publications as the social norm promotes sharing of research materials.⁶³ In the United States, the Federal Government also promoted research to researchers at academic and non profit institution for the purpose of dissemination of discoveries. Besides, the ownership of the result was the property of the funding agencies. However, due to the differences of the policy on ownership and licensing among a number of government agencies, there was a few commercializations of the government-funded invention. This fact has occurred in Indonesia recently.

In addition to this, there was no incentive for industry that invests in non commercial research. Due to no incentive, the industry was reluctant to commercialise government-owned invention.⁶⁴ Consequently, the Bayh-Dole Act was passed by the Congress with the main objective to promote the result of academic and non profit

⁵⁹ Alan Story, "Don't Ignore Copyright, the "Sleeping Giant" on the TRIPs and International Education Agenda", in Peter Drahos and Ruth Mayne (eds), *Global Intellectual Property Rights; Knowledge, Access and Development*, (Plagrave and Oxfam, New York, 2002) 125-143

⁶⁰ *Ibid.*

⁶¹ *Ibid.*, 137.

⁶² Rachael A. Ream, "Non Profit Commercialization Under Bayh-Dole and the Academic Anticommons", (2008) 58 *Case Western Reserve Law Review* 1343, 1353.

⁶³ *Ibid.*

⁶⁴ *Ibid.*

research. Under this Act, the universities had a capacity to grant exclusives licences, and to patent the invention of research awarded from the federal.⁶⁵

After the Bayh-Dole Act of 1980 passed, major research universities and research institutions created technology transfer offices to promote the patenting of the research result. These offices have a number of functions, such as patenting and licensing the invention, building relationship with industry partners and negotiating the exchange of research materials and research tools.⁶⁶ Because of that, economists characterised the Bayh-Dole Act as “possibly the most inspired piece of legislation to be enacted in America over the past half-century”, and suggested that it “helped to reserve America’s precipitous slide into industrial irrelevance.”⁶⁷

The functions of the University Technology-Transfer Offices continue to increase annually. In addition, the Act has also provided a strong incentive for university-industry research collaboration to work together in the commercialization of new technologies for the benefit of public. It has promoted transfer of technology from universities to industry and, at the end, to public. In consequence, fundamental research is no longer passed directly into the public domain; otherwise, the non-commercial research institutions often patent the invention as the Act provides incentive for such patents.⁶⁸

The US approach above was followed by the European academies. Some countries like Denmark, Germany, Austria, and Norway, reformed their laws to provide more and less similar approach to the US Bayh Dole Act, that is to grant ownership to IPR on the invention derived from publicly funded research. Furthermore, other European countries considered similar reforms.⁶⁹

Intellectual Property Rights, Access to Knowledge, Innovation and Research Material

In the context of copyright and access to knowledge, Steven Shavell critically analyzes that academic copyright should be eliminated on the basis that free availability of academic work will provide social benefits.⁷⁰ Shavell argues as follows:

If copyright of academic works were ended, social benefit would be enjoyed with works that would still be published but that would otherwise have been copyrighted, and also with some of the works that would be published only because of the absence of copyright. In the absence of copyright, all these articles and books would presumably become instantly available on the internet for individuals to download freely. Also, print copies would often be produced and would sell for approximately production cost, due to competitive pressures.⁷¹

⁶⁵ Nicola Baldini, (2008) 75 (2) *Scientometrics*, 289–311, 289.

⁶⁶ Racheal A. Ream, above n. 38, 1355.

⁶⁷ *The Economist*, 2002: 3, as cited by Nicole Baldini, above n. 41, 290.

⁶⁸ Racheal A. Ream, above n. 38, 1359.

⁶⁹ Nicole Baldini, above n. 41, 290.

⁷⁰ Steven Shavell, above n. 3, 326.

⁷¹ *Ibid.*

Accordingly, without copyright, many new academic books would quickly become freely available and those books are moderately priced hardbacks or inexpensive paperbacks. Furthermore, teaching materials found in published works would be easy to be accessed for academics because the license would not have to be secured or royalties paid.⁷²

Interestingly, Shavell argues that eliminating academic copyrights is a good solution for public benefits. Furthermore, he states that universities should subsidise the publication fees.

While in the context of patent, since the Bayh-Dole Act was issued, the patenting of fundamental research or 'upstream' inventions has increased, particularly in the area of biotechnology. This upstream invention includes drug development by using genes, proteins, and animals for experiments, which are very frequently used as tools for the future inventions or discoveries. The increased patenting consequently serve to remove those tools from public domain, where they were freely available to the scientific community.⁷³

On the basis of this, there is a growing concern about the likely implication of patents hindering downstream research.⁷⁴ This concern can be seen for example in the case of Myriad Genetic in which advocates have questioned whether the broad coverage that Utah-based Myriad Genetic enjoys on its breast cancer gene patents gradually decreases the research in curing the breast cancer. This is because Myriad received two patents on diagnostic tests and treatments involving these genes. Myriad then was licensed to cooperate with several medical schools, universities, and hospitals, and through this licences those institutions had the rights to research breast cancer and its related issues. However, the scope of the licence is very limited. One of the examples is that the licence is confined only to laboratory research and does not extend to clinical settings. According to Jaffe and Lerner, many medical school researchers have been forced to throw away their research program due to the licensing terms. This condition has taken place since the first patent was granted in December 1997.

