

# INNOVATION AND ACADEMIA — IPR OWNERSHIP IN THE UK

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## ABSTRACT

This paper discusses Intellectual Property Right (IPR) ownership issues in conjunction with academic spinouts and start-ups. The changes in the funding structure of graduate and postgraduate studies has led to a culture shift in the budget management of British universities. Third-income streams are more highly rated in the UK than ever, and ‘with the growth of the student enterprise agenda the issue of management of student IP will become increasingly significant’ [1].

Commonly academic institutions claim ownership over IPRs, which evolve from postgraduate academic studies. The majority of revenues tend to go to the academic institution. This is usually justified through the supervisory involvement and the provision of technical resources. This paper discusses the implications, which the retention of IPR has for the success prospects of academic spinouts.

Academic Institutions differ in their approach to regulating IPR ownership. Mandy Haberman and Professor Ruth Soetendorp presented a comparative study of academic regulations to the Intellectual Property Awareness Network (IPAN) in 2014. The paper proposed here builds on their comments as well as those obtained from various subject experts through semi-structured interviews. The paper will further discuss the implication of third-party ownership in relation to the development of innovative spinouts. Counter-productive arrangements in relation to IPR ownership made by academic institutions may not only affect the individual graduate or postgraduate student, they may also affect the UK economy, in that they can stifle innovation.

*Keywords: Innovation, management, intellectual property, start-up, graduates, academia.*

## 1 INTRODUCTION

In a Q&A session following a keynote speech during the International Association of Societies of Design Research (IASDR) congress in Tokyo in 2013, the speaker, Professor Göran Roos, claimed that the vast majority of business founders are final year MA students, or first-year PhD students [2]. The potential for creative entrepreneurship amongst postgraduate design students is greater than elsewhere within the spectrum of the design industries. The question is whether or not this potential is used to the best capacity. We can identify 3 key stakeholders here:

- The students
- Academic Institutions
- The general public who may benefit from innovation.

This paper discusses how regulations surrounding academic IPR ownership suit the interests of these stakeholder groups, and where they can lead to conflicts. It builds on a presentation, which Mandy Haberman, a successful designer entrepreneur, and Professor Ruth Soetendorp, Associate Director of the Centre for Intellectual Property Policy and Management at Bournemouth University, gave to the Intellectual Property Awareness Network (IPAN) in 2014. Both are listed as co-authors due to the extent to which this paper has been influenced by the presentation notes and following discussions about the topic. The co-authors’ personal views are presented in the form of citations here. To embed these views in a critical context, the main author has conducted literature reviews and interviews with subject experts.

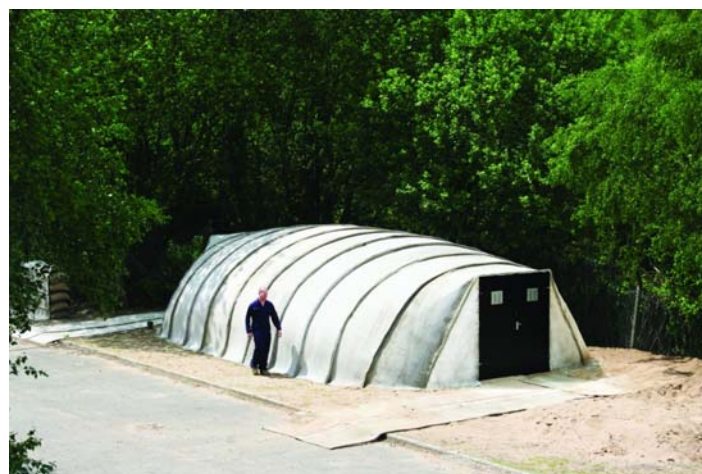
## 2 PERSPECTIVES

Haberman's interest in academic IPR management was prompted by an experience in 2013, when she was part of the judging panel for the Design in Plastics Award [3]. When speaking to representatives of Northumbria University, who submitted one of the winning entries, she was led to believe that the IPR rested exclusively with the academic institution. She was also told that the institution made little effort to formally protect IPR generated through the efforts of graduating students. Upon further investigation Haberman found out that Northumbria's IP Policy 'recognises undergraduate students [who are not employees of the University] as the owners of any IP generated during their studies subject to exceptions', and that 'The University is committed to the effective exploitation of IP' [4]. The policy stands in contradiction to the verbal statements received, because the competition winners from Northumbria had been undergraduate students. This raises questions about the level of awareness for existing regulations amongst staff and students.

