

CROWD PARTICIPATION IN WEB-BASED COLLECTIVE DESIGN
PLATFORMS: A STUDY ON QUIRKY'S IN-HOUSE INDUSTRIAL
DESIGNERS

A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCE
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY

MILAD HAJIAMIRI

IN PARTIAL FULFILLMENT OF THE REQUIREMENT
FOR
THE DEGREE OF MASTER OF SCIENCE
IN
INDUSTRIAL DESIGN

FEBRUARY 2014

Approval of the thesis:

**CROWD PARTICIPATION IN WEB-BASED COLLECTIVE DESIGN
PLATFORMS: A STUDY ON QUIRKY'S IN-HOUSE INDUSTRIAL
DESIGNERS**

submitted by **MILAD HAJIAMIRI** in partial fulfillment of the requirements for
the degree of **Master of Science in the Department of Industrial Design,**
Middle East Technical University by,

Prof. Dr. Canan Özgen _____
Dean, Graduate School of **Natural and Applied Sciences**

Prof. Dr. Gülay Hasdoğın _____
Head of the Department, **Industrial Design**

Assist. Prof. Dr. Fatma Korkut _____
Supervisor, **Industrial Design Dept., METU**

Examining Committee Members:

Prof. Dr. Gülay Hasdoğın _____
Industrial Design Dept., METU

Assist. Prof. Dr. Fatma Korkut _____
Industrial Design Dept., METU

Assoc. Prof. Dr. Owain Pedgley _____
Industrial Design Dept., METU

Assist. Prof. Dr. Naz Börekçi _____
Industrial Design Dept., METU

Assist. Prof. Dr. Ali Berkman _____
Industrial Design Dept., TOBB

Date: February 04, 2014

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name, Last name :

Signature :

ABSTRACT

CROWD PARTICIPATION IN WEB-BASED COLLECTIVE DESIGN PLATFORMS: A STUDY ON QUIRKY'S IN-HOUSE INDUSTRIAL DESIGNERS

Hajiamiri, Milad
M.Sc., Department of Industrial Design
Supervisor: Assist. Prof. Dr. Fatma Korkut

February 2013, 130 pages

Web-based collective design platforms are the newly emerging environments which globally support the contribution of vast number of individuals with diverse backgrounds. This study investigates the role of in-house industrial designers working for web-based collective design platforms in connection with the crowd participation in different phases of design process. The first study conducted focuses on the perceived values of web-based collective design platforms and covers semi-structured interviews with novice industrial designers in reference to two collective design platforms, Quirky and OpenIDEO. The study reveals six major values emphasized by designers: Supportiveness, collectiveness, appreciativeness, responsiveness, trustworthiness, and tangibility of outcome. The second study is based on semi-structured interviews with two former Quirky in-house industrial designers. The findings of this study reveal the roles and responsibilities of Quirky in-house industrial designers as curator and design manager, community manager, assessor, and liaison between design and engineering. The findings also characterize the online community as a research resource, supplementary assessor, idea developer and advisor. The inventors and experts within the online community are also identified as individuals who can promote the design process in different ways. Lastly, the results highlight the

characteristics of Quirky as an open social product development company and an innovation-centered platform.

Keywords: Web-based Collective Design, Crowd Participation, In-house Industrial Designers, Quirky

ÖZ

WEB TABANLI KOLEKTİF TASARIM PLATFORMLARINDA KİTLE KATILIMI: QUIRKY BÜNYESİNDE ÇALIŞAN ENDÜSTRİYEL TASARIMCILAR ÜZERİNE BİR ÇALIŞMA

Hajiamiri, Milad
Yüksek Lisans, Endüstri Ürünleri Tasarımı Bölümü
Tez Yöneticisi: Yrd. Doç. Dr. Fatma Korkut

Şubat 2013, 130 sayfa

Web tabanlı kolektif tasarım platformları, çeşitli birikimlere sahip çok sayıda bireyin küresel boyutta katılımına olanak sağlayan yeni ortamlardır. Bu çalışma, tasarım sürecinin farklı aşamalarına kitle katılımı bağlamında web tabanlı kolektif tasarım platformlarında çalışan endüstriyel tasarımcıların rolünü araştırmaktadır. Yapılan ilk çalışma, web tabanlı kolektif tasarım platformlarının algılanan değerlerine odaklanmaktadır ve sınırlı mesleki deneyime sahip genç endüstriyel tasarımcılarla iki kolektif tasarım platformu -Quirky ve OpenIDEO- üzerine yapılan kısmen yapılandırılmış mülakatlara dayanmaktadır; bu çalışmanın sonuçları, tasarımcılar tarafından belli başlı altı değer vurgulandığını göstermektedir: Destekleyicilik, kolektiflik, değerbilirlik, müdahaleye açıklık, güvenilirlik ve çıktılarının somutluğu. İkinci çalışma, eski Quirky çalışanı iki endüstriyel tasarımcı ile yapılan kısmen yapılandırılmış mülakatlara dayanmaktadır; bu çalışmanın sonuçları, Quirky bünyesinde çalışan endüstriyel tasarımcıların görev ve sorumluluklarını, küratör ve tasarım yöneticisi, kitle yöneticisi, değerlendirici ve tasarımcı ile mühendis arasında ilişki kuran kişi olarak ortaya koymaktadır. Bulgular, çevrimiçi camiyi da araştırma kaynağı, ek değerlendirici, fikir geliştiren ve danışman olarak karakterize etmektedir. Çevrimiçi camianın içinde yer alan mucitler ve uzmanlar da tasarım sürecini farklı biçimlerde destekleyebilecek bireyler olarak görülmektedir. Bulgular, Quirky'yi

açık bir sosyal ürün geliştirme şirketi ve yenileşim merkezli bir ortam olarak nitelendirmektedir.

Anahtar Kelimeler: Web Tabanlı Kolektif Tasarım, Kitle Katılımı, Firma Bünyesinde Çalışan Endüstriyel Tasarımcılar, Quirky

To My Parents
Malihe and Masoud

ACKNOWLEDGMENTS

First and foremost, I would like to express my gratitude to my thesis advisor Assist. Prof. Dr. Fatma Korkut for her support, professional advises and encouragements in every part of this research and in many aspects of my life. This work would not have been possible without her wisdom and guidance.

I am thankful to the examining committee members and honored to receive the contribution of Prof. Dr. Gülay Hasdođan, Assoc. Prof. Dr. Owain Pedgley, Assist. Prof. Dr. Naz Breki, Assist. Prof. Dr. Ali Berkman, Inst. Refik Toksz, Assist. Prof. Dr. ađla Dođan and Inst. Dr. Cankız Elibol. I am also grateful to Assoc. Prof. Dr. Serkan Gneř who encouraged, inspired and supported me by providing remarkable scholarly guidance. And I want to thank Dr. Canan E. nl and Assist. Prof. Dr. Harun Kaygan for their kindness and feedback at the early phases of my research.

I would like to thank Assoc. Prof. Dr. iđdem Erbuđ and Res. Asst. Aykut Cořkun for their guidance and support during the design and conduct of the first study.

My good friend Refik played an important role in the completion of this study. I am grateful for his contribution, insights, kindness and supportiveness.

I especially would like to thank three insightful industrial designers who kindly accepted to be interviewed for this study. I am grateful to them for their participation.

My sincere thanks go to Mr. Metin Nergiz. I am very grateful to him and to all the folks in the “Teknik Ofis” at Nergiz Decoration and Design Company who supported me during my academic study. I also would like to thank ENNE

Furniture and Interior Design Company for supporting my studies along with my career.

I also thank my wise and lovely friends Abbas, Arvin, Javad, Ozan, Aylin, Funda, Orkun, Gizem and Mr. Erhan Çankal for their friendship, encouragement and support.

I thank my soul mate, Deniz who was always with me throughout this study and shared the most wonderful and happiest moments of her life with me. She is the best thing that has ever happened to me.

Finally, I owe it all to my family. I am deeply thankful to my mother for her endless encouragement and love, and to my father who is also my dearest friend, mentor, and advisor, and to my cheerful brother Misagh.

TABLE OF CONTENTS

| | |
|--|------|
| ABSTRACT | v |
| ÖZ..... | vii |
| ACKNOWLEDGMENTS..... | x |
| TABLE OF CONTENTS | xii |
| LIST OF FIGURES..... | xvii |
| CHAPTERS | |
| 1. INTRODUCTION..... | 1 |
| 1.1 Problem Definition and Background..... | 1 |
| 1.2 Aim and Objectives of the Study | 3 |
| 1.3 Structure of the Thesis..... | 3 |
| 2. LITERATURE REVIEW..... | 5 |
| 2.1 User Participation and Online Communities..... | 5 |
| 2.1.1 Creating Value with Users | 5 |
| 2.1.2 Co-creation, Open Innovation, Crowdsourcing and Other Alternative Models for Innovation | 7 |
| 2.2 Web-based Collective Design Platforms..... | 15 |
| 2.2.1 Quirky..... | 21 |
| 2.2.1.1 Submitting an Idea | 26 |
| 2.2.1.2 Developing Submitted Ideas | 27 |
| 2.2.1.2.1 Evaluation (Eval) Phase..... | 28 |
| 2.2.1.2.2 Brainstorming Phase..... | 32 |
| 2.2.1.2.3 Research Phase | 33 |
| 2.2.1.2.4 Design Phase..... | 39 |

