Changing the Perceptions of Making

Betsy Barnhart, Assistant Professor Department of Industrial Design Iowa State University Ames, Iowa, USA Betsy@iastate.edu

Kellie Walters, Department of Industrial Design Iowa State University Ames, Iowa, USA Kellie@iastate.edu

Abstract

Traditional Industrial Design sponsored studios (when a corporation partners with a student design studio) can quickly become design for hire studios which limit student learning outcomes as well as successful outcomes for the Sponsor. In assessing instruction practices in sponsored studios, traditionally success is limited to products moving directly into production. By reframing the studio into an incubator and in-line studio setting students could work in the same fashion as an in-house design studio, with mass diminutive ideation focusing on performance initially rather than aesthetics causing an increased standard for success. Because students would be concentrating on editing down a mass amount of variables with swift precision using raw but effective mockups, time would not be wasted on improving the craft of an initial, potentially ill- developed concept, leading to more risk projects with market disrupting potential rather than just an aesthetic or materials update going into production.

In a multi-disciplinary studio setting students from Industrial Design, Apparel Merchandising and Design, and Kinesiology, partnered with a corporate sponsored studio instructed in the framework premised above. The outcomes were a success with the studio functioning beyond a studio for hire scenario to learning objectives being met as well as aspects of projects moving forward into to development and projects moving directly into production as well as applications for patents. This paper investigates how studio culture can be reframed to create a diverse range of success as well as what specific instruction techniques, making techniques, and studio culture lead to this success.

Keywords: Ideation, Sponsored Studio, Design Strategy, Design Practice, Product Design, Innovation, Performance Driven Design

In the fall of 2016, the lead author led a sponsored studio at Iowa State University partnered with United Sports Brands (USB) (a multi-brand sporting goods corporation) specifically designing products for subsidiary Nathan Hydration. The studio was framed in a new way which changed the sponsors definition of success by having products ready for

production as well as concepts which were not finalized to the point of production but were proved to a point where it was worth investing in-house resources into as an advanced concept. USB benefitted in having products move directly into manufacturing as well as a multi-disciplinary innovation lab without as great of a financial investment and risk involved, while students had the ability to explore without the pressure of all products going direct to market. This academic sponsored design studio structured as an innovation lab showed that when students are given the space to pursue "blue sky" concepts with a limited brief and deliverables, but are encouraged to quickly create a mass of non-precious mockups to prove each statement they make and concept proposed, they are able to succeed not only within academic structures, but also professional practice.

Literature Review

In 2007, Design Council was asked to conduct a study assessing industry leading corporate design teams to assess what design processes lead to success. Within the specific section of text cited, Design Council performed an in-depth analysis through interviewing designers at 11 industry leading corporations and developed a framework based off consistency in their findings. They developed the double-diamond design process which has been coined and rephrased in academia (encapsulating discover, define, develop, deliver), and largely informs the design process we instruct students with. (London: Design Counsil)

Industrial Design Pedagogy versus Professional Practice

Traditional design classrooms present the design process following the double diamond design method (Design Council, 2007). Students are instructed to discover through research, to define with an opportunity statement, pursue development through ideation (combining sketching and prototyping), and delivery from refining their concept into a final product. Refinement usually consists of one to two rounds of three concepts being user tested and assessed into a final design. This is partnered with a competitive atmosphere where students are pressured to have the best critique. Students are assessed on the product's ability to be immediately manufactured, market ready, highly crafted final models, process sketches, final renders, and graphic styles. With this framework, generally only specific aesthetic tastes with sketches, renderings, graphics, and photographs are seen as highly successful. Within in the process expressed to reach these final deliverables, students are also held to high standards of craft within their sketches and mock-ups, which can effectively lead to excessive amounts of time expended on ill-researched concepts without validating through user testing.

On paper, professional studios are structured similarly, since the double diamond method was coined from an in-depth study of successful in-house design studios (Design Council, 2007). The difference between the two is significant in how they are specifically enacted. Professional studios, due to production timelines and business pressures, are often forced to spend much less time on discovery, quickly find an opportunity within their product space, and move onto the first wave of ideation. Multiple rounds of ideation and refinement are pursued with performance validation until a handful of concepts are developed at a standard for user testing. From that point, designers assess findings in user testing, refine concepts further until projects are

developed enough for manufacture, meanwhile market and user research continue throughout and is interwoven within initial mockup and ideation phase. Within this process, the focus is not to have the best product or to have excellent reviews as academia pursues. Instead, the focus is on investigating partial segments of the overall design problem in order to systematically work through a project which could be overwhelming and not get caught up in a task which may be too large on the whole, but divided into smaller projects which are investigated in a quick decisive and rudimentary fashion. This method keeps initial ideation from becoming too precious and allows the designer to continue to move through other concepts without getting fixated on one idea. The process used in order to reach the standard set to manufacture is comprised of low- fidelity process to filter through ideas in order to spend less time on the craft of process and more time analyzing and moving forward with concepts.

