AN ENLIGHTENING CHALLENGE: THE PROCTER & GAMBLE MULTIDISCIPLINARY STUDENT DESIGN COLLABORATIVE

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ABSTRACT
Design education is in constant transition. It is becoming more critical that designers are trained to think, strategize and collaborate. Designers are required to approach design problems with a holistic standpoint for creating innovative products and emotional brand experiences.
This paper is a descriptive case study of an interdisciplinary course that was centered on a junior–level product design collaborative studio with additional enrolments of engineering and graphic design students. The class was divided into student teams and was co-taught by both product and graphic design faculty in a ten–week academic quarter. The Procter and Gamble Company (P&G) provided funding and a theme for the course project, which was to develop a product design and brand strategy relevant to an intended consumer experience. This arrangement allowed the students to learn cooperatively and to gain experience where success was a function of the convergence and divergence of the participating disciplines.
The key focus of this paper is to examine a product, engineering, and graphic design educational collaborative experience from the students', instructor' and the sponsors' perspectives where the gaps were both empowering and constraining during the different phases of the design process, from information gathering, analysis and interpretation, opportunity and criteria definition to design documentation and presentation. This study identifies issues of concern to the participants and discusses the influences of these concerns on leadership, team interaction, communication, roles and responsibilities, and quality of work.

Keywords: Multidisciplinary Design Education, Industry Collaborations, User-Centered Design

1 INTRODUCTION

During the latter half of 2005, the Industrial Design Society of America (IDSA) issued a call for proposals for the second Interdisciplinary Student Design Collaborative Program, sponsored by the IDSA in collaboration with Procter & Gamble. From a large field of entrants, Ohio State University, along with three other schools (Arizona State, Virginia Tech, and the University of Cincinnati), was selected to participate in the program. This entailed substantial financial support from P&G, as well as frequent meetings with design professionals from P&G who acted as advisors.

The primary objective for P&G was to support and inform the design education community by encouraging the adoption of truly interdisciplinary projects in to university design curricula. The program was intended to prepare students to work in professional environments in which success depends upon working with a variety of disciplines to develop product designs, business cases, and brand architectures that provide satisfying consumer experiences.

2 OUR FOCUS

The focus of the 2005–2006 program was "The Aging Consumer", a particular area of interest for P&G, given the global reach of their markets. Consistent with the program's goals of introducing students to interdisciplinary teamwork and raising awareness of the particular needs of the aging consumer, we decided to address two specific dimensions of the targeted population: ethnicity and the role of the caregiver. These two facets of the problem are closely related, because elderly members of ethnic families in the United States tend to remain with the family, as is the case in many other cultures in which P&G products are marketed. Our project aimed to develop products that can assist and support both the aging individual *and* their caregiver's wellbeing in the context of ethnic households.

Ethnic caregivers in particular often face additional challenges due to their economic, social and cultural norms. Designers need to realize that when addressing elders' needs, different cultures may require different design approaches. Important issues that should be addressed include: Individualism vs. collectivism (i.e., not all cultures seek total independence); definition of family, marriage and the role of women; status of the elder in the family unit; direct vs. indirect communication channels and patterns (i.e. some individuals prefer not to be directly informed about their medical condition and treatment decisions); language barriers; and mistrust of the health-care system.

As stated in our proposal, our goals for the students included the following: engage in multi-disciplinary teamwork, gain sensitivity for personal relationships within the target user group, examine fast growing and culturally diverse aging minority groups in our society, and to develop product and brand concepts that facilitate better quality of life for all stakeholders.

3 PROJECT CONTEXT

The Columbus campus of Ohio State University is one of the largest campuses in the United States, with over 50,000 students on campus during the academic year. During the proposal stage of this project, we made a special effort to reach out to other relevant disciplines including: marketing, engineering, and anthropology to assure that the students would have a truly multidisciplinary experience. Several faculty members in different colleges across the campus expressed interest in the project; but later dropped out, due to scheduling difficulties. The disciplines represented in the final project were industrial design (twenty students, two faculty), visual communication design (five students, one faculty), mechanical engineering (three students, one faculty) and systems engineering (two students). Both the student population and the faculty were also quite diverse: the U.S., India, Korea, Colombia, and the Philippines were represented and several of the American students came from ethnic families, in which they were the first generation, native-born. The student teams were structured so that each team had a diverse composition of discipline and ethnicity.

