

STUDENT DESIGN ENTREPRENEURSHIP, FROM CONCEPT TO RETAIL IN NINETY DAYS

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ABSTRACT

The intent of this paper is to outline the need and benefit of integrating design entrepreneurship training in product design education, and to provide a case-study for how to create an educational experience that synthesizes the many aspects of design entrepreneurship through a participatory action-oriented studio project.

In recent years, access to manufacturing, financing, and distribution has changed dramatically, and this is having a significant effect on how new products are being developed and marketed. This has resulted in a growing opportunity for smaller-scale projects involving a small number of adaptable individuals with flexible skillsets. Design students with training in entrepreneurship are uniquely qualified for this type of work, empowered to produce and market their own designs or work with others to start a niche product company.

To prepare students for this changing marketplace, it is helpful to create synthesized participatory experiences through which students apply the concepts and skills associated with design entrepreneurship. This paper introduces a hands-on project that has been utilized for two years in an undergraduate Product Design curriculum, in which students work through the entire process of product development, from concept and research, design development and manufacturing, branding and marketing, to packaging and retail. The project culminates in a business plan and a retail event. Such training has the benefit of preparing students for future work, either in industry or as an entrepreneur, and deepening their understanding of the role of Product Design in the larger business context of new product development.

Keywords: Design entrepreneurship, new product development, crowdfunding.

1 CHANGING CONTEXT FOR NEW PRODUCT DEVELOPMENT

To be a successful design entrepreneur one must have the skills of a designer and an entrepreneurial business manager. However, Product Design is commonly taught as a separate skillset, which is one part of the larger context of new product development (NPD). Milton and Rodgers outline the four major components of NPD as: Research, Design (including engineering and industrial design), Marketing, and Manufacturing [1]. In practice, these professions are usually represented by different members in a product development team, or sub-groups within a larger product development organization.

This model has worked well for large organizations and larger-scale projects, and design education has commonly focused on positioning graduates within this context. However, there is growing demand for smaller-scale entrepreneurial projects involving a smaller number of adaptable individuals with flexible skillsets. The *design entrepreneur* demands a different model of training. Gunes defines design entrepreneurship as "...producing and marketing the intellectual properties of a viable concept in terms assuming risks, financing, marketing, and managing. It is not just creating innovative product ideas by conventional design skill set but also organizing and operating a plan through idea into physical profitable product by initiative skills." [2]

1.1 Changing Context:

In recent years, four major trends have changed how NPD occurs: greater access to manufacturing, falling cost of digital fabrication and prototyping resources, crowdsource methods of financing, and decentralized distribution through companies like Amazon. First, for manufacturing, anyone can now search sites like Alibaba to source materials and manufacturing resources, where this was previously

specialized knowledge limited to those in the field. Second, the trend in affordable desktop digital manufacturing has drastically lowered the cost and barriers to entry for individuals to create 3D prototypes, while digital fabrication has significantly accelerated the pace of new product development [3]. Third, an array of crowdfunding financing models (e.g. Kickstarter, Indiegogo) have made it possible for small start-up companies to finance their businesses independently, rather than seeking funding through traditional models such as bank loans or venture capital [4,5]. And fourth, online shopping and distribution logistics are being facilitated through Amazon and other third party companies, externalizing logistics and reducing bricks-and-mortar overhead [6].

These four factors combined have made NPD faster, more accessible, and more affordable. This has created a new wave of design entrepreneurs, who combine design thinking and startup culture to create new approaches to entrepreneurship [7]. And this trend presents a very different professional landscape, compared to the past industrial structure that created the field of product design.

1.2 Design Entrepreneurship as a career path

For current students in Product Design, these changes open up opportunities for a new type of career path: design entrepreneurship facilitated by newly democratized access to manufacturing, finance, and distribution. In a highly competitive job market and lagging economy, this can become an appealing professional path. Micro-marketing avenues like Kickstarter or Quirky have shown that there are more options available to industrial design graduates besides working for large manufactures or design consultancies [8]. Students can go on to produce and market their own designs, or work with peers to start a niche product company.

