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Bridging the Chasm between Design and Marketing: Problems and Solutions in the Integration Between Design and Marketing

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디자인과 마케팅 협업의 틈새관리: 디자인과 마케팅의 협업시 통합의 문제와 해결방안

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Abstract Although integrating design and marketing is critical for successful new product development (NPD), there has been a limited attention to the potential problems that arise during the NPD process and their possible solutions in academic literature. In order to narrow this gap, our study conducted a series of surveys of an interdisciplinary class project between marketing and design students over two year periods at one of U.S. universities. From the survey data collected from the total of 65 students who participated in the collaboration projects, we identified two most common problems: (1) conflict from the functional background, and (2) the conflict from imbalanced decision-making authority between design and marketing. In order to resolve such conflict, we found the two contrasting solutions: (1) facilitating communication and (2) prohibiting communication. Our findings contribute to the formation of a theoretical basis for research on the topic of design-marketing integration.

요 약 성공적인 신제품 개발을 위해서 디자인과 마케팅의 통합은 중요하지만, 두 영역이 통합할 때에 명확하게 어떠한 문제가 발생하고 실제로 어떠한 방법으로 문제가 해결되는지에 관한 논의는 많지 않다. 본 연구에서는 디자인과 마케팅이 통합될 때 발생하는 구체적인 문제와 실질적인 해결책을 알아내기 위하여, 미국의 한 대학교에서 디자인 학생들과 마케팅 학생들을 대상으로 진행된 2년간의 통합적 신제품 개발 수업에서 설문조사를 실시하였다. 65명의 조사 결과에 따르면 (1) 기능적 차이에 따른 갈등과 (2) 의사결정 권한의 불균형이 구체적인 문제점으로 발견되었고, 이러한 문제점들을 해결하기 위하여 (1) 의사소통을 강화하거나 (2) 의사소통을 단절하는 방법을 사용하는 것으로 드러났다. 본 연구의 결과가 가지는 디자인 마케팅 협업시의 통합 영역의 학문적 시사점을 정리해본다.

Key Words : Communication, Design, Integration, Marketing, New Product Development

1. Introduction

Integrating design and marketing is critical for successful New Product Development (NPD) [1]. Some studies highlight the need for a 'brand compass' to ensure that designs that integrate style and technology and meet the needs of consumers must relate to the core selling proposition of the brand [2], while some

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others argue that product designs must be rooted in a brand's collective history [3]. Despite the importance of combining design and marketing activities, coordinating between design and marketing, however, is challenging. A long-term oriented designers' ideas are often resisted by a short-term oriented business-dominated culture that is present in most organizations [4]. Therefore, designers often need to temper their originality with brand consistency [5]. As Beverland (2005) [6] noted, there exists an inherent "tension between the values of designers and the output- and performance-focused business disciplines" (p. 196). Researchers attribute this to different "thought worlds" and have studied how to achieve closer integration and coordination [7, 8, 9, 10]. In addition, Srinivasan, Lovejoy and Beach (1997) [11] further suggest that the cross-functional NPD teams must effectively use the data collected during the NPD process in order to enhance new product performance.

Historically, two opposite approaches have been suggested for bringing about closer integration. The first is a convergent approach that suggests facilitating communication between design and marketing in order to narrow down diverse ideas into more feasible ones. Prior studies that examine the benefits of integration between marketing and engineering and that between design and business support this argument [12]. For example, the importance of coupling design with other activities within the firm was highlighted. The second, a divergent approach is to prohibit communication between design and marketing by shielding designers from business functions, or vice versa. BMW, for example, appointed an official mediator between the design department and the rest of the firm, who is responsible for shielding the design team from unproductive criticism, enabling designers to remain focused on their tasks. Heskett (2002) [5] supports this view, arguing that designers are guided by their own sense of artistic quality and aesthetics.

Since prior work suggests two contrasting solutions for the integration between the two groups either increasing or decreasing communication, the purpose of this paper is to seek to narrow down this gap by looking into the potential advantage and disadvantage of this integration. In particular, the three specific objectives are follows: (1) to identify more detailed problems of the different "thought worlds" between design and marketing, (2) to collect and present actionable solutions to resolve the identified problems in cross-functional NPD activities between the two functional groups, (3) to provide a theoretical model which proposes how cross-functional teams manage their culture and team mechanisms to improve new product performance. In order to achieve these three objectives, we collected qualitative data from in-class exercises over two years, using qualitative structured survey of a class project to develop desk organizers. We analyzed the data to make a list of problems and solutions, which in turn suggests the establishment of the causal link to explain how the extent to which design and marketing are integrated impacts the NPD success.