The inventor of a fibre optic sensing technology, who studied at Cardiff University criticized university IP agreements for being not sufficiently beneficial for inventors [5]. She described the IP agreement that she was offered by the university, and which she rejected as 'rigid and out of date' [6]. Peter Brewin, co-founder of Concrete Canvas, an innovative materials firm that was designed during his studies at the Royal College of Art stated that 'although universities could be helpful in allowing access to equipment and office space, taking too large a stake in a company, especially when not directly investing in it, risked "killing" the idea' [7]. Concrete Canvas is an invention that originated in the design of a shelter, which Brewin and his project partner Will Crawford had conceptualized and patented whilst studying at the Royal College of Art in 2005. But, as in so many cases, it was not their first invention that led to commercial success, it was the fabric, which was patented 2 years later. This shows that it is not so much the idea per se that is key to success, it is the continued pursuit of an the implementation of an idea.



*Figure 1. Concrete Canvas used for slope lining*



*Figure 2. Concrete Canvas was originally designed for shelters*

The question we are left with is whether or not academic institutions ought to claim ownership over IPR generated by their students. In an issue of the *Indiana Law Journal* from 1995, Sandip H. Patel points out that ‘Universities [...] view the continued exposure to research activities and classroom instruction as adequate consideration for an assignment of ownership rights’. [8]. Is this fair, given that students in the UK are now paying considerable fees for their education? What justifies such fees, if not the exposure to research activities, classroom instruction and university equipment? According to Phil Chan ‘The argument that pedagogy constitutes consideration capable of vesting in the university copyright ownership in its student’s academic work is untenable’ [9]. Chan’s reasoning is based on Patel’s point that ‘the student who fails to develop a patentable invention is never held liable to the university for a breach of contract’ [10]. The justifiability of resting IPRs with academic institutions as opposed to transferring them to students can therefore be questioned.

Although undergraduate students usually get to keep their IPR, postgraduate students may be treated in the same way as are employees of the institution. This may be as a result of the postgraduate signing a contract specific to a funded research project, which determines the way in which ownership of resulting IP and division of any income generated will take place. Mere assumption that the postgraduate researcher is an employer can be seen as questionable, if not to say unethical. After all their initial contract with the university is not to ‘provide services or undertake duties in a way that gives rise to a situation in which their work could be considered as arising from employment’. [11] The UKIPO’s guide to ‘Intellectual Asset Management for Universities’ makes it clear that these arrangements are left up to the individual institution [12]. Consequently the treatment of student IP can vary, in particular with regard to profit sharing. The UKIPO advises that a ‘policy rationale needs to be established so that not only the individual interests of the fee-paying student are accommodated but also to ensure that their ability to contribute to the economy and society after they graduate is not compromised. ‘Having clear policies about students’ abilities to use the IP they generate, combined with mechanisms which actively support them in doing so, are therefore important.’ [13] Although academic IP policies per se may be clear on paper, it is evident that they are not fully understood.

The ignorance surrounding academic IPR management is not helped by the fact that IP education, i.e. the inclusion of intellectual property as a module topic, is usually not part of the design curriculum. Haberman and Soetendorp highlight that they have encountered very few other than ‘Bournemouth University that has put IP education modules on the curriculum of undergraduate courses, other than for law students’ [14]. Imperial College’s spinout EPIGEUM’s online resource Research Skills Master Programme has a module ‘Intellectual Property in the research context’ [15] which emphasises that ownership of any resulting IP should be discussed at the same time as a research project and research funding are being discussed. The IPO in 2015 launched IPTutor, an online resource for university students. [16] Most major institutions have an IP policy document but few members of staff are aware of its existence, let alone its content. The fact that IPR ownership is subject to the discretion of individual institutions means that certainty can only be established through the examination of individual IP policies, which tend to be complex and often vague. The current Manchester document is 66 pages and even design experts may find it difficult to follow. In addition to the problem surrounding transparency or the lack thereof, Ian Shott, Chair of the RAE Enterprise Committee, claims that many academic technology transfer offices ‘were too small to justify their cost, and each with “very prescriptive processes” run by inexperienced people’ [17].