4 PROJECT DEVELOPMENT

Over the course of the ten–week quarter, the project was decomposed into the following sequential phases:

4.1 Discovery phase

Students were initially divided into research groups, each of which employed a different method of data collection that was later shared with the entire class. These methods included: *Literature review* (information was collected on the elder healthcare industry, caregivers organizations, ethnic/cultural characteristics of immigrants, demographics etc.), *Benchmarking* (information was gathered on available products for aging adults and their caregivers, specifically focusing on products related to health/wellness and house/home; this group also studied P&G's corporate values, business models and brand strategies for a number of their products.), *Interviews* (the students conducted semi–structured interviews with caregivers, elders and family members.), *Observation* (this group conducted non-participatory and participatory direct observations).

At the conclusion of this phase, the class collectively identified *Communication* and *Centrality of the Family* as the two defining characteristics that were common to the population researched. Most elders who immigrated to the United States at an older age, have a limited English proficiency and this creates additional stress for them and their caregivers. These individuals are linguistically isolated and depend on a caregiver and/or family member as their primary communication channel.

Many ethnic groups researched and represented in this project, have a special attitude toward the importance of family. They depend on lifelong mutual assistance where multi-generational households are common.

4.2 Identification phase

At the conclusion of the discovery phase, the research groups were disbanded and the students were assigned to design groups. During the identification phase, the students organized and clarified the previously collected data in order to identify problem opportunities. They used visual and analytical methods for brainstorming such as mind maps as well as the development of personas and user scenarios based on the information gathered. User scenarios are hypothetical stories or visualizations, in which ideas can be placed "in context" in order to give the design team an understanding of how users will interact with a product in a given situation. This particular technique helped the group members gain insights, understanding, and empathy with their subjects. This study of consumer experience helped the students discover real user needs, wants, and desires.

From the development of the scenarios, the students identified opportunities and defined design objectives and product experiences for their personas. They created visualizations through videos, animations, and sketches in order to convey the emotional needs and the physical challenges many individuals in this market segment experience on a day–to–day basis.

4.3 Final phase: design recommendations

During the final phase, the design teams made recommendations for new products and brand experiences. They developed product concepts that included: a toy for grandparents and children to enable learning each other's language; a line of safety products that protect children while allowing easy access for elders; a personal

monitoring exercise system; a lighting system for the home; and a product for safety and comfort in the bathroom.
At the end of each phase, the groups presented their progress to the faculty and P&G advisor team, who provided feedback and challenged the students with new approaches. While this process often proved to be somewhat frustrating to the students, who had never worked in a similar situation before, the end results were quite rewarding.

5 REACTIONS

The authors of this study conducted five student interview sessions, one instructor discussion session, and administered a questionnaire to the P&G advisors following the completion of the project. The goal of this investigation was to examine the collaborative learning experience from the students', instructors', and P&G advisors' perspectives. Each student participant received a discussion guide a week prior to each session. Seventy-five percent (22) of the students enrolled in this collaborative project provided data for this study. Additionally, three out of the four P&G advisors replied to questionnaires. Content analysis of the gathered data from all participants revealed insights found in sections 5.1, 5.2, 5.3, and the Conclusion of this paper. This study concentrated in the following areas: leadership and team interaction, learning experience, and project expectations. A summary follows.

5.1 Leadership and team interaction

Visual communication design (VC) students preferred clearly defined roles for this type of collaborative project. While VC design students were confident of their ability to provide structure by initializing, clarifying, and summarizing for presentation purposes, they felt more comfortable with having industrial design students lead the discovery, identification, and design phases. The Industrial Design students (ID) were comfortable in a leading role since the goal of the project was assumed to be a product, and the context of the project was an ID studio; however, working in multi–disciplinary teams was also a unique experience for them. The ID students are required to present their projects at the end of every academic term using visual means of communication; however, they know they lack the in–depth training in this area that the VC students possess. They welcomed the "professional" assistance of the VC students, although there was a clear gap in how the students perceived the importance of this role. The engineering students, in general, regarded themselves as "support personnel" throughout the project, and did not expect to take a leadership role. On the other hand, these students also expressed frustration with the fact that their field of expertise was not critical to solving the problems the teams confronted.
A common point of friction and a significant leadership issue among group members was direction decision making. One of the P&G advisors clarified, "This is where so many collective decisions need to be made by the group, not only on a practical level (what works with the timing, delivers objectives, etc.) but also on a personal or emotional one (which direction do you have passion for?). This is often the stage that creates the most friction, as not everyone is coming from the same direction."
Emphasizing principles of Leadership and decision making, while maintaining a flat hierarchical structure that promotes creative thinking, would be extremely valuable in similar group projects.