| | |
|---|----|
| 2.2.1.2.5 Refine Phase | 43 |
| 2.2.1.2.6 Style Phase | 44 |
| 2.2.1.2.7 Name and Tagline Phase..... | 45 |
| 2.2.1.2.8 Price Phase | 47 |
| 3. FIELD STUDY | 49 |
| 3.1 Study 1: Perceived Values of Web-based Collective Design Platforms from the Perspective of Novice Industrial Designers | 49 |
| 3.1.1 Methodology and Collection of data | 49 |
| 3.1.2 Analysis of data | 51 |
| 3.1.3 Findings | 52 |
| 3.1.3.1 Supportiveness..... | 52 |
| 3.1.3.2 Collectiveness..... | 53 |
| 3.1.3.3 Appreciativeness | 54 |
| 3.1.3.4 Responsiveness..... | 54 |
| 3.1.3.5 Trustworthiness | 55 |
| 3.1.3.6 Tangibility of Outcome | 57 |
| 3.1.4 Discussion | 59 |
| 3.2 Study 2: Quirky In-house Industrial Designers and Crowd Participation in Design Process | 61 |
| 3.2.1 Pilot Study | 61 |
| 3.2.2 Interview Guide | 62 |
| 3.2.3 Data Collection..... | 63 |
| 3.2.4 Analysis of Data | 64 |
| 3.2.5 Findings | 68 |
| 3.2.5.1 The Roles of Quirky Community in Design Process | 68 |

| | |
|---|----|
| a. Community Involvement | 68 |
| b. Community as a Research Resource..... | 72 |
| c. Community as Supplementary Assessor..... | 74 |
| d. Community as Idea Developer | 76 |
| e. Community as Advisor | 77 |
| f. Community and Marketing | 79 |
| 3.2.5.2 Community Members' Level of Expertise and Design Process ... | 80 |
| a. Level of Design Development | 81 |
| b. Quality of Presentation | 84 |
| c. Essence of an Idea..... | 85 |
| d. Experts in the Community as Advisors | 86 |
| e. Special Issues and Concerns in relation to the Experts in the Community | 87 |
| 3.2.5.3 Role of Inventor in Design Process..... | 88 |
| a. Quirky's Relationship with Inventors..... | 88 |
| b. Inventors' Trustworthiness | 89 |
| 3.2.5.4 Role of In-house Industrial Designers in Different Phases of the Design Process in Quirky..... | 90 |
| a. Curating and Design Management..... | 90 |
| b. Community Management | 91 |
| c. Assessment and Evaluation of Submitted Ideas | 93 |
| d. Liaison between Design and Engineering | 94 |
| e. Independency of In-house Industrial Designers | 95 |
| f. Other Creative Team in Quirky..... | 96 |

| | |
|---|-----|
| 3.2.5.5 Qualities of Quirky Company | 96 |
| a. Quirky as an Innovation-Centered Company..... | 97 |
| b. Quirky as an Open Social Product Development Company..... | 98 |
| c. Intellectual Property Rights: A Win-Win Strategy | 99 |
| 3.2.6 Discussion | 101 |
| 4. CONCLUSION | 105 |
| 4.1. Research Questions Revisited | 105 |
| 4.1.1 What is a web-based collective design platform? | 105 |
| 4.1.2 What are the qualities of web-based collective design platforms from the perspective of industrial designers?..... | 106 |
| 4.1.3 What are the ways in which the crowd participates in the design process in the case of Quirky?..... | 109 |
| 4.1.4 What are the roles of in-house industrial designers in the design process in the case of Quirky?..... | 109 |
| 4.1.5 How and to what extent do industrial designers benefit from the participation of the crowd in the design process in the case of Quirky? | 111 |
| 4.2 Limitations of the Study | 112 |
| 4.3 Further Research..... | 113 |
| REFERENCES..... | 115 |
| APPENDICES | |
| A. E-MAIL MESSAGE TO QUIRKY IN-HOUSE INDUSTRIAL DESIGNERS | 121 |
| B. INTERVIEW GUIDE FOR THE INTERVIEWS WITH QUIRKY IN- HOUSE INDUSTRIAL DESIGNERS..... | 123 |
| C. LETTER TO QUIRKY IN-HOUSE INDUSTRIAL DESIGNERS | 129 |

LIST OF FIGURES

FIGURES

| | |
|---|----|
| Figure 1 Traditional view of designer, client and user (Stappers, Sleeswijk Visser and Kistemaker, 2011, p.142). | 8 |
| Figure 2 New responsibilities and roles of designer, client and user in co-creation (Stappers, et al., 2011, p.142). | 8 |
| Figure 3 The open innovation paradigm for managing industrial R&D (Chesbrough, 2003)..... | 9 |
| Figure 4 Three innovation strategies (Verganti, 2009, p. 55). | 11 |
| Figure 5 Screen shoot from iStockphoto website (istock search results, 2013).... | 13 |
| Figure 6 A challenge from InnoCentive website (Blocking the sense of taste, 2013) | 14 |
| Figure 7 The reCAPTCHA system displays words (from scanned sources) unrecognized by optical character recognition software (Von Ahn, Maurer, McMillen, Abraham, Blum, 2008, p. 1466)..... | 15 |
| Figure 8 Conceptual space for collective design (Maher et al., 2010, p.586)..... | 17 |
| Figure 9 The presence of collaboration: collected design to collective design (Paulini, et al., 2013, p. 93)..... | 18 |
| Figure 10 A screen shot from Threadless.com scoring (Score designs, n.d.) | 19 |
| Figure 11 The phases of an OpenIDEO challenge (“How can we manage e-waste,” 2012). | 20 |
| Figure 12 Two different design quotients of two random participants in OpenIDEO; (a) (“T. Annie Nguyen,” 2012), (b) (“Dan Hope,” 2012). | 21 |
| Figure 13 A pie chart demonstration of distribution of influences in each phase of the product development in Quirky (What is influence, n.d.) | 22 |
| Figure 14 Development history of products in Quirky (Covert, 2013)..... | 24 |
| Figure 15 Development history of Covert (Covert, 2013) | 25 |

| | |
|---|----|
| Figure 16 The Quirky process as described on Quirky website (“The Quirky Process,” 2012). | 28 |
| Figure 17 An image from Preval in Quirky (Shaw, 2013c). | 30 |
| Figure 18 The sentiment meter that asks community how much they like/hate an idea (Padgett, 2012). | 31 |
| Figure 19 A pricing tool that asks community the price they would pay for the prospective product (Padgett, 2012). | 31 |
| Figure 20 Thumbs up/Thumbs down polling tool asks community whether they would use the prospective product or not (Padgett, 2012). | 31 |
| Figure 21 Transcription of retractable whisk’s mind-map from a Quirky brainstorming session. (Rob, 2012) | 33 |
| Figure 22 Screen shot of a part of a Quirky survey result (Squish product research, 2011). | 34 |
| Figure 23 Visual description of the requested submission by Quirky. | 35 |
| Figure 24 A submission from Quirky community during the Ethnographic Photo Research Phase of Covert (Denny2020, 2011). | 36 |
| Figure 25 Part of the community images and videos accepted by Quirky during the Ethnographic Photo Research Phase of Frio (Frio Ethnographic Photo Research, 2011). | 37 |
| Figure 26 Part of the community images accepted by Quirky during the Product Environment Research of Tool hub (Tool hub, Product Environment Research, 2013). | 38 |
| Figure 27 Winner concepts of the Covert lock project. | 40 |
| Figure 28 Top Community picks of Covert lock project concepts. | 41 |
| Figure 29 Grocery Bag Hanger mind-map (Buchbauer, 2013)..... | 42 |
| Figure 30 Seven refined concepts submitted by the Quirky Design Staff to the community for voting during the Refine phase of Frio (Frio Refine phase, 2011). | 44 |
| Figure 31 Style phase of Covert. | 45 |
| Figure 32 “This or That” naming game..... | 47 |

| | |
|---|-----|
| Figure 33 “This or That” naming game feedback. | 47 |
| Figure 34 The feedback of Pricing game (Tool hub, Price project, 2013)..... | 48 |
| Figure 35 Excel sheet for data analysis. | 51 |
| Figure 36 The value of collectiveness in relation to the values of supportiveness, appreciativeness and responsiveness | 59 |
| Figure 37 Data analysis sheet..... | 66 |
| Figure 38 A detail from data analysis sheet | 67 |
| Figure 39 Community’s involvement in Quirky product development process ... | 72 |
| Figure 40 Pivot Power strip, one of the Quirky’s best selling products (Pivot Power a creative outlet, 2011). | 78 |
| Figure 41 Results of the second research phase of the pivot power project (Pivot power results, 2010)..... | 79 |
| Figure 42 Screenshot from video posted by Quirky Inventor showing his prototype (Monorome1, 2009)..... | 82 |
| Figure 43 Quirky in-house industrial designers explore the prototypes of an inventor (Rustle, 2013) | 83 |
| Figure 44 Quirky in-house industrial designers explore the prototypes of an inventor (Rustle, 2013) | 83 |
| Figure 45 Relations between sub-themes | 103 |

CHAPTER 1

INTRODUCTION

1.1 Problem Definition and Background

Fast evolution of World Wide Web in conjunction with computational tools made new types of professional communication and collaboration possible via virtual platforms to share and exchange data. Such platforms also created an opportunity to communicate with, and get feedback from a large number of potential users in order to better understand their needs and preferences. Improvements in the area of human-computer interaction coupled with affordable and widespread access to internet and the development of new design tools and materials (Atkinson, 2011, p.26) encouraged not only designers and experts, but also amateurs and non-designers to get involved in design process which indicated the “opening up of professional practice” (Atkinson, 2011, p.26).

In “Open Design Now” Stappers, Sleeswijk Visser and Kistemaker claim that traditional, well-defined roles of designers and users are changing:

As yet, it is unclear where the limitations of a user-centred approach to user involvement lie. Despite these complicating factors, the roles of designer, client, user and end user are being shaken up in these more complex areas of design and product development. Traditional caricatures of the designer as ‘the creative guy’ and the user as a recipient, a ‘passive, un-critical consumer’ have been questioned and surpassed in a growing variety of ways (Stappers, Sleeswijk Visser and Kistemaker, 2011, p142).

Study of new roles and responsibilities of designers, manufacturers and users in the age of internet is an interesting and important topic for design fields. These changing roles do not only affect the traditional well-defined professional roles of

industrial designers in industry and design discipline in general but also, they give rise to new economic models and opportunities for entrepreneurs and startup companies to aggregate and elicit innovative ideas to design and manufacture new products and services. There are many websites that encourage their communities to collaborate and share their insights by offering convenient communication and presentation tools through their platforms. Researcher himself has been an active member of two of these platforms, Quirky and OpenIDEO, since 2011. According to his personal experience, the members of these platforms are highly motivated and their contribution may involve creative input. Moreover, it has been very insightful to observe how these platforms evolved rapidly and became popular in a relatively short period of time.

