CAMP STUDIO:
EXPLORATIONS IN OUTDOOR PRODUCT DEVELOPMENT

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1. INTRODUCTION

This paper will describe a model for a fourteen week design studio focused on outdoor products for first year undergraduate (B.S. Design) students. The studio followed a traditional development path from research, idea conception, ideation and final refinement and presentation. This studio challenged the students to identify an opportunity to design a product that facilitates an experience between man and nature while minimizing impact. In addition, the studio utilized three main components that served as a pedagogical foundation for the class. The first component was first-person engagement; this allowed students to experience the use of outdoor products and identify opportunities during a weekend camping trip. The second component was a theoretical and practical exploration of the concept of sustainability through readings, discussion and precedent analysis. The third component was active participation and engagement with the Outdoor Industry Association and the Outdoor Retailers Show as well as mentorship from industry professionals throughout the course.

2. CAMP STUDIO

The design studio during the Spring 2014 semester explored the concept of designing products or experiences that facilitate an experience or understanding of nature while minimizing human impact. The students were assigned readings on ecology, the relationship of man and nature, and cradle-to-cradle practices. After a studio camping trip to the Valley of Fire in southern Nevada, they were tasked with exploring a particular theme in regards to research and precedents – energy, shelter, transport, waste, food & water and storage – and developed their own problem statements in response to their observations and insights. From these insights the students focused on one particular opportunity and developed a product solution.

The studio addressed the following learning objectives:

1. Student proficiency in conducting in-depth precedent analysis
2. Understanding concepts related to synthesis of design research information
3. Communication of design research to a variety of stakeholders
4. Identification and communication of key design opportunity
5. Translation of design opportunity into tangible products, services or processes
6. Refined product, service or process that clearly addresses design opportunity
7. Understanding of business case for product, service or process
8. Understanding of impact (environmental, business and engineering) of designed solution
9. Ability to compile all material from course into a comprehensive and understandable package
10. Ability to work in interdisciplinary teams

2.1 STUDIO PROJECT STRUCTURE

The studio was structured so that students could investigate and develop a product that fit into 6 predefined categories - shelter, energy, water, food, transportation and storage. The project was given the additional parameter of addressing an individual that was camping for no longer than 30 days and had access to some conveniences such water access and toilet facilities. This approach allowed the students to pursue their interests and develop solutions that they were passionate about. Students were allowed to pursue interests in hard and soft goods, experiences and services. This approach to the studio required that the students use strategies that were introduced on how to translate identified issues into design intervention opportunities. In addition, this approach allowed for the instructors to fully explore the three components of the course – first hand experience, sustainability and industry engagement.

Figure 1. Student Process and sketches.

The studio was broken into five phases of development: (1) Introduction, (2) Research, (3) Ideation, (4) Product Development, and (5) Reflection. Each phase was approximately five weeks with the introduction and reflection being one week. The studio concluded with a final walk-around jury where mentors, faculty members and other interested individuals were invited to view the students work and provide feedback.

2.3 STUDIO PROJECT DELIVERABLES

Throughout the semester the students had weekly informal deliverables that facilitated discussion between the students and faculty members. At the conclusion of each activity or phase the students would have a formal presentation that summarized their efforts. These formal presentations were attended by a variety of reviewers that were both internal to the University and outside Industry professionals. The deliverables for the studio also focused on reinforcing the three components of the course; first-person immersion, sustainability and industry engagement.

Phase 1: Introduction

a. Assigned Readings with Discussion
   Students were required to read theoretical papers on the relationship between man and nature and prepare questions for discussion during a seminar format discussion section with experts in the area from outside the course.
   Component: Sustainability

Phase 2: Research

a. Camping Trip Documentation
   Students were required to produce sketches of the environment, diagram process and sequenced events and illustrate issues with products that they were using. They were also required to participate in the energy flow game that illustrated the concept of sustainability.
   Component: First Person Immersion

b. Issue Identification and Opportunity Analysis
   Each student was required to summarize their findings from their camp trip and research into a formal presentation that discussed the issues that were observed and opportunities for design interventions.
   Component: First Person Immersion, Industry Engagement.
c. LifeCycle Analysis of Outdoor Products
   Students were required to choose an outdoor product that was in the general area that they were researching and conduct a thorough lifecycle analysis of that product.
   Component: Sustainability

Phase 3: Ideation

a. Mid-Term Product Concept Pitch
   Students presented their ideas for addressing the opportunity and ideation process to a group of industry professionals to obtain feedback about direction
   Component: Industry Engagement