This paper contributes to the discussion regarding cross-functional integration in two ways. First, our study discusses cross-functional integration from the perspective of new product teams created for the interdisciplinary projects between design and marketing students. In previous studies, cross-functional integration has been extensively discussed at the organizational level and, therefore, organizational resources or structural determinants such as formalization or leadership have often been examined [13]. However, there has been lack of studies on team factors within and across new product teams that contribute to the success of the NPD projects. Second, we provide a theoretical model that focuses on the integration of cross-functional teams between marketing and design and how the culture and mechanisms of the team impacts new product performance, mediated by such an integration. Although this dyad has been discussed [6], the majority of the researchers interested in cross-functional

integration have studied other dyads such as marketing-engineering, marketing-R&D, and design-business [12]. In this regard, our study is different from earlier ones as we focus exclusively on design-marketing at the team level, providing managerial implications to designers and marketing executives.

This paper is organized as follows. To begin with, we describe the first part of the study, a survey of class projects, and then report the findings from the content analysis. Finally, we combine both sets of findings to develop a theoretical research framework and suggest future research using empirical testing.

2. Study

2.1 Background

We conducted qualitative research during a six-week class project in a course named, "Inter-departmental New Product Development Project: Desk Organizer," which is repeated over 2 years in one of the Western U.S. Universities. In this project, each group of students designed a tangible product, desk organizer, that helps people organize the physical environment on their desks. During this process, each group went through a sequence of tasks including: (1) conducting individual research; (2) writing and presenting a project brief; (3) finalizing product concept ideation and starting a marketing plan; (4) developing the final prototype and marketing plan; and (5) preparing the final presentation and project booklet.

2.2 Research Methods

While performing their projects, members of each team participated in three electronic surveys: the first one in the early stage of the project (i.e., pretest survey); the second one during the project (i.e., weekly report for 4 week periods); and the last one after completing the project (i.e., final exit survey). A sample of the detailed questions of the final surveys is provided in the Appendix as similar question format was repeatedly used for different surveys in the different stages.

In the pretest survey, we asked 10 questions about the "expectation" of the project with regard to: (1) integration among group members; (2) goal setting; (3) coordination mechanisms; (4) expectations from team members; (5) conflict resolution; (6) communication; (7) leadership, role specification, and control mechanism & power/influence; (8) empathy; (9) team skill complementarities; and (10) self-assessment of skills. In the weekly report, we asked 8 questions about participant's "experience" in the project with regard to : (1) integration among group members; (2) goal achievement; (3) group coordination; (4) conflict resolution; (5) communication; (6) leadership, role specification, and control mechanism & power/influence; (7) empathy; and (8) team skills. In the final exit survey, we asked 14 questions about the "evaluation" of the project: four about the challenges in integration and 10 about facilitating communication to overcome those challenges.

2.3 Data analysis

In order to identify the important issues and critical patterns, we used content analysis, which is "a detailed and systematic examination of the contents of a particular body of material for the purpose of identifying patterns, themes, or biases within that material" (Leedy 2005). We used this approach because it helps us categorize a large amount of textual information according to a certain theoretical framework, and identify its properties qualitatively, quantitatively, or both (Trochim 2001). Accordingly, we collected the individual responses to each question and then categorized frequently mentioned keywords to extract relevant patterns.

We collected data from 65 students; in particular, from 20 marketing students and 14 design students in 2007, and from 19 marketing students and 12 design students in 2008. We summarize the most common

responses for different surveys from the participants as numbered below.

2.4 Results

2.4.1 Findings from the pretest survey conducted before the project

In response to 10 pretest survey questions, we found the following most common responses:

(1) Integration among group members: Students emphasized communication and team members' attitude regarding integration. They expected to use various communication methods including indirect methods (e.g., emails, instant messages, and telephone conferences) as well as direct methods (e.g., face-to-face meetings and brainstorming sessions). They also mentioned a wide variety of issues regarding members' attitudes such as showing respect, sharing responsibilities, exchanging knowledge, and learning from others.

(2) Goal setting: Most of the students set up goals to focus on building relationships rather than developing specific new products. Therefore, they expected to learn how to work with one others from different disciplines and understand their distinct perspectives.

(3) Coordination mechanisms: Students planned to assign equal amounts of work to members, set up guidelines and criteria, and communicate effectively in order to coordinate their projects.