Since collective design platforms rely on large-scale participation of people from *diverse* backgrounds, understanding and motivating participants is important to enhance the diversity of solutions and approaches. The quality of solutions proposed is affected by the level of expertise of the participants; for example, the visualization of a design solution by an industrial designer is likely to be more effective than the one by a non-designer. Therefore, it is useful to understand the dynamics of the crowd and to investigate the motivation factors for the designer members of the crowd. The participation and communication of users, stakeholders and various members of the crowd is as much important as the presence of professional designers in collective design platforms. However, motivation factors for designers in such open design environments may be different than the ones for non-designer members. Therefore, there is a need to explore these platforms both from the perspective of designers serving these platforms professionally, and from the perspective of the crowd which may include expert members from various areas.

1.2 Aim and Objectives of the Study

The goal of this study is to investigate the ways in which in-house industrial designers professionally working for web-based collective design platforms benefit from the participation of the crowd in different phases of the design process in reference to Quirky, a web-based collective design company. The study focuses on the following research questions:

- What is a web-based collective design platform?
- What are the qualities of web-based collective design platforms from the perspective of industrial designers?
- What are the ways in which the crowd participates in design process in web-based collective design platforms in the case of Quirky?
- What are the roles of in-house industrial designers in Quirky?
- How and to what extent do in-house industrial designers benefit from the participation of the crowd in design process in Quirky?

1.3 Structure of the Thesis

The thesis consists of four chapters. The first chapter starts with a brief problem definition and background followed by the aim and objectives of the study, and research questions.

The second chapter covers the literature review including participation and changing role of consumer in industry, discussion of co-creation, open innovation and crowdsourcing with examples, and lastly the review of Quirky and its product development process by examining its website.

The third chapter covers the field studies conducted. It starts with the study on the perceived values of web-based collective design platforms from the perspective of novice industrial designers. Then the chapter presents the major study on Quirky in-house industrial designers and the crowd participation in design process; the section presents the pilot study, methodology, collection and analysis of data, findings, and discussion.

The conclusion chapter revisits the research questions and discusses the conclusions; the final sections present the limitations of the study and the implications of this study for further research.

CHAPTER 2

LITERATURE REVIEW

2.1 User Participation and Online Communities

Regarding the main focus of this study which is participation of the crowd and its implications for the design process in web based collective design platforms, a literature search was conducted to investigate the design process and identify the role of the crowd together with the qualities of these platforms supporting collaboration of large number of individuals. The chapter starts with a discussion on user participation in industry and the changing role of consumers. Then the chapter investigates co-creation, open-innovation and crowdsourcing through current examples from different fields. The chapter also introduces and explores *Quirky.com* as a significant example which has introduced a novel approach to product development by facilitating the contribution of the crowd in developing new products.

2.1.1 Creating Value with Users

Briefly, value is defined as the “trade-off between multiple benefits and sacrifices gained through a customer relationship by key decision makers in the supplier’s organization” (Walter, Ritter & Gemünden, 2001, p. 366). According to Michael Porter (1985) value is a chain of “fixed activities” that a firm performs in industry to bring a product to the market. Güneş (2012, p. 56) draws attention to the change in value creation in the form of “emerging complex business systems that enclose enthusiastic actors ready to share their specialized expertise and experiences that accumulated over time”. The changing role of customer and a

shift in valuation of products can be observed in the rise of amateurs who want to freely present, share and improve their knowledge through interaction with other individuals. This recent changing role have been noticed in Do-It-Yourself (DIY) communities, cultures and projects that have created a “unique set of values, emphasizing open sharing, learning, and creativity over profit and social capital” (Kuznetsov and Paulos, 2010, p. 295), and redefined DIY as the “productive leisure” (Atkinson, 2011). In a study by Norton, Mochon and Ariely (2011) that required participants to assemble IKEA boxes, to fold origami, and to build sets of Legos, an increase of valuation in successfully self-made products was observed. Authors indicate that the participants, regardless of the quality of the end results, gave as much value to their items as experts’ creations. The results of this study is in conflict with the “traditional rational economic thinking that would predict the value attributed to an item that required the consumer to assemble should be lessened” (Dibeehi, 2013). In another words, rationally thinking, the labour value of the assembly of a self-made item should be subtracted from the total cost of the product.

In traditional value creation process, products had certain values that were exchanged between producer and consumer; firms and consumers also possessed very restricted and fixed roles as producers and consumers (Prahalad & Ramaswamy, 2004a). As Hippel observes “even the conventional term for an individual end user, ‘consumer,’ implicitly suggests that users are not active in product and service development” (Hippel, V. E., 2005, p. 19). In the co-creation process, on the other hand, customers do not receive value only by purchasing products and services. Instead, they are provided with individual products and services designed in an active co-creation process, and the value is defined as the unique co-creation experience of customers (Prahalad and Ramaswamy, 2004a).

2.1.2 Co-creation, Open Innovation, Crowdsourcing and Other Alternative Models for Innovation

Co-creation. Sanders and Stappers (2008) argue that the notion of co-creation and collective creativity has implications for design process. They especially highlight the early phases of design process, known as “pre-design” or “fuzzy front end” and predict more collaboration between designers, design researchers and stakeholders.

Prahalad and Ramaswamy (2004a) consider the co-creation process from the firms’ perspective, and offer the DART (Dialogue, Access, Risk Assessment, and Transparency) model as “the building blocks of co-creation”. According to them, *dialogue* requires incentive of both firm and consumer to have effective communication in an interactive environment that can end up with an active community for solving each other’s problems. *Access* refers to providing information and creating necessary environment for customers through a set of data that firms have access to. *Risk assessment* debates the role of customers and their position to accept related responsibilities that can cause difficulties for customers. In other words, “if consumers become co-creators of value with companies, then they will demand more information about potential risks of goods and services; but they may also bear more responsibility for dealing with those risks” (Prahalad & Ramaswamy, 2004b, p. 32). Likewise, Stappers, Sleeswijk Visser and Kistemaker (2011) question the traditional separated roles of designer, user and manufacturer (Figure 1), and present the new roles and responsibilities of them (Figure 2). Lastly, *transparency* refers to the implications of increasing accessibility to manufacturing process and business strategies, which require new type of transparency for co-creation.

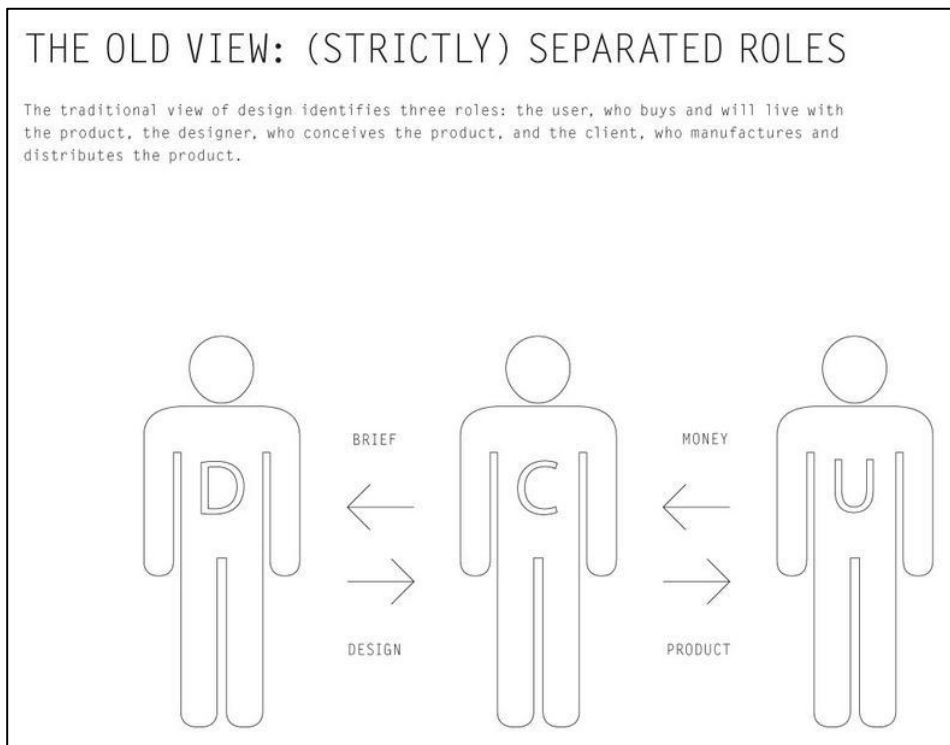


Figure 1 Traditional view of designer, client and user (Stappers, Sleeswijk Visser and Kistemaker, 2011, p.142).

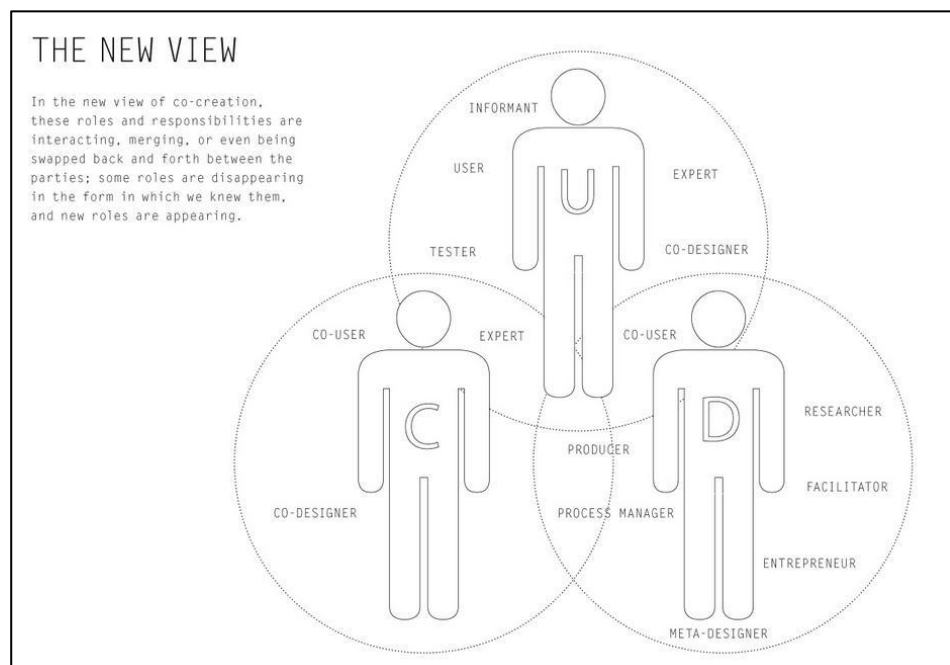


Figure 2 New responsibilities and roles of designer, client and user in co-creation (Stappers, et al., 2011, p.142).