5.2 Learning experience

The reviews from the P&G advisor team in addition to design directions from the course instructors helped each team to develop focal points and unique solutions during key design phases of the project. The VC design students expressed a positive experience from direct interaction and communication with the P&G advisors to their design presentations. They gained a new respect for the ID profession regarding the complexities of product development. The ID students also acquired an increased appreciation for the VC and engineering professions. Through their interaction with the P&G advisors, they learned a new way of approaching design problems. The engineering students expressed appreciation for both design fields; although several of the engineers had worked in multi–disciplinary teams in the past, this was their first experience working with design students and design professionals. Without exception, they wanted to continue working with designers in the future.

Generally, the P&G advisors felt the project had positive long range impact for all involved. One P&G advisor stated, "The P&G/OSU collaboration was great for both groups – I learned a lot from the students and felt that I was able to positively impact their work, and I felt that the students enjoyed and benefited from the coaches' presentations – case studies of real world design projects and a lot of professional experience and advice. When I was a student, having a corporate sponsor for a project created a heightened sense of urgency too – the bar is raised as you're delivering work to an expert panel."

The P&G advisors confirmed the need for multi-disciplinary projects in education. One stated, "For the students, I'm sure that it was an eye-opening experience working in multidisciplinary teams. It requires you to not only communicate effectively to a different audience, but to be willing to engage with, learn from, and build upon the ideas of others who have a lot of expertise outside your field." Similarly, another stated, "Understanding the different goals and motives of their work groups and how to articulate and align design's needs and goals with the rest of the group's goals."

5.3 Project expectations

The P&G advisors were open minded about the specific project deliverables, but their expectations of quality, participation, and effort were very high since this project was the outcome of a very competitive selection process. By the end of the project, it was clear that the advisors were much more interested in a defined product opportunity, based on the users' experience, and in sharing the P&G product development process with the Ohio State participants. The faculty and students, on the other hand, had preconceived ideas of a traditional methodology, where the final outcome would be a three dimensional model, with each discipline performing well–defined tasks. These preconceptions created tensions within the groups, as well as between students and faculty. For example, the advisors would repeatedly ask the students to focus on the "experience" rather than the "shiny product" and telling the "story," or scenario, through images and video, rather than traditional rendering and model making.

For the faculty, this realization created an opportunity for new ways of generating and communicating design concepts; for the students, this process became stressful, because it was unlike any previous experience. The students felt that they were inadequately prepared to take on such an open–ended, ambiguous task. By the end of the project, several of the students expressed surprise and satisfaction at what they were able to accomplish, while others regarded the experience as being poorly organized by the faculty.

The P&G advisors enjoyed reconnecting with design education and were mainly motivated by a desire to help students learn about multi-disciplinary work and experiential design. They were not concerned about intellectual property and only mildly concerned about coordination issues and travel time (They typically scheduled an entire day including travel for a 3 hour classroom visit). They enjoyed reflecting on experiential design and group interaction in education and how it may apply to the future of product design practice. When asked about concerns they had about time spent on this project the advisors had mixed responses. One felt that the time commitment and cost of the project was valuable to P&G in many ways, while another had the following questions, "Is this a business priority? While teaching is renewing and a great personal learning opportunity is the time & money spent on the project recapped by the business?"

6 CONCLUSIONS

All students demonstrated both breadth and depth of analytical and design skills. They learned that it is essential to incorporate skill bases from different disciplines in order to achieve a successful design outcome. They gained greater perspective and deeper insight into a design problem by working with group members outside their fields.

From the perspective of the faculty, this was a valuable learning experience both from pedagogical and professional points of view. The logistics of managing the three disciplines and faculty contributors within a complex academic schedule was somewhat daunting given the time constraints required by the competition. It was very exciting to have the range of disciplines and students working together on a meaningful assignment. The P&G advisors also felt the project was a valuable learning experience and that there was a mutual benefit between education and professional practice.

Possibly the most rewarding aspect of the project, from the faculty point of view, was seeing the students gain insight into complex design problems. In every case, the student teams met the challenge, even though during the project, most teams expressed some degree of frustration. In the end, every group rose to the occasion, put aside their differences, and produced something they were all proud of.

While the limited data found in this study leaves room for reinterpretation, it does help us identify issues for further study as we seek to improve these valuable teaching and learning opportunities made possible by corporate involvement in education.

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