1.3 The adaptable skillsets of design entrepreneurs

Entrepreneurial enterprises typically require individuals or small groups of nimble creative personalities that can play many roles in a given project. L. Ball's research on design education highlights how design graduates are uniquely qualified for this type of work: "The hands-on, problem-solving approach of craft/design higher education equips graduates well, as it produces flexible, adaptable entrepreneurs, but so often these valuable processes are not articulated." [9] Our goal is to articulate this adaptable value, and to make it an explicit part of design education through practice.

Entrepreneurship may not be the chosen career path for every design graduate, however Ball indicates that most graduates will work in a small or independent business at some point in their career [10]. Therefore, it is believed that entrepreneurial skills can enhance the already adaptable skillsets of designers, improving their job prospects in the changing marketplace described above. Training in this area better prepares students to contribute to a small start-up or engage in a multi-disciplinary team. Furthermore, a designer with entrepreneurship training makes a stronger member of a product development team in a larger organization. In *The Design Entrepreneur*, Heller and Talarico explain, "The designer as entrepreneur actually has an advantage over the non-design entrepreneur who must employ others to manufacture, package, brand, and promote. Even if the designer subcontracts these tasks to others, he does so from a position of complete understanding of the media and materials involved." [11]

2 STRUCTURING A PARTICIPATORY ENTREPRENEURSHIP TRAINING EXPERIENCE

While much is written about the types of content that should be included in design entrepreneurship education [2,12], there seems to be less written on *how* to implement it. Therefore, the goal of this paper is to provide a case study for how design entrepreneurship can be taught with minimal change to an existing Product Design curriculum.

Our intention is not to advocate for a new degree program. There are quite successful masters programs in Design Entrepreneurship (e.g. SVA in NY), and many entrepreneurship programs at the Bachelor's level and above. However, our interest is more in integrating design entrepreneurship in an existing Product Design curriculum. The intention is to foster design entrepreneurs who are designers first, with some of the essential skills of entrepreneurship.

2.1 Hands-on project

In order to develop and effectively internalize the skills of a design entrepreneur, it is recommended to pursue a pedagogy of learning through doing. Preferably, this is done by creating an in-depth synthesized participatory experience through which students apply the concepts and skills associated with design entrepreneurship to an actual product. Emil Levy, of the Institute of International Education outlines four ‘Essential Tips for Designing Successful Entrepreneurship Education Programs’, and the first is: “Base your program on experiential learning.” He further explains, “[E]ntrepreneurship can only be taught through hands-on projects where participants create their own ventures and participate in live case studies.”[13]

This guideline for entrepreneurship education is also reflected in Rasmussen’s survey of four Swedish university programs, in which he concludes, “In an educational setting the students should meet and internalize a realistic business concept from the outset. Further, they should be operationally involved in real business contexts.”[14]

2.2 Go to retail

Design students are commonly trained in research, problem identification, ideation and prototyping. However, for design entrepreneurship to really take hold, it is helpful to follow the product through to retail. It is necessary to go beyond conceptualizing an entrepreneurial project, and go through the entire process of design development, manufacturing, branding, packaging, and retail. This effectively closes the loop of designer-to-end-user in order to validate the design idea in the marketplace. As Heller and Talarico explain, “Just making some fun doodad and putting it on a shelf is not enough. The design entrepreneur must take the leap away from the safety of the traditional designer role into the precarious territory where the public decides what works and what does not.”[15]

2.3 Manage project scope with Peter Drucker’s Do’s and Don’ts

To establish some initial guidelines, it helps to begin with Peter Drucker’s “Do’s and Don’ts” from his book *Innovation and Entrepreneurship*. Following these guidelines helps to increase the likelihood of success and keep the project within a manageable scope for a relatively short-term academic project.

Do’s

- *Begin with the analysis of opportunities*
- *Go out to look, to ask, and to listen.*
- *Keep the innovation simple and focused.*
- *Start Small.*
- *Aim at leadership*

Don’ts

- *Don’t try to be clever.*
- *Don’t diversify, splinter, or try to do too many things at once.*
- *Don’t try to innovate for the future.* [16]

3 THE ‘DESIGN STORE’ PROJECT (A CASE STUDY)

The ‘Design Store’ project was created as a studio-based design entrepreneurship project in a Senior-level (4th year) course. This was a semester-long (16 weeks) project for a 5-credit studio course. At this level students are expected to apply their design skills to a more in-depth long-term project, and synthesize what they have learned in other courses towards a single design effort – from design research, to ideation, drawing, CAD, prototyping, etc. Essentially, students have established a range of design skills, and this project was intended to apply those to a design entrepreneurship effort.