Open Innovation. Chesbrough (2003) argues that “open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as firms look to advance their technology” (p. XXIV). Figure 3, illustrates the open innovation process and shows that during the research and development (R&D) phases there are many potential ideas that can create value not only by firm’s internal sources but also through external channels; Figure 3 also illustrates the “porous boundary of the firm, the interface between what is done inside the firm and what is accessed from outside the firm” (Chesbrough, 2003, p. XXIV).

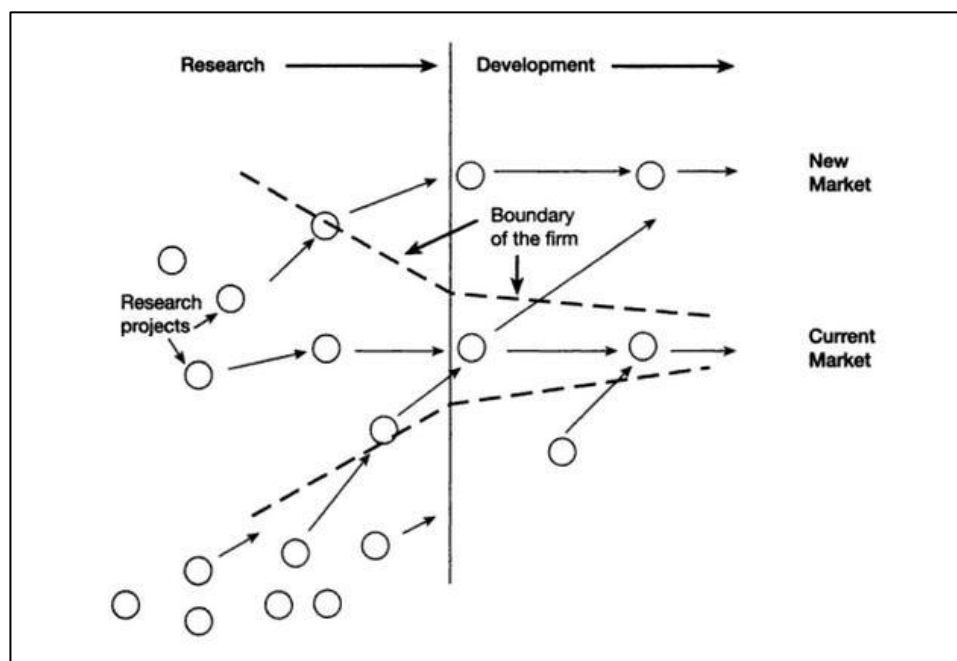


Figure 3 The open innovation paradigm for managing industrial R&D (Chesbrough, 2003).

Similarly, product modifications by “lead users” (Hippel, 2005) can be considered as an attractive external innovation source for open innovation. Hippel (2005) defines lead users as the group who are “the leading edge of an important market

trend(s), and so are currently experiencing needs that will later be experienced by many users in that market.” And they also “anticipate relatively high benefits from obtaining a solution to their needs, and so may innovate” (Hippel, V. E., 2005, p. 22). Furthermore, he argues that the innovation ability of users is improving rapidly and radically because of the evolution of the computational technology, improvements of more user friendly tools and components for innovation, and accessibility to better “innovation commons” (Hippel, 2005).

There are other perspectives regarding the utilization of user innovation.

According to Boudreau and Lakhani user innovation can be very advantageous, especially, when the “technology, design and innovation approaches have yet to be established or when customer needs are highly varied or not yet fully understood” (Boudreau & Lakhani, 2009, p. 70). However, it is not very beneficial “when the technology and consumer preferences of a product are well understood”, in which case, the “company can simply conduct internal development or engage in traditional contracting for that work” (2009, p. 70).

According to the Kano (1984), it is difficult for customers to visualize and explain their known and unknown needs and desires. Ulwick (2002) claims that “customers aren't expert or informed enough to come up with solutions. That's what your R&D team is for”. Similarly, Lojacono and Zaccai (2004) argue that customers' needs and desires which may lead to radical innovation cannot be revealed through conducting conventional marketing research such as surveys or focus groups; they are of the opinion that the benefits of traditional customer research is limited and result in incremental product improvements or reveals potential preferences of existing products only.

Verganti (2008) also highlights the achievements of several well-known design-driven organizations in furniture, lighting, kitchenware and small appliance industries which “have developed superior capability to propose innovations that radically redefine what a product means for a customer” (Verganti, 2008, p. 437).

He explains that firms like Apple perceive innovation as a design-driven fact; they reach radical innovation by creating new meanings through adapting new technologies to their products and proposing them to the market (Verganti, 2009). Figure 4 illustrates the relationship between technology and meaning in reference to three major innovation strategies: Technology push, market pull and design-driven innovation.

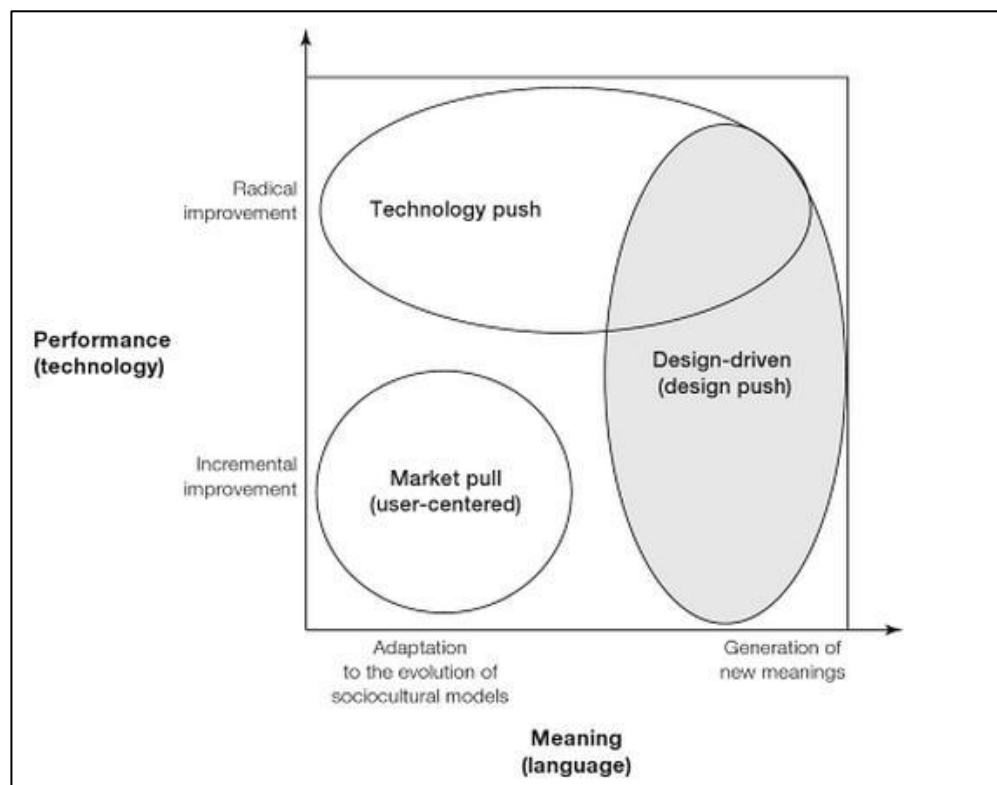


Figure 4 Three innovation strategies (Verganti, 2009, p. 55).

In Huston and Sakkab's (2006) view internet "opened up access to talent markets throughout the world" (p. 2), which presents a new model for innovation called *Connect and Develop*; it emphasizes connecting external ideas and refining them internally to discover significant innovations especially in small and mid-size entrepreneurial companies. Evolving communication technologies can create a link between manufacturing process and consumer's needs. One of these shifts can be seen in participation of customers through the virtual platforms in order to

cooperate with research and development departments to create new products (Füller & Matzler, 2007). The research by Füller, Bartl, Ernst and Mühlbacher (2006) shows that under certain circumstances, online communities have the potential to provide their innovative ideas free of cost and a community-based innovation can integrate consumers in new product development.

Crowdsourcing .The main argument behind using the crowd to generate creative work can be summarized in Pierre Levy’s words: “No one knows everything, [but] everyone knows something” (Lévy, 1997, p. 14). In his book *The Wisdom of the Crowds*, James Surowiecki (2004) investigates the crowd wisdom through several empirical studies and concludes that “under the right circumstances, groups are remarkably intelligent, and are often smarter than the smartest people in them” (p. xiii).

According to Brabham, in crowdsourcing “a company posts a problem online, a vast number of individuals offer solutions to the problem, the winning ideas are awarded some form of a bounty, and the company mass produces the idea for its own gain” (Brabham, 2008, p. 76). Crowdsourcing model can bring a wide range of opinions from a large number of people to define various issues or approaches to solve problems. Jeff Howe defines crowdsourcing as follows:

Simply defined, crowdsourcing represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call. This can take the form of peer-production (when the job is performed collaboratively), but is also often undertaken by sole individuals. The crucial prerequisite is the use of the open call format and the large network of potential laborers (Howe, 2006a, para.5).

