

DESIGN EDUCATION AND THE NEW CULTURE OF DESIGN CENTRIC INTELLECTUAL PROPERTY

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ABSTRACT

This paper addresses the relevance of integrating intellectual property (IP) rights studies within contemporary industrial design studio courses. As recently as 2014, an article on design and IP argues that “recent legal and cultural evolutions within the United States Intellectual Property system”... “do not favour student inventors and hinder their ability to protect their creative work” and students would be better served using their resources on more fruitful pursuits. However, IP culture surrounding Design Patents/Design Rights has substantially changed in the last decade and it is time for this position to be readdressed.

This paper reviews the reframing of Brigham Young University’s third-year industrial design studio course to include training on IP. It appraises the current state of IP training in design schools and how design related IP has markedly shifted in recent years. It outlines basic IP exercises and introduces case studies for the four the primary types of IP: Copyrights, Trademarks, Design and Utility Patents. Students are exposed to two opposing mindsets regarding IP: the traditional position that views IP as a defensive tool to build a fence around an individual’s rights; and more importantly, how to use IP as a collaborative bridge between other market players enabling meaningful market offerings.

Keywords: Industrial design, IP trends, copyright, design patent, utility patent, trademark, sponsored projects, live projects.

1 INTRODUCTION

In the year 1502, Leonardo da Vinci sketched a design for a very special bridge. The bridge design lay sleeping in one of Leonardo’s notebooks until 500 years later when Norwegian artist Vebjørn Sand brought da Vinci’s vision to life by building the bridge in Ås, Norway about 20 kilometers from Oslo. Sand explains the work bridges both space and time as well as ethnic and cultural differences [1]. However, in contemporary society one might also ask if there are intellectual property rights associated with this effort and if so who does it belong to? Perhaps da Vinci for imagining it, maybe the construction company’s for building it, or the engineers who enabled it, how about the Norwegian Public Roads Administration for funding it, or the artist who proposed the idea to the Administration or are there any intellectual rights involved in this effort at all?

This paper addresses the relevance of integrating intellectual property (IP) rights studies within contemporary industrial design studio courses. As recently as 2014, Howell [2] argues that “recent legal and cultural evolutions within the United States Intellectual Property system”... “do not favour student inventors and hinder their ability to protect their creative work” and students would be better served using their resources on more fruitful pursuits. However, as it will be shown in this paper, IP culture surrounding Industrial Design-generated intellectual property, or specifically Design Patents/Design Rights has substantially changed in the last decade and it is time for this position to be readdressed. The World Intellectual Property Organization (WIPO) states that the primary goal of the IP system is to “foster an environment in which creativity and innovation can flourish” [3] a goal which clearly aligns with the goals of the majority of design educators. This begs the question; why don’t more design educators teach design related IP modules in their design studios?

This paper reviews the first attempt to include training on IP relevant topics for industrial design students in Brigham Young University’s third-year studio course. It outlines the current state of IP training in design schools and how the culture encompassing design related IP has markedly shifted in recent years. It reviews a variety of IP exercises students participate in and introduces case studies for

each of the four the primary types of IP: Copyrights, Trademark/Trade Dress, Utility Patents, and Design Patents. During these exercises the student are exposed to two basic and opposite mindsets regarding IP. First, the traditional position that views IP as a defensive tool to build a fence around an individual's rights and second, and more significantly, how designers can use IP to create a collaborate bridge between creators and other market players to enable more robust and complete creative offerings [4].

2 CURRENT STATE OF DESIGN ORIENTED IP CURRICULUM

In 2013 the director of the USPTO writes that design is the new frontier in intellectual property [5]. A greater understanding of contemporary design-related IP conventions is becoming more relevant to design students than previously envisioned. Consequently, a literature search was conducted to discover which design programs currently teach or have taught intellectual property modules in their curriculum. A few articles were found, the majority of which discuss legal issues in creating and managing ownership rights between corporate entities, students, faculty, staff and universities on live or sponsored projects. However, in general, IP curriculum or insights for undergraduate industrial design students is not easily uncovered in literature.