Further Explanation of Sporting Goods Corporate Design Structures

Within professional studios in sporting goods, there are large corporations like Nike or Under Armor who dominate the market. These and other corporations are large enough to include dedicated in-house innovation labs to pursue "blue sky projects" (advanced concepts meant to disrupt the marketplace with an entirely new market, material application, and/or function) As sporting goods corporations rely on their reputation as being best in performance for their market to grow their market share innovation is a key aspect of their business. These key brands are large enough to holds a specific design team only concentrating their time on innovation and producing advanced concepts to change the current market space. Other medium scale or small corporations like do not have the expendable budget or risk allowance to pursue innovation labs in-house. The primary focus of the design work in these studios is on in-line products each year, meaning that once any "blue sky" ideation occurs, it is often not of primary focus, since the priority is to get the next phase of in-line products ready to go to market.

Research Methods

Classroom Structure

In the fall of 2016, the lead author led a sponsored studios at Iowa State University partnered with United Sports Brands (USB) (a mid-level sporting goods corporation) specifically designing products for subsidiary Nathan Hydration. The studio was framed in a new way which changed the sponsors definition of success from products ready for production to concepts which were not finalized to the point of production but were proved to a point where it proved potential and was worth investing in house resources into. USB benefitted in having a multi-disciplinary innovation lab without the financial investment and risk involved, while students had the ability to explore without the pressure of products going direct to market.

The concepts validated within traditional academic sponsored studios are a preselected amount of market ready products. The added interest in innovation and pursuit of "blue

sky" concepts this studio allotted to also reward incubator concepts (ideas thoroughly researched and solidly based that have potential to be market disruptors) and elemental concepts (strong ideas that have elements that will go into production, but not the product overall). Having these three categories of concepts validated, created a beneficial set of outcomes for both students and sponsor. The student received experience working on both in-line products that need to be market ready, as well as "blue-sky" concepts. The sponsor on the other hand obtains a set of projects - fresh perspectives on in-line products and highly tested innovation concepts.

Students would have a multidisciplinary group and individual project to complete, for a holistic educational experience in both market ready and innovation products. Two group project options were available to students. One was to work on Nathan Wearable Hydration- a product where Nathan is the industry leader, meaning they face other companies being "market disruptors." Nathan was looking for students to instead be market disruptors for them and was specifically seeking a new point of view, new material application, innovative function, and/or new market opportunities. The other group project option was in the wellness category, which was an entirely new market opportunity for the brand, meaning desired results included a solid category platform to enter the marketplace. Essentially students were answering the question: what does a Nathan wellness product look like? In the individual project category students could design Nathan everyday water bottles or work on the group project categories.

Instruction

For instruction methodology, the USB studio was operated resembling the structure a design manager would conduct studio. This meant that the students received a specific brief from the studio sponsor at the beginning at the semester with the projects previously described and had dates with broad deliverables for four student presentations to the client throughout the semester. There were set deadlines for each phase, only two weeks for initial research and for students to define an opportunity to pursue with the understanding that research would continue throughout the semester and would become more defined as their concepts narrowed. Following initial research students had three weeks to conduct a minimum of three rounds of at least 6 to 12 quick and rough mockups along with rough informative sketches. Each round were thoroughly reviewed, concepts were not discarded if they were not perfect, but were instructed to see if the idea had potential and to keep moving forward if so. In order to keep the ideation quick and also to prevent fixation on a single concept by the students they were instructed to use duct tape and staples, deconstruct existing products and quickly manipulate them to validate ideas. By shifting the focus from perfect craft to rough validation of initial ideas students felt comfortable trying out ideas which they weren't sure would work and took more chances. Each round of initial ideation became more refined as students narrowed their investigations, by the time of their second presentation they had narrowed down to three well vetted concepts, instead of constructing via duct tape and staples they were sewing and using relatively close materials to what would be used in production, although focus was still not on aesthetics, performance was well defined and shown via prototypes and supporting sketches presented to the client. Students showed their iterative process and

the clear reflection through each stage of what was not working and where there was potential, which gained the trust of the client, especially for concepts which would otherwise have appeared risky.