Brabham (2008) argues that crowdsourcing is a problem-solving model that can be used to design physical products and it is very different from *open source*

which is mostly suitable for software development and virtual products that can be distributed with no cost; these virtual products do not occupy space, use no material and can be modified without any waste.

iStockphoto.com is an example of web-based crowdsourcing platform that offer royalty-free photos, animations, and video clips to the clients who are seeking for affordable stock photo (Figure 5). The users can participate in the website by creating an account and submitting their visual artistic works to be presented on the website.

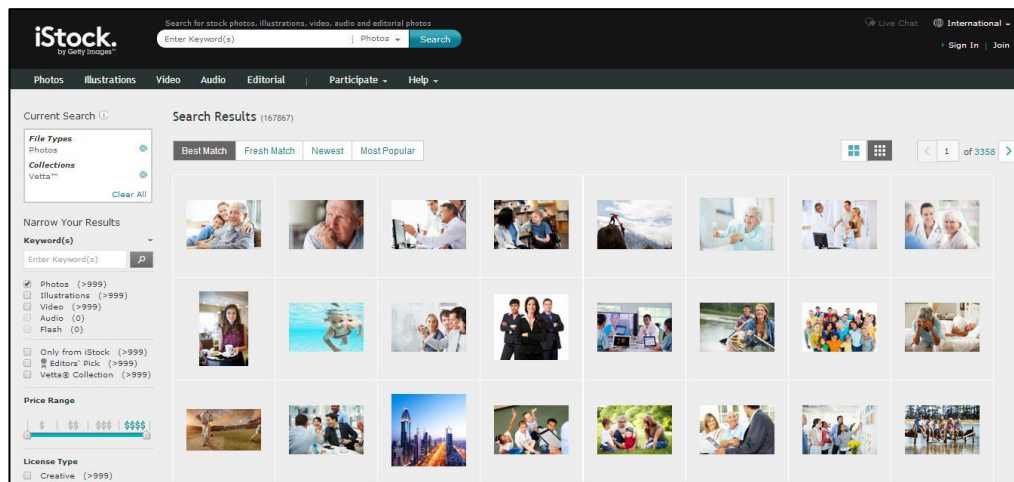


Figure 5 Screen shoot from iStockphoto website (istock search results, 2013).

Another example of crowdsourcing is *InnoCentive.com* (Figure 6), “the research world’s version of iStockphoto” (Howe, 2006b, p. 3); it is a scientific problem-solving crowdsourcing site which offers a platform for organizations’ R&D departments to outsource their challenges. Innocentive serves public and private companies and government agencies such as NASA, Procter & Gamble and Scientific American to generate innovative ideas and solve problems effectively (About InnoCentive, n.d, para. 3).

The screenshot shows the InnoCentive website interface. At the top, the InnoCentive logo is on the left, and navigation links for '1-855-CROWDNow', 'Contact Us', 'Blog', 'Register', and 'Login' are on the right. Below this is a secondary navigation bar with 'My IC', 'Products/Services', 'For Solvers', 'Challenge Center', 'Resources', 'About Us', and a 'Challenge Search' field. The main content area features a challenge titled 'Blocking the Sense of Taste' with a small image of a tongue sticking out. The challenge details include: TAGS: Chemistry, Life Sciences, Physical Sciences, Food/Agriculture, Theoretical-IP Transfer; AWARD: \$75,000 USD; DEADLINE: 2/19/14; ACTIVE SOLVERS: 387; POSTED: 12/19/13. The description states: 'The Seeker for this Challenge desires suggestions from Solvers for methods of rapidly, but temporarily, blocking the pleasurable sensation produced by the tongue when foods with certain tastes are eaten.' It further specifies: 'This Challenge requires only a written proposal. In addition to the Challenge award, the Seeker may consider further collaboration with any winning Solver(s). The award amount for the Challenge varies between \$50,000 and \$75,000 based on the specific taste(s) that are blocked.' Source: InnoCentive, Challenge ID: 9933378. A 'Challenge Overview' section repeats the description and adds: 'Submissions to this Challenge must be received by 11:59 PM (US Eastern Time) on 19-Feb-2014. Late submissions will not be considered.' It also details the IP rights transfer process. On the right side, there are buttons for 'Login to View Details' and 'Register for Free', a 'Share This Challenge' section with social media icons (Facebook, Twitter, LinkedIn) and a 'Recommend this on Google' button. At the bottom right, there are 'InnoCentive Trust Partners' logos for BBB Accredited Business and SafeHarbor (U.S. Department of Commerce).

Figure 6 A challenge from InnoCentive website (Blocking the sense of taste, 2013)

reCAPTCHA (Figure 7) is a successful example in the field of computer science; it is an example of “security measures on the World Wide Web that prevent automated programs from abusing online services ... by asking humans to perform a task that computers cannot yet perform, such as deciphering distorted characters” (Von Ahn, Maurer, McMillen, Abraham, Blum, 2008, p. 1465). Besides functioning as a security measure, *reCAPTCHA* utilizes this effort by large number of individuals “to digitize old printed material by asking users to decipher scanned words from books that computerized optical character recognition failed to recognize” (Von Ahn, Maurer, McMillen, Abraham, Blum, 2008, p. 1465).

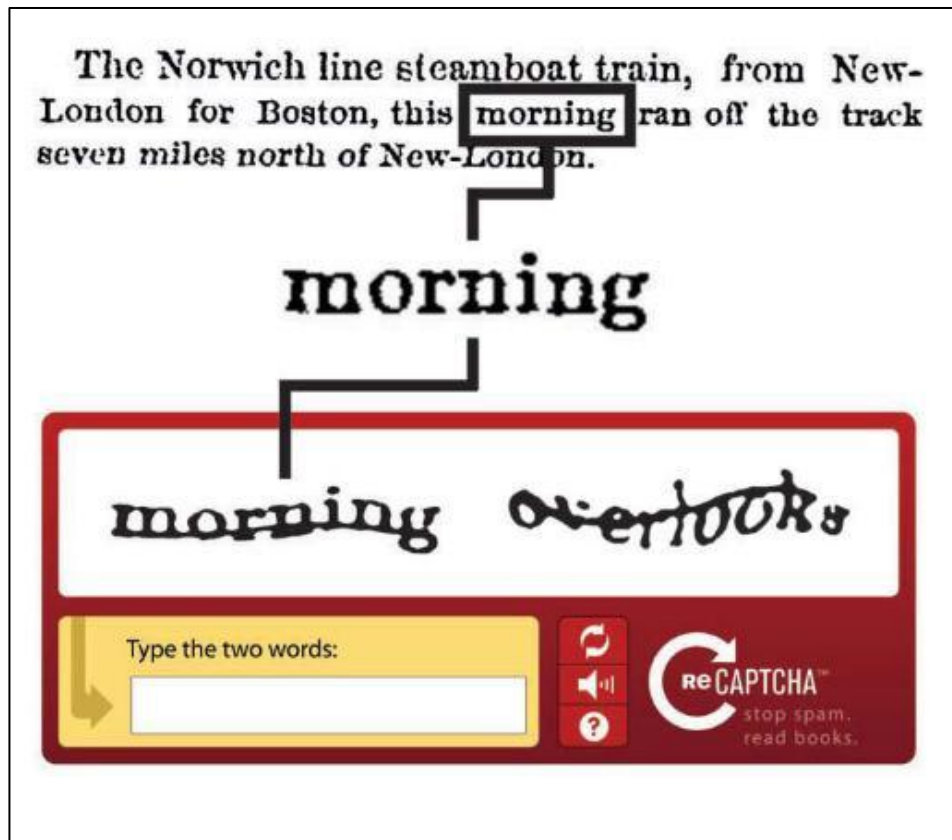


Figure 7 The reCAPTCHA system displays words (from scanned sources) unrecognized by optical character recognition software (Von Ahn, Maurer, McMillen, Abraham, Blum, 2008, p. 1466).

2.2 Web-based Collective Design Platforms

Web-based collective design is very much connected to the evolution of computational technology. Computer software and World Wide Web do not only provide tools for fast and effective communication with a large number of individuals, but they also serve as connected storage that records data which can be accessed from anywhere. The study conducted by Nakakoji, Yamamoto and Ohira (1999), who developed computer systems that support collective creativity in design by using images, highlights the importance of social aspects of creativity

through interaction and collaboration of individuals. They describe collective creativity as follow:

“The power of the unaided, individual mind is highly overrated. A creative activity is not only performed as an individual but placed in a social context. Much of our intelligence and creativity results from the collective memory of communities of practice and of the artifacts and technology surrounding them --- what we call ‘collective creativity’” (Nakakoji, Yamamoto and Ohira, 1999, p. 167).

Web-based collective design platforms are virtual environments that utilize the World Wide Web to support communication and collaboration of large and diverse groups of people to participate in different phases of the design process in order to develop alternative design solutions; it is an emerging area which uses crowdsourcing not only to receive feedback, but also to facilitate participation of, and interaction and collaboration among people from diverse backgrounds.

Maher, Paulini and Murty define a conceptual space for collective design based on three axes, *representation*, *communication* and *motivation* (Figure 8). Representation refers to text, sketches, 2D models, 3D models and similar models which support visualization, analysis and synthesis. Communication refers to the ways in which parties communicate during the design process, and it may be synchronous or asynchronous, or direct or indirect. Lastly, motivation is basically related to the reasons for participation (Maher, et al. 2010).