2.1 Industrial Design Programs

Literature involving Industrial Design programs and IP curriculum seems limited. Eriksen et al. [6] of Aalborg University highlights the stress IP issues cause in a sponsored or live project for each of the key stakeholders; student, sponsor and university. He also states that they know of no “specific courses or educational programs” to assist in overcoming these issues and that the parties are left to their individual intuition to prevent possible problems. Thomas [7] at the University of Northampton and states that student designers often use the Internet without “being aware of what they are using without permissions” or what they are posting without understanding how this impacts their rights.

2.2 Engineering Programs

The Engineers have done a better job at working IP into curriculums. In particular, Bournemouth University has demonstrated a significant commitment to include IP training in their curriculum. Humphries-Smith [8] outlines the collaboration efforts between final-year Product Design students who develop a marketable product and Law students who advise them on intellectual property aspects of their designs. Glasspool and Dyer [9], also of Bournemouth, outline a list of eight common IP issues such as conflicts, staff rights, and motivations that should be discussed and ideally resolved to enable a successful project outcome. Verwulgen et al. [10] of Artesis University College of Antwerp outline the basic legal principles required to set up a clear arrangement between students and corporate sponsors on educational projects performed at the University.

2.3 Confusing Practices and Weak Implementation

Educators at the Royal College of Art, University of Hertfordshire, in collaboration with the Intellectual Property Awareness Network, outline that University regulations surrounding IP are confusing. This is primarily because of a lack of standardization among institutions and the different treatment between undergraduates who typically own their IP rights and graduate students who typically don't. They also state that the “ignorance surrounding academic IPR management is not helped by the fact that IP education...as a module topic...is not part of the design curriculum.” They see current practices as naturally competitive, with winners and losers and would rather see a concerted relationship between the stakeholders [11].

2.4 Regulatory Expectations and Practical Outcomes

The *Engineering Council UK Standard* published in 2008 outlines that Engineers should have competence in “securing necessary intellectual property rights” [12]. However, Roach and Soetendorp [13] write in their report on *IP in the Engineering Syllabus* that “IPR is not seen as core and can, therefore, be perceived as marginal, within the constraints of the curriculum”. They highlight three primary barriers to acceptance into core curricula: 1—academics do not perceive that IP is as important as other topics, 2—that current curriculum is already overcrowded, and 3—that there is no established pedagogy to integrate relevant material into curricula.

3 CULTURAL SHIFT IN THE VALUE OF DESIGN PATENTS

In the 20th century, design-related IP was often considered a low-value investment. In the 21st century, IP is rapidly ascending to a position of power and respect that demands a better understanding of the issues and opportunities it provides.

3.1 Corporate Sea Change

Arguably, a cultural turning point in industrial design's relationship with IP arrived with Apple Inc.'s patent infringement suit against Samsung Electronics in 2011. The suit included 16 claims, 3 of which involved design patents. Apple alleged that "instead of pursuing independent product development, Samsung has chose to slavishly copy Apple's innovative technology, distinctive user interfaces, and elegant and distinctive product and packaging design, in violation of Apple's valuable intellectual property rights" [14]. This suit has moved through a series of appeals and in 2016 finally reached the US Supreme Court, where the case focused on the "three design elements at issue...a particular black rectangular round-cornered front face"; "a substantially similar rectangular round-cornered front face plus the surrounding rim"; and "a particular colourful grid of sixteen icons".

To emphasize this shift in culture, it is notable that the Supreme Court has not heard a design patent case in over a century [15]. In this case, the Supreme Court rejected a \$400M award for Samsung's design patent infringement [16]. What the final award will be is not yet clear as the case has been remanded to a lower court. What is clear is that design and design patents can be tremendously important to business. In fact, it is notable that Samsung has filed significantly more design patents than Apple or Microsoft [17]. As of this writing, at least 1,252 total US Design Patents have been granted to Apple, 4,906 to Microsoft, and 8,037 to Samsung.