(4) Expectations from team members: Students expected to behave in a cooperative manner with other team members, for example, by working hard, showing respect, communicating frequently, understanding different perspectives, and sharing their experience and knowledge. More specifically, design students expected marketing students to develop efficient and practical marketing plans, while the marketing students expected design students to exhibit creativity.

(5) Conflict resolution: Students addressed issues of distrust, different approaches, and schedule conflict, and expected to handle these via open discussions, opinion sharing, or a voting-based system.

(6) Communication: Students expected to use online methods (e.g., emails, Google groups, and instant messages) as well as offline ones (e.g., in-person meetings and conference calls). However, they expected to experience several problems such as a lack of understanding about the other functions, lack of trust, and insufficient sharing of ideas.

(7) Leadership, role specification, and control mechanism & power/influence: Students expected that the tasks should be divided appropriately based on the expertise or experience of members, and that their activities should be coordinated by a chosen project manager or a management team. While marketing students preferred allocating a leadership role to everyone, design students preferred the project manager to perform the leader's job.

(8) Empathy: The most important attitude for managing a project is one that promotes understanding and respect regarding all group members' backgrounds and progress. The major challenges that students anticipated in understanding the perspective of the other functional group were distinct methods, terminologies, and schedules.

(9) Team skill complementarities: The common skills that the students expected from the other members were project management and communication skills. Design students expected marketing students to provide knowledge about marketing research, strategies, and organization, whereas marketing students expected designs students to provide not only creative inputs, but also technical skills such as drawing and prototyping.

(10) Self- assessment of skills: Design students believed that their contribution would be creative inputs and visualization. Marketing students believed that their marketing knowledge, project management skills, research, and analysis would be helpful.

2.4.2. Findings from the weekly report during the project.

With regard to 8 questions in the weekly progress report, we found the following most common responses based on real experiences:

(1) Integration among group members: Students used various communication methods to coordinate with team members to develop their new product. They used direct methods actively (e.g., regular in-person meetings) and indirect methods such as emails and Google groups frequently.

(2) Goal achievement: In order to achieve the goals that they had decided upon, they either selected a project manager or rotated project management duties and then provided feedback to each other.

(3) Group coordination: Most teams divided a project into multiple sub-tasks, which were then assigned to individual members. Some teams accepted responsibility collectively, while others elected a project manager who was responsible for process monitoring.

(4) Conflict resolution: Several challenges appeared while students were assigned their tasks. For example, there were times when they did not agree with others' opinions, failed to communicate with other members, avoided taking on a leadership role, and had difficulty accepting negative feedback from others. In order to resolve these conflicts, they conducted group discussions, online chats, or voted among themselves.

(5) Communication: Students established various procedures, rules, and mechanisms to communicate with each other on various project-related issues. They used offline methods (e.g., regular in-person meetings and phone conferences) and online ones (e.g., emails, Google groups, online messengers, FTP sites, blogs, and Skype).

(6) Leadership, role specification, and control mechanism & power/influence: Although most teams did not change individual members' roles while the projects were underway, some teams switched their roles and changed project managers each week. Regarding the ability to influence decision-making, many believed that both design and marketing students had equal authority in this respect. However, some students noted that the design department enjoyed greater decision-making authority in terms of specific tasks such as prototyping and the specifications of the final design. However, others said that the power equation changed depending on the situation.

(7) Empathy: Students found it difficult to grasp the terminologies as well as understand the priorities, interests, and knowledge base of the other discipline. In order to fathom the language, priorities, and challenges of the other discipline, they tried to broaden their outlook and learn the processes of the other discipline by asking questions or requesting an explanation about the progress of others' work.

(8) Team skill complementarities: Design students noted that their marketing counterparts' organized behavior, marketing knowledge, consumer perspectives, marketing planning skills, and research methodologies were helpful to their projects. Marketing students said that design knowledge, design-related decisions, creativity, sketching, and prototyping from design students were useful.

2.4.3 Findings from final exit survey after completion of the project

Finally, we found the following most common responses in the order of importance in answering final exit survey questions after the completion of the project.

(1) The main challenges of the interdepartmental project between marketing and design: First, students selected time management and design decisions as the biggest challenges they faced while completing their projects. They engaged in frequent group discussions and sometimes changed product attributes in order to overcome these challenges. Second, the next most mentioned challenge is related to the integration between both "marketing-minded" and "design-minded" individuals. Some design students found the marketing planning process challenging to understand,

while some marketing students noted that making design decisions and completing their projects on time was challenging. Both sets of students handled these challenges by learning from each other and sharing ideas about their respective disciplines. Fundamental differences between "Marketing-minded" and "Design-minded" individuals are described as: The design students focused on creating innovative and useful designs and paid attention to various details, colorings, and polishing their products. On the other hand, marketing students paid more attention to project briefs and developing solid marketing plans for their products. In order to resolve these challenges such as different viewpoints and lack of knowledge regarding the other discipline, both marketing and design students encouraged each other to have a positive attitude and help each other by discussing these issues openly.