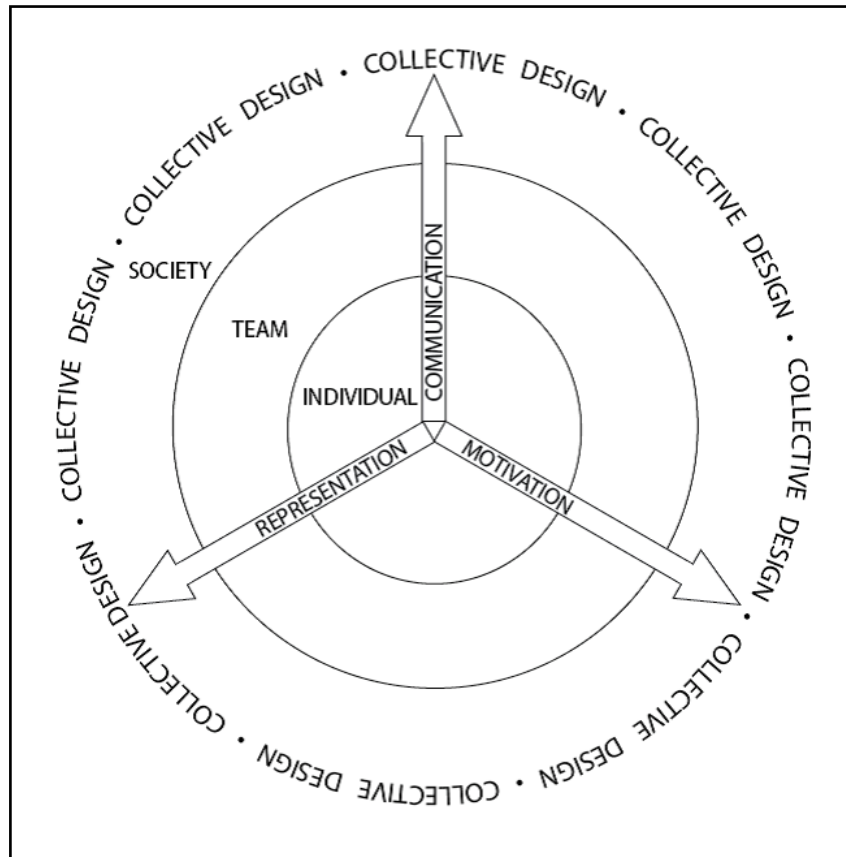


Figure 8 Conceptual space for collective design (Maher et al., 2010, p.586).

Although it is expected to observe a close collaboration between different groups and individuals in collective design platforms, the degree of their collaboration can be very varied. “Not all collective intelligence platforms encourage collaboration: for example, Innocentive.com broadcasts a challenge publicly and encourages people to submit solutions independently” (Paulini, Murty, and Maher, 2013 p. 93). As it is illustrated in Figure 9 Paulini et al. (2013) suggest “a continuum ranging from collected design, where each member contributes a solution, to collective design, where members collaborate to produce a solution that is a synthesis of many contributions.”

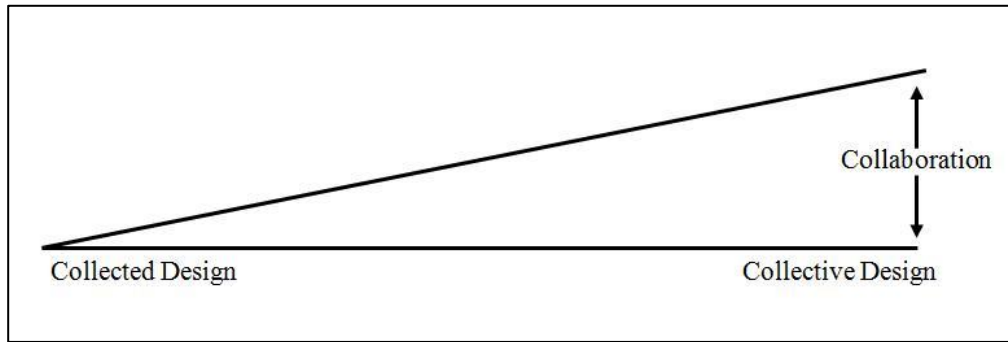


Figure 9 The presence of collaboration: collected design to collective design
(Paulini, et al., 2013, p. 93)

The following sections cover two relatively more established examples of web-based collective design platforms, Threadless and OpenIDEO.

Threadless. *Threadless.com* is a web-based cloth design and shopping company that challenges their registered community to design and submit graphic images to be screen printed on T-shirts, sweatshirts, etc. However, the collaboration of Threadless community is as simple as rating the new submissions from one to five (Figure 10). At the end of the rating sessions the most favorite designs are announced and produced by Threadless to be sold on the Threadless website.

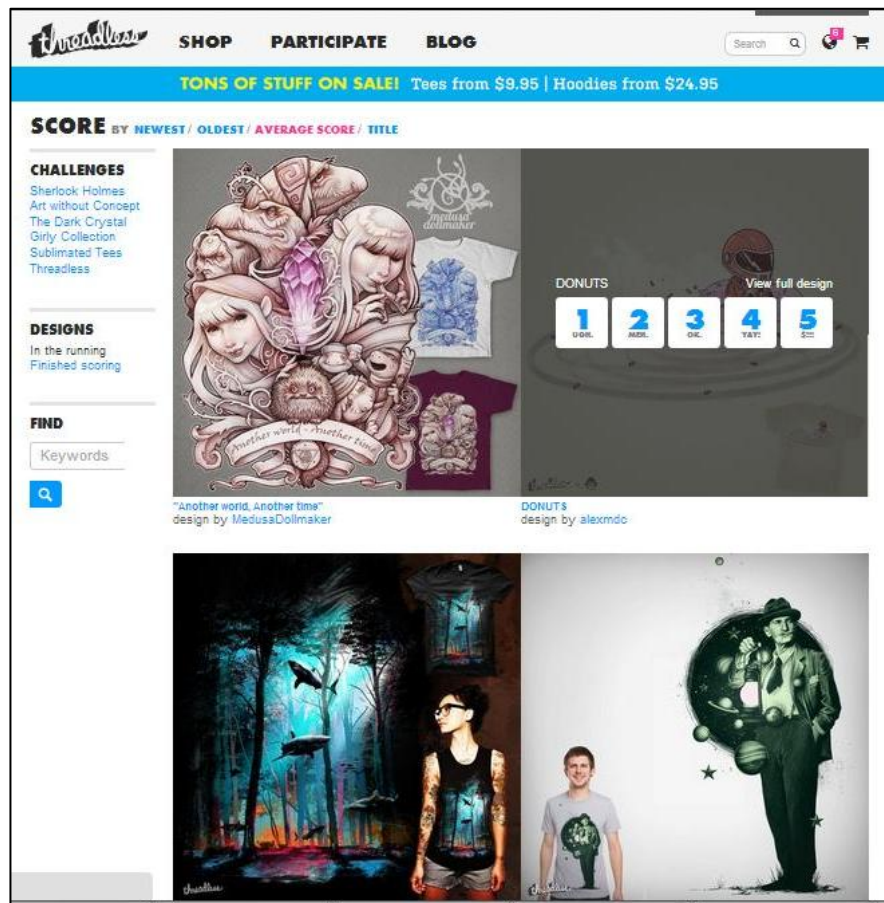


Figure 10 A screen shot from Threadless.com scoring (Score designs, n.d.)

OpenIDEO. On the other hand, the platforms like OpenIDEO define more comprehensive ways for collaboration. OpenIDEO was launched in July 2010 as a branch of the design consultancy firm IDEO in order to address global welfare problems and create positive solutions for the benefit of communities in a collaborative manner (Ahn, Clotfelter, Durlak, and Wong, 2013). OpenIDEO cooperates with a financial sponsor to formulate a “challenge” in the form of a big question such as “How can we manage e-waste and discarded electronics to safeguard human health and protect our environment?” Usually, regarding the challenge, the OpenIDEO process is organized into five phases: Inspiration, concepting, applause, refinement and evaluation (Figure 11). For instance, during the inspiration session, OpenIDEO invites the members of its community to

collaborate and share inspirational material related to the topic of the challenge. Each stage is marked with a countdown for participation and as one stage comes to an end, the next stage starts and the process concludes with the finalization or evaluation of the project or challenge.



Figure 11 The phases of an OpenIDEO challenge (“How can we manage e-waste,” 2012).

OpenIDEO provides its community members with a badge of honor called “design quotient” (DQ), for their participation. This badge indicates a member’s contribution to, and participation in, four different areas: Inspiration, concepting, evaluation and collaboration (Figure 12). Tom Hulme, the founder of OpenIDEO describes DQ as “an automated feedback tool ... [which] rewards both the quality and quantity of an individual’s contributions. All contributions are valued –even simply applauding the efforts of others” (Hulme, 2011, p.222).



Figure 12 Two different design quotients of two random participants in OpenIDEO; (a) (“T. Annie Nguyen,” 2012), (b) (“Dan Hope,” 2012).

2.2.1 Quirky

Quirky is a web-based collective design company that supports the crowd to bring their ideas to market by financing design, manufacturing and marketing the innovative ideas. The firm believes that “... the best ideas in the world aren't actually in the world, they're locked inside people's heads” (About Quirky, n.d.) and Quirky is making *innovation accessible*. Quirky was founded by 22 years old Ben Kaufman in 2009 after he realized that he did not have to design new products for his previous company, MOPHIE, by himself when there could be a community-based product development system (Boutins, 2010).

Quirky Community is composed of a crowd of individuals from anywhere in the world who can simply create a Quirky account and participate in different phases of the product development process to receive “influence”. Getting influence in Quirky means gaining a product royalty rate and receiving a percentage from its

sales. The company shares 30% of its online revenue and 10% of its retail revenue with the influencers (Quirky Terms and Conditions, 2013). Influencers in Quirky can get certain amount of royalty by accomplishing certain tasks. Figure 13 demonstrates the amount of influence available for participants during each phase of developing new products in Quirky. Basically there are two types of participation to receive influence in quirky: User can begin as an inventor who submits an innovative idea to be selected for fabrication and receive 40% influence, or can start as an influencer who contributes by completing certain tasks to develop the selected ideas for mass production and gain the rest of influences.