The above analysis raises a number of questions:

- Are university IPR regulations fair?
- To what extent are staff and students aware of IP policies?
- Even if students have sight of the policy, would they understand it?

The low level of awareness of IP amongst students is evidenced in a study which the National Union of Students (NUS) has conducted in collaboration with IPAN in 2012 [18] and forms the basis of a research project being conducted by NUS and the IPAN on IP Policies – perception and practice.

### 3 THE UTILISATION OF IP

When discussing the share of profits, Haberman points out that ‘most universities will state that where student IP is part of a project that is commercialised, the university will share profits with the student. However, instead of defining how these profits are to be split, non-specific terms such as ‘revenue sharing arrangements on a fair and reasonable basis’ are frequently used [19]. So there remains a lack of clarity about how profits are to be shared. Another problem is that IP seems to be regarded as a

guaranteed source of revenue income. However, before fighting over potentially profitable returns, one should ask what is required to commercialise inventive steps in the first place. It is important to understand the difference between inventions and innovations here. According to Greenhalgh and Rogers an invention is a discovery that ‘enhances the stock of knowledge’, whereas an ‘Innovation occurs at the point of bringing to the commercial market new products and processes arising from both existing and new knowledge.’ [20] In other words, an innovation is the successful application and commercialization of an invention.

When students exit university, their inventions tend to be so underdeveloped that they have a long way to go until they reach market. Therefore one should focus not only on profit shares, stakeholders should also contemplate who takes the responsibility of financing and pursuing the design development and the route to market. If this is the academic institution, then we could genuinely speak of a spinout. However, if the student is left with the challenge to develop the operations and assets needed in order to take an invention to market, then we ought to consider this as a start-up venture instead. Incubation schemes make it often difficult to differentiate between start-ups and spinouts. Nonetheless the give-and-take must be balanced, and university IPR management ought to facilitate the route to market instead of adding barriers. Without having direct control over the IPR, a designer-entrepreneur does not have the authority to enter strategic partnerships, which may be needed, and investors can be reluctant to commit to the venture. Hence the retention of IPR by the academic institution can make it very difficult for start-up ventures to succeed.

According to Haberman and Soetendorp’s findings ‘Some universities don’t use a blanket assignment but instead, evaluate each instance on its own merit. This allows for more flexibility but even then, the institution makes the decision on how profits are split.’ [21] The fact that undergraduate IP is usually granted to the student, and postgraduate IP retained by the academic institution highlights how pragmatically-driven the design of regulations tends to be. Undergraduate IP can be seen as lower in value, because undergraduate students tend to be less experienced than postgraduate students, and their novelties are often less developed or promising than those emerging from postgraduate studies. If we look at the situation from a pedagogical point of view, we realise that designs developed at undergraduate level are nurtured to a greater degree than those, which are developed at postgraduate level. If we try to judge the situation without bias, we should think that it would be fairer to assign IP generated at undergraduate level to the academic institution, and IP generated at postgraduate level to the student, due to the greater supporting efforts provided through academia.

#### 4 IMPLICATIONS

Universities often argue that they need to own postgraduate student IP if it is part of a bigger research project (which may be funded by industry) so they can cleanly enter into binding agreements with sponsors and licensees for the commercialisation of the entire IP package. However, if there is no direct industry involvement at the outset, and the innovating graduate seeks to commercialise the invention, this rule can produce insurmountable barriers. The reason why this discussion culminates in an insoluble challenge, has its roots in the disconnection between IPR and innovation management. IPRs per se constitute no value according to venture capitalist Carlos de Pomme. ‘What IPR does, is that it gives you the ability to create value. These are very different principles, and IPR gives you the ability to defend future revenue streams.’ [22] The reason why there is no coherent approach to academic IPR management is due to the fact that there are no communalities in the route to market strategies. Any regulation that seeks successful adoption through academia, must regulate IPR ownership in relation to the requirements that relate to the commercialisation of an invention. Depending on the circumstances and the nature of the invention, the graduate or the academic institution may be in the better position to take responsibility here. Where the IPR is assigned to one party or another, that party should also be assigned the responsibility of commercialising the innovation, and to provide royalties to the other. If the IP holder decides not to commercialise the innovation, it would benefit the greater public good if the other party were given the right to have the IP transferred.