3.1 Managing Project Scope

One of the greatest challenges is to complete this type of project in a single academic semester. Given the timeframe, it was necessary to keep the projects fairly small and simple, following Drucker’s guidelines above. The real benefit for students was being responsible for the whole picture, from product concept to packaging and retail. And the scope of this project allowed students to address that big picture for a small product. This was handled by giving a specific project brief that focused the students on small-scale products.

3.2 Brief

The first iteration of this project was titled *Accessorize/ies*, and was based around the concept of ‘accessorizing accessories’, challenging students to design products that enhance already-existing products. This was done to limit the scope, while also asking students to design for a specific context with established constraints.

The second year the project was run, it was reframed to focus on outdoor activities, and the project was titled *Outside Experience*. The goal was to take advantage of the geography and marketplace near our university, a mountainous area popular for winter and summer sports, and to design accessory products for those activities. This brief was also intended to deepen the investigation/research portion of the project and to engender more inventive solution-based products, moving away from some of the kitsch impulse-purchase products created during the previous year.

3.3 Deliverables

A series of key deliverables helped to broaden the learning outcomes for the project and deepen the students’ experience.

3.3.1 Produce 20 units and retail for under \$50 each

The project brief asked the students to design a product which one student could produce in a batch quantity of 20 and retail for under \$50 per unit. Individually, students were required to define a market need, design the product, develop production, create the branding and packaging, and make a point of purchase display. This structure was based on the instructor’s prior experience selling work via the Designboom Mart at the International Contemporary Furniture Fair in New York, which follows a similar model: asking about 20 designers to bring at least 20 units of a self-produced product that retails for under \$100.

3.3.2 Write a business plan

Because the goal of this project is to encourage students to be entrepreneurs, and to create viable mass-market products, students were tasked with creating a business plan for their project. For that, we partnered with faculty from the business school on our campus. A Professor of Management was a guest speaker in the class and introduced students to the book *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers* by Alexander Osterwalder and Yves Pigneur [17]. This text also provides a very handy and concise canvas for developing a business model. Each student then worked with this canvas to begin their business planning efforts.

The business planning component helped students gain a deeper understanding of the role of design in business, and face the humbling reality that design is only a small piece of the larger product development puzzle. By learning about business planning, students also became more comfortable with the terminology and language of business, a benefit for communications with future clients and professional partners. This process also helped to expose the complexity of building a successful business, and the many areas of expertise involved.

3.3.3 Packaging and Point-of-Purchase display

In a retail environment, it is often the packaging of a product that consumers see first, and which communicates a great deal about the product to the consumer. Packaging sometimes costs more than the product itself. For these reasons, packaging became a primary focus in this project.

Students were required to develop a product name and logo/identity, create packaging for the 20 units with necessary graphics/instructions to inform consumers, and create a point-of-purchase display to showcase and communicate their product in the retail environment. Our intention was not to transform students into packaging design professionals, but to provide an experience to improve their branding and graphic communication skills, and to develop a greater understanding of how and when to coordinate graphics and packaging needs on future projects. Towards this, we collaborated with the Graphic Arts and Imaging Technology program on our campus, and utilized their packaging prototyping tools.

3.3.4 Create a retail event

As a group, students worked together to conceptualize the ‘pop-up shop’ where they would retail their products, developed a shared promotional campaign, created signage and other marketing collateral,

and managed the retail event. Students were divided into three teams to plan the event: Marketing/Public Relations, Space Planning, and Signage/Graphics.