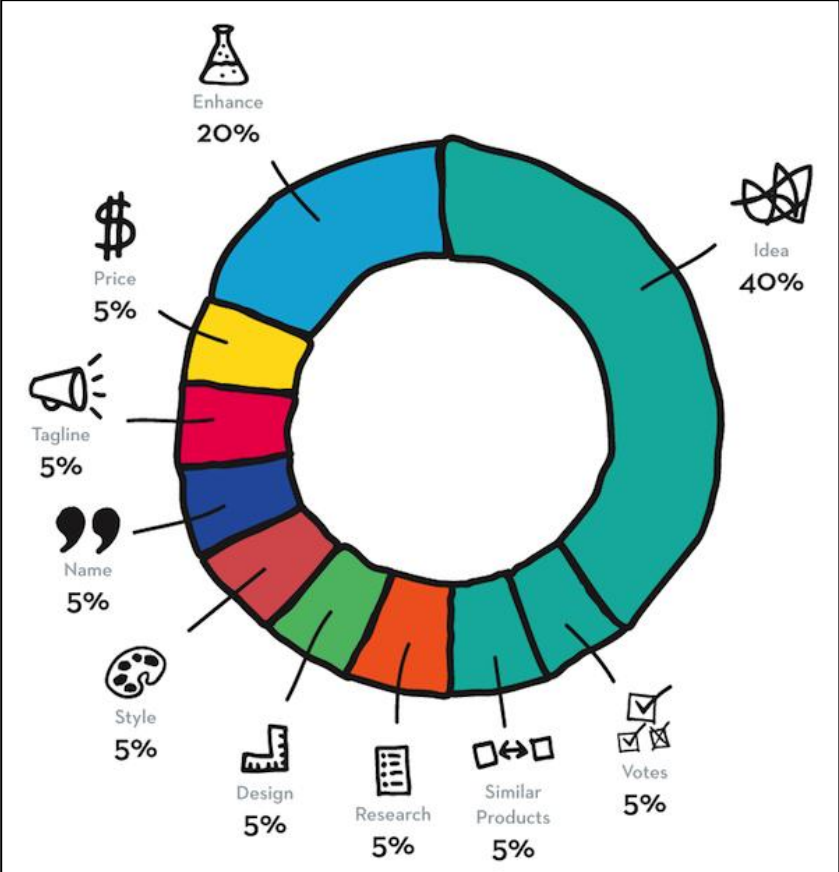


Figure 13 A pie chart demonstration of distribution of influences in each phase of the product development in Quirky (What is influence, n.d.)

Since Quirky was launched, it has been improving and evolving. Besides developing new products with its community, the firm also have been working on its platform to make new tools and utilize the internet as much as possible to better communicate with its community and “make innovation [more] accessible”. One significant change in the platform was the launch of product portfolios. Product portfolio is a development history of a product designed by Quirky and its community (Figure 14). Quirky submits a portfolio for each product that it decides to develop. Name and the tagline of the product is placed at the right of the screen. Bellow that section there is a “follow product” button that helps to track every new update related to this particular product through e-mail. There are also other information concerning the current status of the product, last update, estimated price, retail price and the number of total influencers. The information about the inventor (the original idea submitter) of the product is also available. On the left of the screen there are images of the product together with the images that help to visualize the usage scenario.

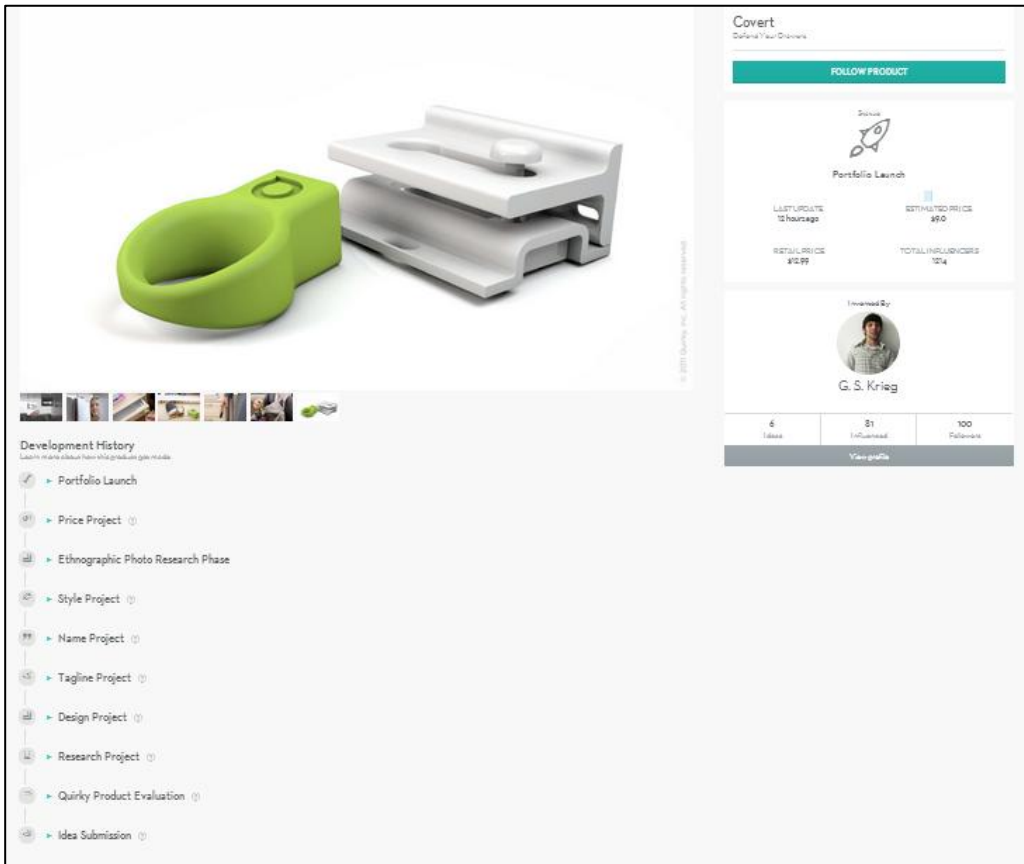


Figure 14 Development history of products in Quirky (Covert, 2013).

The most notable part of the portfolio is the development history section (Figure 15). This section is a timeline that presents a detailed account of the product during the various phases of its development. Each phase is identified with a small icon and a title which has a drop down menu. Moreover, the date on which that phase is completed can be viewed by moving the cursor over the phase's icon.

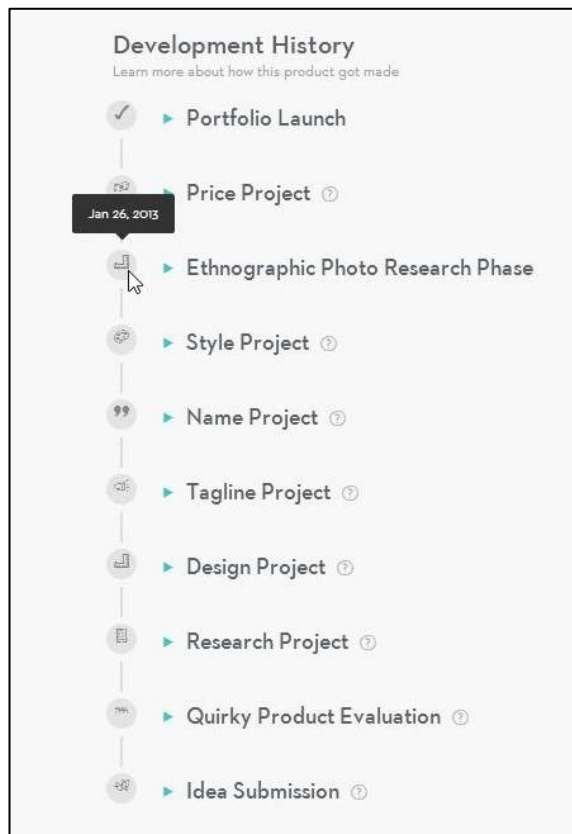


Figure 15 Development history of Covert (Covert, 2013)

This system helps to review the development history of a product and serves as an interactive tool which can be used to explore specific phases that once were open to contribution.

Quirky is also very interested in newly emerging “app-enabled” products; for this reason in May 2012, they organized a project in cooperation with General Electric (GE). During this project GE and Quirky were inviting anyone with a Twitter account to post a product idea that can be made smarter by using a software (Quirkydotcom, 2012). The winner of this competition was the idea of an intelligent milk container that tells the user when the milk is spoiled, submitted by Stephanie Burns (“The Quirky + GE project,” 2012). After this project, Quirky continued its partnership with GE and few months later they announced that they want to introduce a new app-enabled product category with a new brand called

Wink. In conjunction with this news, GE announced that they will make thousands of patents available online to the global community of inventors and Quirky will build a new platform for inspiring inventors and for helping them find new and unexpected use of existing technologies. GE described this partnership as follows:

A marriage between what GE has dubbed the ‘Industrial Internet,’ or the internet of really big things -- with the internet of everyday things. Consumers and businesses will not buy more things they’ll need to think about, but rather be surrounded by things that think about them. (“GE & Quirky Expand Partnership,” 2013)

The platform was built by Quirky (<http://inspire.quirky.com>) where the Quirky community can browse through the GE patents library for inspiration, choosing a patent, using it as a basis for their idea, and submitting their new ideas with that patent. So far, Quirky has designed and introduced five app-enabled products to the market. These products connect to a Wi-Fi network and the user needs to download a free app, compatible with Android and iOS, to control and interact with these products. These products are: A clock that tracks weather, e-mails, “likes”, traffic, humidity, etc.; a kid-friendly piggy bank to track the money inside; a power strip (which is actually an upgrade of Quirky’s most famous product “pivot power”) with sockets that can be turned on or off with the help of the Wink app; and lastly, a smart egg tray that tracks the number of eggs and the duration they are kept in the fridge (Boboltz, 2013).

2.2.1.1 Submitting an Idea

The phase “invent” in Quirky starts by creating a profile and submitting an idea. Quirky uses an online form that guides the submitter to send his/her idea in three steps. The first step starts by asking the submitter to write a title and provide a very brief description of his/her idea. Then the submitter has to choose a product

category that best fits his/her description. The categories are electronics and power, health and fitness, home and garden, kitchen, parenting, play, travel and adventure, and others. There is also a check-box that asks whether the submitted idea is an app-enabled product or not.