Student Evaluation

As previously stated, there were three main product categories validated in this studio classified as: Market Ready, Incubator, and Elemental. Each project was not only validated on this criterion of general concept categories listed, but also based on feedback received from project managers at USB and Nathan Hydration through monthly presentations on research, concept proposals, form development, and final feedback. This kept studio from being academically biased and highlighted the notion of multiproduct, holistic studio success.

Students were required to have final renders, manufacturing files, technical drawings, final models executed well enough for a manufacturer to grasp, fully robust marketing campaign, and strong pitch. Validating student work was comprised of their results in the project manager's eyes and in academic setting, their pursuit in process work, collation of their rigor in pursuing concepts, and how well classmates worked in a collaborative dynamic both in small groups, but studio overall. Academically, projects were rewarded for process and innovative concepts due to holistic pursuit in problem solving, rather than quality of sketches, fidelity of final renders, graphic styles, presentation layout, and a finalized design. These were requirements for final presentations, but instead of validating primarily from these variables, the pursuit of concept, specifically during the second phase of rough mock up iteration, determined the success of the project.

To validate whether this studio structure and instruction methodology was successful, Students and the client representatives were interviewed after the studio ended. Project managers from USB confirmed how many concepts will move forward within the framework of the three categories: Market Ready, Incubator, and Elemental. This was contrasted against the structure of previous studios, where a preselected number of projects would move forward into production. By using project progression into market as a source of validation, we are able to gauge how successful student work not only resembled work done in professional practice, but meant students were able to succeed within a rigorous professional practice setting.

Results

In total, there were 21 number of projects completed with 3 number of Market Ready products, 3 Incubator products, 4 Elemental products, and also included the application of 1 patent. These results were higher than not only expected studio outcomes from academia, but also surpassed the expectations of project managers at USB and Nathan Hydration. The student work presented not only fulfilled the requirement of collectively working together for group success and robustly pursued ideas, but had quality final models as well. Within the expectation of robust process work, they exceeded expectations.

This academic design studio partnered with a corporation, structured as an innovation lab and instructed like a professional practice studio showed that when students are given the space to pursue “blue sky” concepts with a limited brief and deliverables, but are encouraged to prove each statement they make and concept proposed, they are able to succeed not only within academic structures, but also professional practice. A year later, we interviewed several students from this studio who now work in the sporting goods industry who noted that the classroom structure and requirements left them not only with increased confidence in applying for jobs, but also prepared them for what it is like to be a designer in a professional practice setting more than any other studio had, this included AMD as well as Industrial Design students.

Conclusion

This study informed that in sponsored studios as well as general Industrial Design studio settings learning outcomes can be broader and more student centric than operating as a design for hire studio where stress of success may inhibit students from taking risks and limit their learning. In the next study, not only interviews will be conducted, but also pursue these questions through continued surveying of student opinions throughout the studio in concordance with analyzing their work to gauge not only if student opinion changes, but how their work, quality of work, and robustness of exploration adjusts throughout the semester.

In conclusion, traditional sponsored studios can cause students to fixate on a safe or initial idea. By shifting the framework of successful outcomes and by having students working in multiple tiers of rigorous creation of rough mockups leads to increased student and sponsor success. This study should inform Industrial Design pedagogy to operate its design studios with further robust exploration, and widen its perception of successful concepts to include Incubator and Elemental and not just Market Ready products.

Author Biography

Assistant Professor Betsy Barnhart

Betsy completed her MFA in Industrial Design from the Rochester Institute of Technology followed by ten years of professional practice. She was the Design Manager at STX LLC a licensee of Nike Lacrosse (an industry leader in Lacrosse, Ice Hockey, and Field Hockey equipment), where she focused on hard goods as well as protective equipment for men’s and women’s Lacrosse. Prior to Nike and STX she was a Senior Industrial Designer at Newell Rubbermaid. Betsy has an extensive background in design research, performance based design, design, product validation and testing, production and manufacturing processes.
Her research focuses on reframing design processes within the educational and professional design studios in order to maximize outcomes with a broader and more inclusive toolset, with a focus on exploring non-precious rapid ideation mockups and visualization techniques while integrating user research throughout the design phase to move beyond fixation for multiple viable outcomes.

Kellie Walters

Kellie Walters is a Senior in Industrial Design Student at Iowa State University. She is passionate about making as well as making a difference. Kellie has worked as an Under Graduate Research Assistant since her Sophomore year, has presented her research at Research at the Capital in Des Moines, IA and is running her own research projects. Kellie continues to focus on research, writing, and making in order to give her all possible means of exploration.

References:

Eleven Lessons: Managing Design in Eleven Global Companies (pp.6--7, Rep.).(2007). London: Design Council.