Michael A. Heller and Rebecca S. Eisenberg also argue that the recent rush in patenting will harm innovation by creating 'anticommons' that threaten innovation by raising the transaction costs of R & D.⁷⁵ By using the anticommons theory, Eisenberg argues that "too many patent rights on 'upstream' discoveries can stifle 'downstream' research and product development because there are increasing transaction costs and magnifying the risk of bargaining failures".⁷⁶ Eisenberg argues that "patent rights in some government-sponsored discoveries may actually be undermining, rather

⁷² *Ibid.*

⁷³ Racheal A. Ream, above n 38, 1359.

⁷⁴ See in Adam B. Jaffe and Josh Lerner, *Innovation and its Discontents: How Our Broken Patent System is Endangering Innovation and Progress and What To Do About It* (Princeton University Press, New Jersey, 2004) 17.

⁷⁵ Michael A. Heller and Rebecca Eisenberg, 'Can Patents Deter Innovation? The Anticommons in Biomedical Research' (1998) 280 *Science* 689, 689.

⁷⁶ RS Eisenberg, 'Bargaining over the Transfer of Proprietary Research Tools: Is This Market Failing or Emerging?' in R.C. Dreyfuss, (et al) (eds) *Expanding the Boundaries of Intellectual Property, Innovation Policy for the Knowledge Society* (Oxford University Press, Oxford, England, New York, 2001) 223-250, 226-29.

than supporting, incentives to develop new products and bring them to market".⁷⁷ Furthermore, he maintains that:

The patent system aims to promote scientific and technological progress by granting exclusive rights. But the enforcement of these exclusive rights against subsequent researchers can sometimes interfere with further progress in the field of inventions... That free access to prior discovery by subsequent researchers might be a more effective means of promoting progress... But as the line between basic and applied research becomes blurred in certain fields, patent protection increasingly threatens to encroach on the domain of research science.⁷⁸

To address this problem, Eisenberg suggests formulating the experimental use exceptions from patent infringement liability.⁷⁹

The use of experimentation or research exceptions is permitted under Article 30 of TRIPs. Many countries provide this exception, but the appropriate scope of this exception has been subject to intense debate among legal scholars. In the US, there is a statutory basis for the 'experimental use exception',⁸⁰ but it has been established based on case law using a very narrow term, only for 'philosophical experiments'.⁸¹

Madey v Duke⁸² reaffirmed the extremely narrow approach proposed by the Court of Appeals for the Federal Circuit.⁸³ Madey is a physicist who moved from Stanford University to Duke University. Madey had received two patents on 'free electron lasers' (FEL) while at Stanford. When Madey moved to Duke, this University built an FEL lab for Madey, including equipment protected by Madey's Patents. Madey had headed this lab for almost ten years, but later he was removed as the head of the lab and left Duke University. Because Duke continued to operate the FEL lab, Madey sued the University and claimed the infringement of the patent that he held from his work during at Stanford. On the basis that Duke established a patent policy that states that Duke is "dedicated to teaching, research, and the expansion of knowledge ... [and] does not undertake research or development work principally for the purpose of developing patents and commercial applications", the District Court found that the Duke FEL was covered by the experimental use exception. After that, the District Court granted Duke's request for a ruling for its favour. However, Madey appealed, and in this appeal the Court of Appeal for the Federal Circuit was held differently.

⁷⁷ Rebecca S. Eisenberg, 'A Technology Policy Perspective on the NIH Gene Patenting Controversy' (1994) 55 *U. Pitt. L. Rev.* 633, 640.

⁷⁸ Rebecca S. Eisenberg, 'Patent and the Progress of Science; Exclusive Rights and Experimental Use' in David Vaver III (ed), *Intellectual Property Rights; Critical Concepts in Law* (Routledge, London, 2006) 84-144, 121.

⁷⁹ *Ibid.*

⁸⁰ See Also Carlos M. Correa, 'Access to Plant Genetic resources and Intellectual Property Rights' in Peter Drahos, and Michael Blakeney (eds), *IP in Biodiversity and Agriculture; Regulating the Biosphere* (Sweet & Maxwell, London, 2001) 103-131, 122.