Phase 4: Product Development

a. Students then had to develop their product concepts and present to a variety of industry experts. The students had to prepare physical prototypes, digital prototypes, presentation sketches, process, manufacturing flow diagrams, lifecycle analysis and a business model.
   Component: Sustainability, Industry Engagement

Phase 5: Reflection

a. Students developed process books that summarized their semester's work. This book contained all of the student's process and finished products. Each student was required to make two copies and also upload a digital copy for digital distribution.
   Component: Sustainability, Industry Engagement

3. FIRST PERSON IMMERSION

In order for the students to truly understand what the issues are with in the camping experience, a camping trip was setup for all 17 students enrolled in the class. This camping experience was over 3 days and 2 nights in the southern portion of Nevada in the Valley of Fire State Park. The studio instructors felt that this immersive experience was vital to the students' understanding of the camping experience and could illustrate many of the issues that they would be designing solutions for. Research shows that immersive, firsthand experience is a critical component of the design process and facilitates deep empathetic understanding of the user and their needs (Maxwell, 1996). Just as a design student can not be taught the act of making by merely being told how to do so, the identification of opportunities and insight into user needs must also be learned heuristically. This studio attempts to go beyond the traditional practice of giving students a set problem - with prescribed parameters - to solve.

"Its assumption is, that by acquiring certain skills and by learning certain subjects which would be needed later (perhaps in college or perhaps in adult life) pupils are as a matter of course made ready for the needs and circumstances of the future. Now "preparation" is a treacherous idea. In a certain sense every experience should do something to prepare a person for later experiences of a deeper and more expansive quality. That is the very meaning of growth, continuity, reconstruction of experience. But it is a mistake to suppose that the mere acquisition of a certain amount of arithmetic, geography, history, etc., which is taught and studied because it may be useful at some time in the future…" (Dewey, 1938)

The camping trip was therefor not only an experience in nature and first-hand understanding of ecological issues, but also the opportunity for students to develop knowledge from the experience of identifying problems or opportunities for innovation with in the context of camping. Dewey's argument for education through experience also emphasizes *continuity;* it becomes the program's responsibility to create a curriculum of studios that build on the students 'abilities while introducing new challenges.

Many students in the course had not been camping before and so they were given a checklist of items that they should bring. This included tent, sleeping pad, sleeping bag, mess kit and other miscellaneous items. The instructors requested that students document the process of packing and the equipment that they brought in order to identify insights about

equipment dimensions, structure and packing issues. Due to the number of students and faculty that camped, the group did not choose a primitive site but rather a group site with nearby toilet facilities and a sheltered place for eating and cooking. This allowed the group to have minimal impact on the surrounding area. In addition, it allowed for the group to share meals and activities.

Figure 2. Students participating in observation and analysis activities on the camping trip.

The students were encouraged to document their activities including sketching exercises, camp equipment challenges and reflection sessions. The camp equipment challenges were a fun way for students to explore and understand design issues through real use. For instance, the students were asked to quickly deploy a camp stove and boil water or to erect a tent that they had not seen before. During the exercises, the students were encouraged to think aloud and indicate the issues that they saw and had experienced. After the completion of the timed exercises the group reflected on what they issues were and how they could be solved through design interventions. In many ways, this allowed the students to see how they could improve the products though design decisions.

4. SUSTAINABILITY FOCUS

An important component to the course was the introduction of the issue of sustainability. This included the ideas of cradle to cradle product development strategies and material and manufacturing considerations. The instructors developed two specific strategies to introduce these concepts to the students that were then supported by more traditional investigations and assignments in the studio. The first approach was to have the students read some highly theoretical texts and articles to help frame the sustainability issue in a broader context. The reading included chapters from texts by Howard T. Odum, Manual De Landa, Lewis Mumford and Morris Berman (Odum, 1971, De Landa, 1997, Mumford, 1952, Berman, 1981). This raised the idea of having an ecological conscious with the underlying premise that a designer has the ability to change cultural and societal attitudes through successful products that are adopted on mass scales by the public. The outdoor product industry is an ideal stratum upon which to lodge oneself in an attempt to effect change in regards to sustainability. It is much easier to convince people to save something they value, and outdoor recreation is a way to leverage this value while possibly re-orienting design students and consumers alike to the environment.