3.2 Projecting vs. Protecting Intellectual Property

The new IP culture also recognizes that in many cases IP has greater value as a bridge to cooperative partnerships with other market participants such as suppliers, manufacturers, and customers, rather than as a fence to keep competitors out of the market [4]. In 2010, entrepreneur John Steininger had a vision for providing a high-quality portable solar lighting and phone charging system for people living off-grid in Africa. He founded a company called "Divi" that developed and patented a secure technology method for microfinancing. Divi's lead in microfinancing technology and IP became a bridge to a leading lamp technology and eventual manufacturing partner in the same market. Rather than using patents to keep each other out of the market, they used them to unite efforts and create a successful product that enabled off-grid users to own the lamp after paying for a certain number of "enablement periods" [18].

Another example of this trend is Intuitive Surgical, who strategically licensed patents from SRI International and IBM to help establish Intuitive as the technology and IP leader in robotic surgery. Intuitive's robotic surgery system enables surgeons to perform less-invasive and faster surgical procedures with higher precision. Much of Intuitive's patent portfolio focuses on the interface between the robotic mechanisms and the consumable accessories such as single-use blades, which account for more than a third of the company's annual revenue [19].

4 TRAINING DESIGN STUDENTS IN INTELLECTUAL PROPERTY

Prior to embarking on the semester's sponsored project, the third-year design students were exposed to the definitions and content of IP. They were questioned about their own knowledge of IP, which naturally exposed how little they knew about the value of IP. Importantly, they were exposed to two seemingly opposing mindsets surrounding IP: first, as a defensive "fence" keeping people away from a designer's creative work, and second, as a strategic "bridge" inviting others to collaborate with a designer and her team.

4.1 The Four Core Components of Intellectual Property

Students were next exposed to the four key areas of IP. While copyright, trademark, and design patent focus on form, utility patents focus on function. While the traditional model for patent value has focused on utility patents as the most prevalent form of intellectual property, case studies demonstrating the potential value and concerns of each IP area were discussed.

4.1.1 Copyright

Copyright is a form of protection provided by the laws of the United States to the authors of “original works of authorship,” including literary, dramatic, musical, artistic, and certain other intellectual works. This protection is available to both published and unpublished works [20]. It is a legal bundle of rights that enable a designer to control how the work may be used. These include the exclusive right to copy and distribute the protected work, to create works derived from it (updated editions of a book, for example), and to display and perform the work. Copyrights come into existence automatically the moment a work is created. The owner need not take any additional steps or file legal documents to secure a copyright. However, registering with the US copyright office enables a creator of a work to more easily license that work or bring a lawsuit against a copyright infringer [21].

Students reviewed the copyright suit between Modern Dog and Target/Disney who made unauthorized copies of Modern Dogs artwork for use on their tee shirts [22]. Students learned to distinguish between ideas and expression and assess design differences and similarities as well as prior art timelines. Students also conjectured regarding the considerable time, anxiety and negative financial impact to all parties when a copyrighted design is used without permission and proper attribution.

4.1.2 Trademark and Trade Dress

A trademark is a word, phrase, symbol, and/or design that identifies and distinguishes the source of the goods of one party from those of others [23]. By obtaining trademark rights as the first commercial user of a distinctive trademark or trade dress, designers help project their identity as a source of valuable designs. Words, symbols, logos, sounds, and even smells can be trademarked. Product packaging significantly enhances product value. Product design can also get trade dress rights so long the design choices are not driven primarily by function. Designers can obtain trademark/trade dress rights by being the first to apply for and use the trademark in commerce.

The rights of designers and their relationship with trademark were examined through the legal battle between Christian Louboutin and Yves Saint Laurent (YSL), which addressed specifically the ownership of IP rights to red-soled shoes [24]. In this case, the students discussed the conflicts inherent in the trademark system between a designer’s right to protect identifying marks while simultaneously preventing other designers from freely using the basic components of design in their own creations.