⁸¹ The opinion of the Supreme Court Justice Story in *Whittemore v. Cutter* (1813) stated that:

"[I]t could never been the intention of the legislature to punish a man who constructed such a machine merely for philosophical experiments, or for the purpose of ascertaining the sufficiency of the machine to produce its described effects". And by 1861 it was generally accepted that 'an experiment with a patented article for the sole purpose of gratifying a philosophical taste, or curiosity, or for mere amusement is not an infringement of the rights of the patentee'.

See Advisory Council on Intellectual Property (ACIP).

⁸² *J. Madey v. Duke University* No. 1: 97CV1170, slip on (M.D.N.C. June 15, 2001); 307 F. 3d 1351 (Fed. Cir. 2002) See also in Adam B. Jaffe and Josh Lerner, *Innovation and its Discontents; How Our Broken Patent System Is Endangering Innovation and Progress and What To Do About It* (Princeton University Press, New Jersey, 2004) 65-6.

⁸³ See also, this citation in Adam B. Jaffe and Josh Lerner, *Ibid.*

The Court decided that the universities, by their very nature, are not eligible for the experimental use exception. The Court also concluded that the exception use should continue but "albeit in [a] very narrow form".⁸⁴

The Court of Appeal for the Federal Circuit stated that:

"... major research universities, such as Duke, often sanction and fund research projects with arguably no commercial application whatsoever. However, these projects unmistakably further the institution's legitimate business objectives, including educating and enlightening students and faculty participating in these projects... In short, regardless of whether a particular institution or entity is engaged in an endeavour for commercial gain, so long as the act is in furtherance of the alleged infringer's legitimate business and is not solely for amusement, to satisfy idle curiosity, or for strictly philosophical inquiry, the act does not qualify for the very narrow and strictly limited experimental use of defence. Moreover, the profit or non-profit status of the user is not determinative".⁸⁵

The *Madey* decision has not been well received by those that concerned research promotion. Some have predicted the decision will have devastating consequences for academic scientific research, particularly in the fields of biotechnology and biomedicines.⁸⁶ Moreover, without an experimental use exception, research institutions will be highly dependant on the mercy of the patent's holders. Consequently, this will block further innovative research.⁸⁷ For example, if this strict approach is applied in the context of a patent on seeds, it has the potential to prevent third party from using patented seeds to produce improved varieties even for non commercial purposes, like experimentation.⁸⁸

Conclusion

From the analysis and discussion mentioned above, it can be concluded that the protection of IPR over the academic works of universities may be contradictory to the missions of universities which include teaching, research and public service. Interestingly, since there is a growing trend to change the institutional type of universities into "Enterprise University", along with the establishment of IP and Technology Transfer Offices in the Universities, the motivation and the spirit of protecting intellectual academic works are regarded as the most important elements for not only bringing

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ See the Brief for Association American Medical Colleges (et.al), as *Amici Curiae* in Support of Petitioner at 14, *Duke Univ. v. Madey*, 123 S. Ct.2639 (2003) (No. 02-1007), See also expressing 'grave concern' that *Madey* will 'encourage patent holders to assert claims in a manner that will impede or altogether frustrate university scientists' ability to make further basic advances in critical areas of biotechnology and biomedicine', in David Malakoff, University Ask Supreme Court to Reserve Patent Ruling, 299 Sci. 26, 27 (2003) which reporting concern of academics that *Madey* will have 'disastrous' implication for university Science, in Cristina Weschler, 'The Informal Experimental Use Exception; University Research After *Madey v. Duke University*', footnote no. 5, available from <<http://www.law.nyu.edu/journals/lawreview/issues/vol79/no4/NYU406.pdf>>.

⁸⁷ Jennifer Miller, 'Duke University Sealing the Coffin on the Experimental Use Exception', available from <<http://www.law.duke.edu/journals/dltr/articles/PDF/2003DLTR0012.pdf>> and Rochelle Dreyfuss, 'Protecting the Public Domain of Science; has the Time for an Experimental use Defense Arrived?' (2004) 46 (3) *Arizona Law Review* 457.

⁸⁸ 35 U.S.C. §271(a); See also, Mark D Janis, 'Experimental Use and the Shape of Patent Rights for Plant Innovation', Paper for Economics of Innovation and Science Policy Lecturers, Centre for Agriculture and Rural Development, Iowa State University, September 15, 2003, 1, available from <<http://www.card.iastate.edu/reseach/stp/lectures.aspx>> (last visited 1 August 2012).

the University's reputation into internationally recognised standard, but also financial benefit.

It can also be concluded that protecting academic works of universities through patent and copyright to some extent can inhibit the access of knowledge, research materials and research tool. This condition, if it is not adequately addressed by the policy maker as well as university leader, may have a detrimental effect to the further development of knowledge. The reader, of course, may have different opinion derived from different assessments and analysis. The primary goal of the writer of the present study is not to persuade the reader that the conclusion is correct, but rather to share the public that to some extent the protection of IPR has a potential impact to other development objectives like access to knowledge, research materials and tools.