#### 5 CHALLENGES

Academic institutions differ in size, and the larger they are, the more complex the decision making process tends to be. They usually lack the agility of small firms. When discussing collaboration in conjunction with innovation management, Mark Dodgson highlights that ‘Small firms [...] can be

flexible and responsive to new market and technological opportunities in ways large firms cannot, and one of the benefits of collaboration is that it combines the entrepreneurial behavioural advantage of the former with the structures and resources of the latter' [23]. This would suggest that a collaborative arrangement between a start-up led by one or several graduates and academic institutions could work well. However, despite the benefit of the weight of a large organization in support, having to give up the authority over key decisions such as licensing opportunities and collaborative arrangements, which are dependent on IPR, can be demoralizing for the enterprising academic, and it can also slow down operations and business development progress. The confusion surrounding IPR ownership in relation to design teaching and learning is counterproductive to the pursuit of collaborative arrangements between graduates and academic institutions. Alexy and Dahlander explain that, 'The more strongly enforced the legal mechanisms that define ownership over intellectual property along clearly demarcated boundaries, the easier it will be for two parties to contract over the exchange of innovation' [24]. The problem is that the British higher education system does not draw clear demarcation lines with regards to IPR.

What discussions surrounding IPR management often omit is the fact that innovation requires not only inventive thinking as it is fostered through the provision of design courses, it also requires design and business development activities. This means that the concept of innovation comprises not only the inventive step, but also the successful application and implementation of an invention. Therefore the question one may want to raise over and above the discussion surrounding IP control, is which set of circumstances is most beneficial for the innovation process to succeed and the general public who seeks to benefit from it. We must acknowledge the fact that a lot of design ideas and concepts are underdeveloped when they go on display during degree shows, requiring a considerable amount of further development to take them to market. Institutions are may be in the better position to deploy assets needed to further develop design concepts. On the other hand one could argue that graduates find it easier to commit their time to the innovation process. Academics are confronted with a plenitude of responsibilities, which makes it difficult for them to focus their attention exclusively on one particular invention, and to do so over several consecutive years. Graduates will find it easier to commit their time to the pursuit of innovation, provided that they can hope to be rewarded for their time commitment.

## 6 CONCLUSION

The evidence discussed above is insufficient to come to a conclusive verdict whether or not there should be a nation-wide policy that is to be adopted by all academic institutions, or if the latter should continue to decide individually on IPR ownership and in doing so, perhaps adopt a more flexible approach to accommodate the interest of students. It is clear that current regulations and their diverse applications have led to a confusing situation. This is due to the fact that most academic institutions tend to retain ownership of IPR generated by postgraduate students while they often transfer to students the IPRs generated through undergraduate studies. Depending on the circumstances, the IP generated by undergraduates can also be retained by the academic institution. The confusion surrounding academic IPR ownership is shared amongst both staff and students, because the decision is left to the discretion of individual institutions, whose IP policies are not always sufficiently clear.

It would be advisable to conduct a comparative study not only with respect to current university policies, but also in relation to their implementation. This should be done through screening a representative sample of academia in the UK, and through comparing the success and failure of academic innovations at undergraduate and postgraduate level. It would be desirable if the UKIPO could commission such a study. The problem of academic IPR ownership is likely to have an adverse effect on innovation in the UK and on the attractiveness of studying in the UK. It might also impact on the UK economy in the small business design sector. The aim of such a study should be to establish whether or not it is preferable to have one policy adopted consistently by all academia in the UK, and how this IPR policy ought to be applied.

It is unlikely that assigning 100% of the IP to either the innovating student or the academic body, solves all the problems involved in academic IPR management. However, the authority over IPR and the responsibilities in relation to it, ought to be made clear from the outset, because this helps to identify the responsibilities involved in pursuing innovations, and provides a basis for specifying the roles which both parties, academia and innovating students, are to fulfill. If one or the other seeks not to engage in the innovation process, the IPR can be transferred in return to a royalty, which, too, ought

to be considered as part of the regulations. The current situation is often perceived as a competition between graduates and academia. A fair and clear set of regulations could help turn this into a concerted relationship between the stakeholders.

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