4.1.3 Design Patents

A design patent claim refers to an *ornamental* design for an article of manufacture, and is inclusive of ornamental designs of all kinds including surface ornamentation applied to an article of manufacture as well as configuration of goods [25]. As with copyrights and trademarks, design patents cover only the ornamental appearance of article rather than primarily functional features. The same article can have both design and utility patents. Although, design patents are typically less expensive and relatively simpler to complete and apply for than many utility patents, design patents are carefully examined and must be drafted and prosecuted carefully to obtain valid and enforceable patent assets.

Two case studies were reviewed with the students. First, the Apple design patents for the iPhone in the Apple versus Samsung legal battle and second, one of the project sponsor’s own design patents for a night light outlet cover. The students learned to distinguish patentable differences in the aesthetic appearance of a design. The students also conducted their own patent searches on the WIPO’s global design database to learn how the WIPO search engine functions.

4.1.4 Utility Patents

A utility patent can be issued for the invention of a new and useful process, machine, manufacture, or composition of matter, or a new and useful improvement thereof [26]. It provides the patent owner rights to exclude others from making, using, selling, or importing the invention without authority of the patent owner. Utility patent applications are typically complex, highly detailed and expensive to complete and maintain.

The students assessed patents related to battery-powered lighting technology, which had been licensed by the project sponsor. The differences in several patents in the same patent family were discussed in order to gain an appreciation for how different elements of products and processes can be claimed. Students were also shown how to search for patents in online tools, on both

governmental and commercial sites. They also reviewed how to read basic patent components such as the descriptions, drawings, and claims.

5 COMPLETE THE TRAINING (OR NOT)

After the discussions around IP, the students moved forward with the typical product development assignments. After many weeks of progress the students then selected a few preferred design concepts and performed an online search for products similar in features and looked for any registered IP. Many students found similar products or ideas and discovered they could evolve their own ideas to unique positions within the market. The remaining IP training plans included engaging a few law students to evaluate the design students IP positions, inviting a local patent draftsmen to teach students how to properly draft their newly created product designs and completing a formal design patent application to file with the USPTO. However, these goals were not accomplished this year. These steps required the design students to have completed their product designs in a timely manner. It was discovered that students are emotionally wired to finish their designs at the end of the semester, not two weeks before then. Consequently, the students were still designing and developing their products past the target deadlines. Nevertheless, at least one student mentioned that he had done a patent search with promising results for the potential patentability of his design in his final presentation to the project sponsor, which was a first for this type of design studio project. Yet, because of the schedule, the law students and guest draftsmen were postponed for another semester and it is impossible to report on the success or failure of these remaining steps.

6 CONCLUSION

Was the introduction to intellectual property of value to the students? Just as the culture around design patents have shifted, so to have the values and opportunities for the design students. One student in the class developed a beautiful and novel auxetic (a cut enabling expansion in the material) detail for his product and happily posted his design on social media the last day of class. It was soon discovered and went somewhat viral. He woefully sought me out to understand his IP options at this point. He knew his design was now at least unpatentable in most countries outside the US and he felt somewhat embarrassed that he had lost significant rights, which he would not have known 12 weeks before. On the other hand, he also received a number of requests to collaborate because of his post, which demonstrates an important aspect of this paper. Rather than thinking only about how designers can use patents to *protect* the value of their innovations and keep competitors out of the market, progressive designers and IP strategists are beginning to think about how designers can use intellectual property to *project* the value of their innovations.

Although this IP module was not completed as fully as envisioned this semester, it will not disappear. We will continue to refine the content and how it plays out in our traditional industrial design coursework. As the students learn to manage their IP rights and use them to help both project and protect the value of their innovations, they are better prepared to actively participate in the global emerging culture of design IP. Now is the right time for educators to begin to establish some basic training in the components and values of IP to encourage thoughtful responsibility in their student's creative work.

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