(2) Setting common goals and objectives between marketing and design: In response to the question about goal setting, marketing students wanted to find potential consumers to sell their products to, while design students focused exclusively on the originality and functionality of the products designed by them. In order to overcome the challenges in integrating marketing and design sensibilities, they set common goals and communicated with each other.

(3) Issues about communication and conflict resolution between marketing and design: The common problems regarding communication are not taking notes, not paying attention, and sending/receiving unnecessary emails. In order to overcome these problems, they prepared carefully before the meetings, explained the points they were confused about, and built friendships through interpersonal interaction. In particular, marketing and design students resolved cross-functional conflicts by discussing issues openly, in a respectful and cooperative manner. For example, some teams listed out the positive and the negative aspects of each design by carefully evaluating the feedback received from other members.

(4) Issues about leadership and role specification, and power between marketing and design: Most teams divided tasks, defined roles, and shared the leadership roles appropriately. Design students were responsible for design and prototype, while marketing students assumed the project manager's role. When there were too many or an insufficient number of leaders, they followed the role specification protocol that was written in advance. The relative decision-making authority with power dynamics between the two groups of students changed as the project evolved. As a result, marketing students often controlled the research and marketing plan, while design students dominated design ideation, prototyping, and production decisions.

(5) Work environment, complementary skill sets, and friendship, empathy, and collegiality developed between marketing and design: In response to the location of work, students had team meetings in the classrooms or at off-campus locations such as coffee shops and teammates' houses. Students noted that they worked effectively in classrooms as well as in workshop settings. They also highlighted the importance of the ambience of the environment, including factors such as the availability of snacks and music, and the level of brightness. With regard to complementary skill sets, student groups complimented and criticized others constructively and provided honest feedback in order to move the project smoothly. In particular, in order to build friendships, students spent ample time sharing their personal opinions and information with others at cafes and restaurants.

(6) A few types of communication tools used for the project: First, students often used markers, whiteboards, planners/calendars, and large-sized charts for communication as traditional communication tools. They sometimes used notepads, magazines, books, and prototyping materials, too. Second, electronic communication tools such as cell phones, laptop computers, and digital/phone cameras were used to communicate with their team members; while they used USB drives mainly to save their files. Other

electronic tools used were projectors with presenting mouse, printers, and PDAs. Finally, internet-based communication tools were used. They used emails most frequently and sometimes used Skype, instant video messages, and social networking websites. They also used photo sharing websites, blogs, project tool websites such as Google Project, and FTP servers to share project files. Finally, the teams used machinery tools to create images of the design outputs. They included a computer numerical control (CNC) router, 3D printer, CAD-machine, paint, electric saw, ShopBot machine, drill, and sander.

3. Conclusion

As students went through a series of tasks including determining the project's goals, scheduling the processes, selecting or rotating project managers, and making other, related decisions, they faced several major problems. Some members noted conflict and others highlighted imbalanced decision-making authority as main obstacles during the project. As their problems were varied, the solutions differed as well. Some members facilitated communication (e.g., discussing openly), while others prohibited communication but assigned tasks appropriately. We have summarized their problems and solutions below.

3.1 Commonly identified problems

3.1.1 Conflicts

Students expected greater conflict between marketing and design than they actually experienced while conducting the projects. This is because their tasks were distributed fairly. In the middle of the process, however, they could not help but face some conflicts such as divergent opinions, challenges in accepting negative feedback, miscommunication, misunderstandings, and avoidance of the leadership role.

3.1.2 Imbalanced decision-making authority

Marketing students tended to play a role of project manager and conduct typical marketing tasks such as market research and marketing plan, while design students tended to focus on their strengths such as ideation, prototyping, and production decisions. This suggests that design students often followed the decisions made by marketing students.

3.2 Potentially identified problems

3.2.1 Facilitating communication

In general, students employed various communication methods to coordinate with team members. They aimed to resolve conflicts via open discussions, opinion sharing, or a voting-based system. Students used not only online methods (e.g., emails), but also offline ones (e.g., regular in-person meetings); further, they noted that both classroom and workshop settings were helpful to work effectively. In order to facilitate communication, they spent a significant amount of time socializing with their counterparts, which helped them develop empathy. In order to understand the language, priorities, and challenges of the other discipline, they broadened their outlook and learned new processes.