'You don't reach the BwO, and it's plane of consistency, by wildly destratifying…. If you free it with too violent an action, if you blow apart the strata without taking precautions, then instead of drawing the plane you will be killed, plunged into a black hole, or even dragged towards catastrophe. Staying stratified – organized, signified, subjected – is not the worst that can happen; the worst that can happen is if you throw the strata into demented or suicidal collapse, which brings them back down on us heavier than ever. This is how it should be done: lodge yourself on a stratum, experiment with the opportunities it offers, find and advantageous place on it, find potential movements of deterritorialization, possible lines of flight, experience them, produce flow conjunctions here and there, try out continuums of intensities segment by segment, have a small plot of new land at all times.' (Deleuze/Guattari, 1897)

In this excerpt Deleuze and Guattari describe an approach of working with in a stratified system to produce change - exactly what the studio aspired to teach the students. The opening passage can be used to describe an iterative design process as well as a strategy for changing the world. In the studio, design students are taught to realize potential through questioning and making, again and again. The discussion for activating a shift in perspectives towards ecology through product design can be explored on a different scale as a metaphor for the design process. This conceptual understanding of theory, in

addition to the objective to improve the future state of the environment, gives meaning and purpose to the studio project. The studio seeks to educate students to ask why they should design a particular solution, not just how to do so.

A second approach to illustrate the concepts of sustainability was to help students understand (first hand) the energy flows Odum talks about in the assigned reading. In order to really experience this, students would have to go back to primitive practices on a site completely 'off grid' but since the studio was camping at an organized campsite with infrastructure and modern conveniences, we designed a game that to help the students understand their own energy consumption and their impact on a closed system of resources.

Each camper was given 10- 20 beans upon arrival to the campsite. These beans symbolize the embodied energy in our activities. Students were required to 'pay' for activities with their beans, and once they ran out, they had to complete specific tasks to get more beans. At the same time, our collective bean stash for the campsite was limited, and while some beans could be reclaimed from activities, there was a percentage that went into the 'expired waste pile'. The beans in the expired waste pile will be usable again in approximately 10,000 years.

There was a bean jar at each of the following locations with in the campsite; the percentages for each dictate the portion of beans that must be expired to the waste pile. The students were given a bean usage diagram that related to the energy flow diagrams in the Odum reading. Tasks to get more beans were assigned, as general work was needed around the campsite, or students earned more beans by doing jumping jacks and ten-minute dance parties.

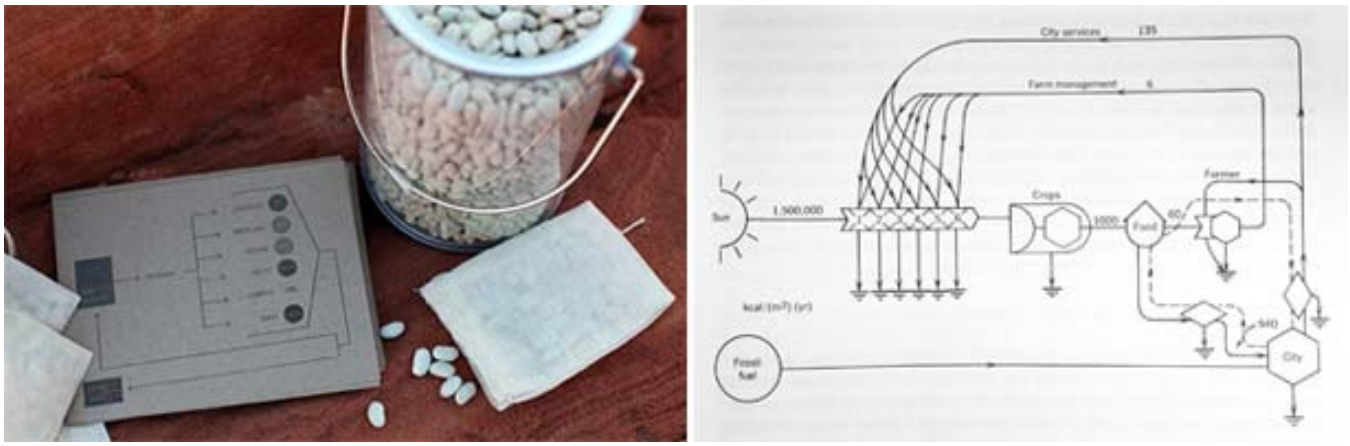

Figure 3. Bean game diagram from camping trip compared to Odum energy diagram.

Outhouse	70%
Water jugs	50%
Camp kitchen	50%
Fire pit	100%
Biodegradable trash	10%
Un-biodegradable trash	100%

The students were very positive and fully participated in the game. They seemed to enjoy the challenge and began identifying new bean trading opportunities in relationship to our forms of energy consumption. They tended to take the game quite literally and this led to ways in which the students tried to manipulate the rules. Students started to hoard trash in their tents and back backs to avoid bean payment, and were much more aware of their use of water. Overall the bean game became a powerful metaphor for discussing energy, consumption, waste and environmental impact.