3.3.5 Outside Submissions

Students were required to submit their final design to an outside agency or venue. This could be a retailer, a design competition, a product development company, crowdsourcing site, etc. This requirement greatly changed the significance of the project (see outcomes below). Just like the self-defined nature of the project, students were asked to find their own opportunities where their product would have the most potential. Several students submitted their project to Quirky.com, a website that creates new products based on popular votes and crowdsourced design development. One student submitted his project to Edison Nation, a company that specializes in partnering inventors with manufacturers. Others students submitted directly to retailers and manufacturers.

3.3.6 Read and reflect

To support project development, and provide insight/inspiration along the way, several readings were assigned in conjunction with this project. These helped in areas of research, ideation, packaging, and graphic development:

- *The Adjacent Possible*, Ch.1 in **Where Good Ideas Come From**, by Steven Johnson, pp.25-42.
- **Shaping Things**, by Bruce Sterling, pp.6-24.
- *How to Make Almost Anything*, Ch.1 in **FAB: the coming revolution on your desktop – from personal computers to personal fabrication**, by Neil Gershenfeld, pp.3-27.
- *Understanding Target Markets*, from **Packaging Design** by Bill Stewart, pp.38-57.
- *Defining Package Design*, Ch.2 in **Packaging Design, Successful Product Branding from Concept to Shelf**, by Klimchuck & Krasovec, pp.33-51.

3.4 Project Outcomes

This project succeeded in providing students with experience in a broader spectrum of product design than they typically have in a product design studio class. By going beyond a studio sketch or prototype, and demanding that students produce a business plan and multiple identical products that were retail-ready, students experienced success on multiple fronts.

3.4.1 Professional Placement

Success from this project has been exhibited via student placements in jobs and internships related to this type of small-scale design entrepreneurship. One student is now an intern at Quirky in NY City. Another student continued with a similar project the next semester and is now working full time for Maxx&Unicorn, a boutique fashion accessories company in Brooklyn, NY. One student was a finalist on Quirky.com, and though her product was not selected, the press from Quirky led to a professional internship with ANDESIGN LAB in California. Another student who participated in an earlier version of this project, later launched his own crowdfunding project, and is now working for Kikkerland Design in NY.

3.4.2 Benefits from outside submissions

Because of the requirement to submit their finished work to an outside company, 3 of the 12 students had their products selected and further developed by an outside company. That is a 25% success rate in bringing products from this project to the larger market. One of these was selected by Quirky.com for further development towards mass production; another was picked up by a local manufacturer and the first 100 units were produced for market testing; and the third was self-produced with the support of a local retailer that agreed to carry the product in their store.

One of the greatest successes from this effort was when a student entered his business plan into a national 'Business Pitch' contest, the Retail Innovation Challenge at Wake Forest School of Business. In this contest, teams of students (usually graduate-level business students) pitch their business ideas to professionals to win seed capital. This student (from an undergraduate design program) won second place and was awarded \$5,000 to develop his project further. This has encouraged other students to pursue business pitch competitions outside of this class, and has since led to three additional students winning cash prizes in such competitions over the past year.

3.4.3 Retail Results

A majority of students made a profit on their investment in the project through the retail event. In discussions with students after the sale, this was a highlight for them. They said that they are used to spending over \$100 on models for a studio project, but then throwing them away after a project is completed. Making money got their attention and was very encouraging.

Working directly with potential customers also gave the students an entirely different perspective on their project. They are used to in-class critiques, or showing their work to other designers. However, having to pitch their product dozens of times to random strangers (a.k.a. potential buyers) was new, and helped them refine their 'pitch' and to better understand users' perspectives and needs.

In the first year of the Design Store event, 7 of 20 students sold out of their 20 product units, some taking additional orders at the event. At least five more sold out within the week from follow-up sales. The next year, 3 of 12 sold out of their product inventory during the one-day sale; 6 of 12 made a profit; and the average student generated \$280 in revenue.

3.4.5 Student surveys

A project evaluation survey was given to students after completing the project. In this survey, students were asked about the educational and professional relevance of the project, and whether they viewed the project as being helpful in their careers. While it was a small sample size, the response was overwhelmingly positive. Many of the students said they felt prepared to help future clients bring products to market, now that they had experienced the process of branding, packaging, pricing and retail. Based on conversations early in the semester, this was a confidence they did not have previously. Most students also felt that they would be willing to do another self-production project in the future.

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