3.2.2 Prohibiting communication

When the decision-making authority was not fairly distributed, students avoided communication and remained focused on their own strengths. For example, in some groups, marketing students simply conducted market research and marketing plan, whereas design students dominated design ideation, prototyping, and production.

4. Discussion

We reviewed the literature on cross-functional integration, in particular, between design and marketing. Our review reveals that integration between

two functions is challenging because of the different "thought worlds," and closer integration can be achieved either through increasing or decreasing communication. Accordingly, we collected qualitative data from design students and their marketing counterparts to examine this issue more deeply.

As we predicted, design-marketing integration faces a problem, and two different approaches have been utilized to resolve it. First, the problem can be broken down into two sub-problems: one is conflict and the other is imbalanced decision-making authority. Second, two solutions are suggested: one is facilitating communication and the other is prohibiting it. We provide two sets of solutions in resolving the two problems in cycle. Our suggestion is that, in the beginning phase of collaborative work, design and marketing go through a divergent approach (i.e., solution 1) by prohibiting communication between design and marketing in order to shield each group's creative ideas from criticism from the other. When the unrefined, diverse ideas bring conflicts between two groups (i.e., problem 1), the cross-functional team takes a convergent approach that requires facilitating communication between design and marketing in order to narrow down diverse ideas into more feasible ones through efficient communications (i.e., solution 2). In an effort to develop feasible ideas, each group must understand each other's strengths and weaknesses. However, because each group often emphasizes its own tasks as a priority, a problem of the imbalanced decision-making authority is raised (i.e., problem 2). In this situation, it is suggested that both groups go back to the divergent process loop where the two groups resume generating a diverse set of ideas by blocking communication between groups (i.e., back to solution 1). From this cyclical routine, we consider that the two processes spiral to resolve the two problems continuously in order to make the new product development successful. In sum, we can conclude from this study that design and marketing experience two types of barriers, which, once overcome, lead to design-marketing integration, which in turn, results in a better new product performance through the efficiency of NPD process.

Our research can provide insights into existing literature on how to improve NPD process in the cross-functional context. For instance, Srinivasan, Lovejoy and Beach (1997) [11] investigated what determines prototype performance. They found that although the correlations between attribute-based predictions and customer acceptance and production costs are significant and substantial, "too much variance is left unexplained." (pg. 154). Our exploratory study can supplement their findings.

For future research, we propose a future research

[Table 1] List of questions in the pretest survey, weekly report, and final survey

	Question	Pretest survey	Weekly report	Final survey
A	Integration among group members	1	1	1
B	Goal setting/achievement	2	2	2
C	Group coordination	3	3	
D	Expectations from team members	4		3
E	Conflict resolution	5	4	4
F	Communication	6	5	5
G	Leadership, role specification, and control mechanism & power/influence	7	6	6
H	Empathy	8	7	7
I	Team skill complementarities	9	8	8
J	Self-assessment of skills	10		
K	Balancing Power between Marketing and Design			9
L	Main Challenge			10
M	Challenges of integrating marketing-minded and design-minded individuals			11
N	Fundamental differences between marketing-minded and design-minded individuals			12
F(1)	Communication: Meeting location			13
F(2)	Communication: Tools			14
F(3)	Communication: Electronic tools			15
F(4)	Communication: Internet-based tools			16
F(5)	Communication: Machinery tools			17
F(6)	Communication: Working environment			18

model that will not only provide more research questions and inquiries related to marketing-design integration, but also help guide some empirical studies on it. Applying our exploratory interview results to the cross-functional new product development context, we develop a conceptual model that explains how design-marketing integration influences prototype performance, which eventually determines new product performance (see Figure 1). In this model, we posit that design-marketing integration, which is determined by antecedents identified from specific questions in our survey, affects new product performance, mediated by prototype performance. We expect that our newly discovered determinants of design-marketing integration can significantly explain new product performance prototype performance.

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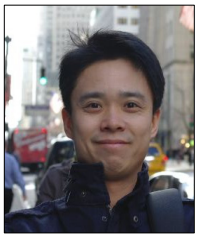

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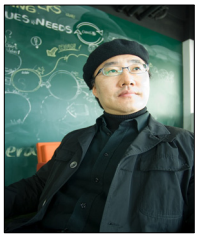

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<Research interests>
Design Management, Design Strategy, Service Design