5. OUTDOOR INDUSTRY PARTNERSHIP

Often design students don't understand how the skills and methods they learn in school apply to the 'real world'. Especially in design, students are often given the false pretense that they will 'design' any one object or product, from beginning to

end, on their own. The process of product research, development, manufacturing, packaging and supply chain are often glossed over or avoided altogether in design courses. These issues allow design programs to continue to send graduates into the profession with very little insight into the types of roles they will play and the types of careers they can craft. Furthermore, design firms and product companies are required to spend a great deal of effort in catching these students up to speed. The most pressing need we are hearing from the profession is that they need students who can think and solve problems and not just 'stylists'. By exposing students to the professional industry, the studio reinforces the mission of the OIA 'to ensure the growth and success of the outdoor industry.'

From the Outdoor Industry Association website: *"Outdoor Industry Association® (OIA) was founded in 1989 by a group of visionary outdoor industry professionals who realized that "outdoor" could be much more than a passing consumer trend. Today, OIA is the leading trade association and voice of the outdoor recreation industry, serving more than 4,000 manufacturers, distributors, suppliers, sales representatives and retailers in the active outdoor lifestyle. With offices in Boulder, Colo., and Washington, D.C., OIA is the title sponsor of Outdoor Retailer and the trade voice representing a $646 billion industry. OIA supports the growth and success of the outdoor industry through its focus on government affairs, sustainability, outdoor consumer insights, industry trends and youth participation. OIA hosts an annual industry leadership forum and delivers on-demand and in-person education, tools and resources to help its members grow and succeed in the dynamic and ever-changing outdoor recreation marketplace."*

The studio has approached collaboration with the industry in four ways:

1. The OIA Outdoor Retailers show gives students the opportunity to see what happens with products after the design work is done. The show gives them a first hand experience of how products and retailers are connected, of how products are taken to market and how the business of outdoor products is conducted. This is valuable insight into the professional world they are expected to contribute to as graduates. By exposing the students early on, design education can provide the employability that companies are looking for in the designers they will be hiring. It also provides valuable insight into the variety of roles that designers can play and the many types of career paths they might pursue in any product industry.

2. In conjunction with Outdoor Retailers, the OIA hosts conference sessions focused on a variety of industry and sustainability topics. These sessions were especially interesting for the students because they could see the sustainability issues that were discussed in an academic setting applied in a real world situation. The more these concepts are reinforced, the more apt the students are to become leaders in conservation and sustainability themselves.

3. The OIA studio liaison coordinated a panel discussion during the Outdoor Retailers show with industry leaders and experts. Participants included a variety of professionals and outdoor athletes. This was a forum for participants to discuss their experience and lessons learned as well as the future of the industry. The students also had the opportunity to ask questions.

4. Finally, the studio engaged industry professionals throughout the semester as guest critics and studio reviewers. These interactions were both formal reviews and informal desk critiques with in the studio. The final review of the semester was an exhibit attended by a variety of designers and professionals related to the outdoor industry.


Figure 4. Walk-around review.

6. OUTCOMES & STUDENT WORK

The range of projects that the students imagined was quite broad; they identified 14 unique problems to address. The students were given agency to decide if products - or perhaps services, experiences or policy - were the appropriate approach to finding a solution. Many students pursued improvements to traditional equipment such as tents, stoves, bear canisters, storage and tools. Others approached services and education: one project was an outdoor experience for teens with anxiety with a curriculum to address physical, social and mental health. A third type of project took a more conceptual approach such as the design of a range of cups that referenced the experience and meaning of drinking from 'the original vessel' (cupped hands) and the forms that resulted from addressing the ritual as well as the physical act between hands and mouth.

Figure 5. Left: Student project. Right: student review.

7. LESSONS LEARNED

As the studio curriculum continues to be developed, the goal is to hold an Outdoor Studio each fall semester for the first year design major students. The entire design program (2 classes, 35 students) will go on a camping trip the first weekend

of school. This trip will become the foundation for the studio, but also create a tradition in building relationships and culture with in the program and among the students. The trip has the potential to be a transformative experience welcoming new students into the program and allowing senior students to mentor them, providing a beneficial interaction for everyone involved. The studio camping trip will continue to facilitate first-hand observation and research as well as illustrating the ecological principles inherent in the project. This first pilot studio allowed students to pick their own topic and thus required the scope of the studio to have a broad range. In shifting the studio to the fall, it will occur earlier in the course sequence and as a result the students will have less experience. In order to address this the studio will have a specific topic each semester going forward.

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