In the second stage, the submitter is asked to describe the problem that users encounter since his/her invention does not exist. Then it asks to submit a detailed description of the new idea and to explain the ways that the new product idea solve the related problem or issue.

Lastly, Quirky encourages the submitters to upload images of their ideas and/or to add related links to pictures, videos or other sources which help the community to better understand and visualize the new idea.

2.2.1.2 Developing Submitted Ideas

As the prospective inventor submits his/her idea to Quirky, it becomes accessible on Quirky's website for 30 days during which all the platform members can vote or comment on the idea. At the same time, Quirky employees look through the ideas to discuss and classify them as "under expert review" with Quirky's expert team. Figure 16 presents the Quirky process and shows the role of the Quirky company, the Quirky community and the member of the crowd.

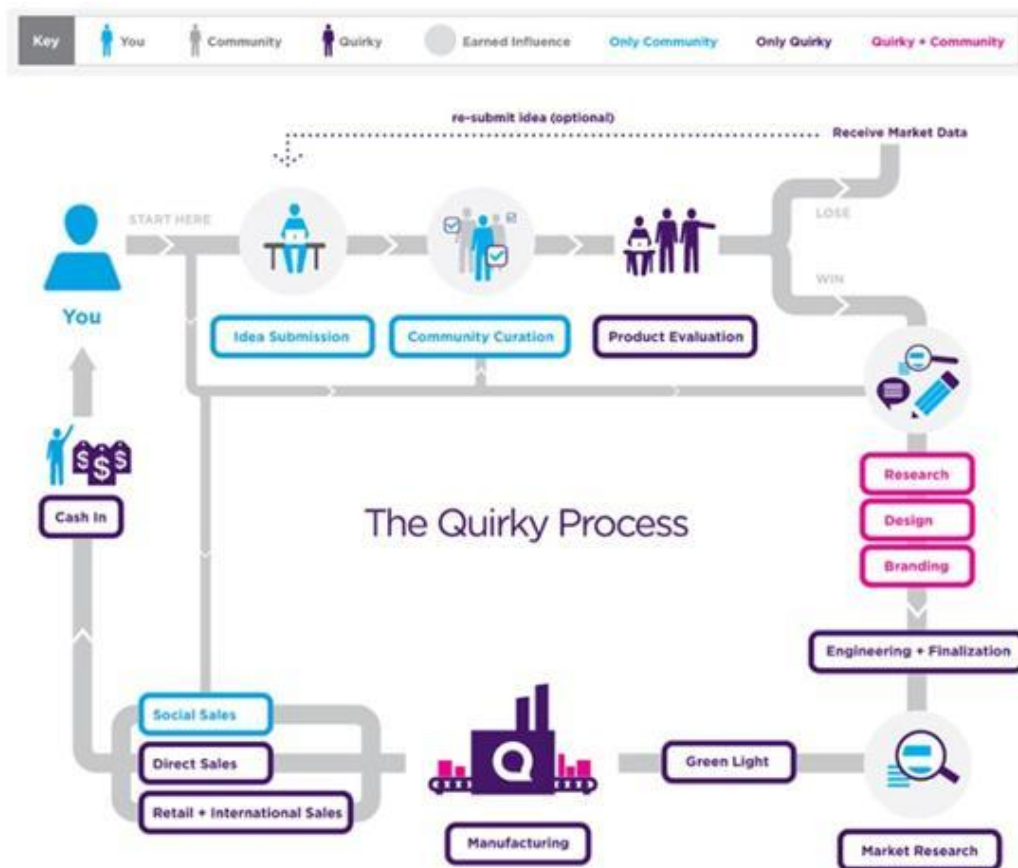


Figure 16 The Quirky process as described on Quirky website (“The Quirky Process,” 2012).

2.2.1.2.1 Evaluation (Eval) Phase

Although idea submission in Quirky has become free (but limited to three ideas per day since July 2013) there are three evaluating steps that any idea has to pass before entering the product development process. The first step is to be selected as an idea “under expert review”. There are two ways for an idea to be considered and labeled as “under expert review”; either by receiving 200 votes from Quirky community or by being selected by a Quirky staff. For those ideas who did not receive 200 votes, Quirky has a weekly scheduled program to review them all. Every Monday 17 groups consisting of 6-8 Quirky staff members look through the

submissions which are about to complete the 30-day period. These groups are called DEAR (Drop Everything And Review) and they are organized according to the consumer Quirky product categories described earlier. Every employee in Quirky is assigned to one or more product categories according to his/her area of interest (Shaw, 2013b). Quirky has some general criteria for reviewing the ideas. Steven Shaw, the head of the Community Department notes that usually from 100 ideas, they pick just 1 to 3 ideas for expert review. He also explains that they use a checklist to note down the reasons for not choosing an idea. These general reasons can briefly be identified as follows: submission of an existing product or patent, resubmission of an idea, lack of competitiveness in market, combination of two or more things without any further benefit, solving a very trivial problem, lack of feasibility, disproportionate expensiveness, risk of hazardousness, not adequately explained submissions, submission of a product type that Quirky does not make including standalone food and apps, weapons and non-consumer products. Ideas that labeled as “under expert review” move to the next step which is Pre-Evaluation (Preval). Before the evaluation phase, a team of Quirky led by Invention Ambassadors who are in contact with the prospective innovator to present and advocate his/her idea, reviews the “under expert review” ideas. This team consists of at least one industrial designer, an engineer, a member of the community team, a member of the retail team, and some other Quirky employees. Invention Ambassadors present each idea on a screen in a conference room and they note the discussions during the meeting which will be shared as feedback with the inventor (Figure 17). Each week about 50 ideas are reviewed by this team. They investigate each idea in detail and look through community’s comments and similar product submissions related to the selected idea. Sometimes Preval team calls related experts from other departments in Quirky to explore the feasibility and desirability of the prospective product. Their task concludes with voting among the team members. Ideas with unanimous support and ideas with partial support step forward to Evaluation phase. Those ideas

which did not get selected for Evaluation phase still have a second chance and they are reviewed one more time (Shaw, 2013).



Figure 17 An image from Preval in Quirky (Shaw, 2013c).

The last step of the evaluating part is online Evaluation (Eval) phase. Every Thursday night there is an online “Evaluation” session when Quirky and the crowd pick an average of three ideas from 10-12 “under expert review” submissions as the Quirky’s next product (Shaw, 2013a). Quirky’s head of the Community Department Steven Shaw describes the Eval process as follows:

Eval is the highlight of our week at Quirky. The whole rhythm of the company builds toward Thursday night each week. It is the heart and soul of Quirky. Eval determines the products everybody at Quirky will be working on, and the team that puts Eval together each week is single-mindedly committed to putting together the best Eval possible (Shaw, 2013a).

During the Eval process, the discussion between Quirky and its community is direct and synchronous; it is broadcasted as live video stream and enhanced with text chat and few other special live polling tools (directed by Quirky Eval presenter) for community to have a fast and clear communication with the Quirky team. The prospective inventor whose idea is selected is also called during the discussion for supporting his/her idea. Figure 18, Figure 19 and Figure 20 show three direct and synchronous communication tools used by Quirky during the Eval process. These tools are utilized by the Quirky staff to calculate the responses and to illustrate the results in real time. These tools let Quirky and its community rapidly visualize the results of quantitative surveys which aid them to better decide and evaluate ideas.

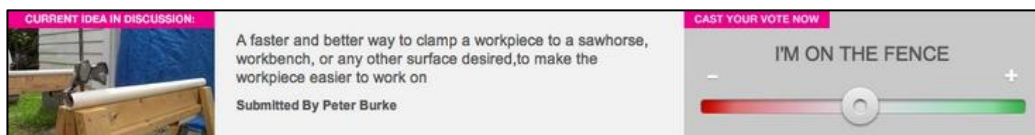


Figure 18 The sentiment meter that asks community how much they like/hate an idea (Padgett, 2012).

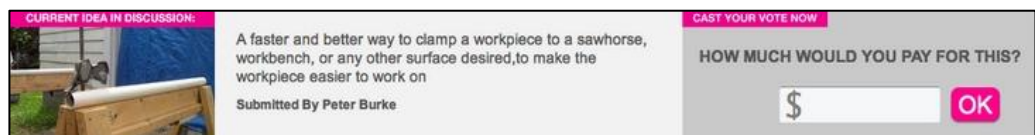


Figure 19 A pricing tool that asks community the price they would pay for the prospective product (Padgett, 2012).

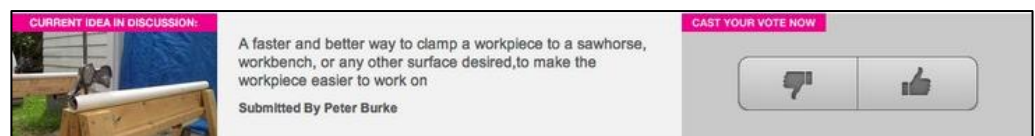


Figure 20 Thumbs up/Thumbs down polling tool asks community whether they would use the prospective product or not (Padgett, 2012).

2.2.1.2.2 Brainstorming Phase

Every selected idea that passes Eval process moves forward to brainstorming phase. This weekly session, which lasts about 20-25 minutes, can be described as the first step of the design process in Quirky. During the brainstorming phase, Quirky in-house industrial designers review the selected ideas by bringing the related products in the market to the discussion table and explore the further possibilities by mind-mapping and sketching. In June 2011, Quirky announced that they wanted to broadcast this weekly session live, so that the Quirky community could watch the discussion of a team of Quirky in-house industrial designers, QDS (Quirky Design Staff), and participate in the discussions. All of these weekly live broadcasts are recorded and can be accessed in Quirky live stream channel on Ustream website. Figure 21 shows an example of a mind-map created in an early live brainstorming session among the QDS and the Quirky community. This mind-map was transcribed by a QDS intern, Michael Gray. The entire brainstorming process of this product can be watched from the following link: (<http://www.ustream.tv/recorded/15831941>).

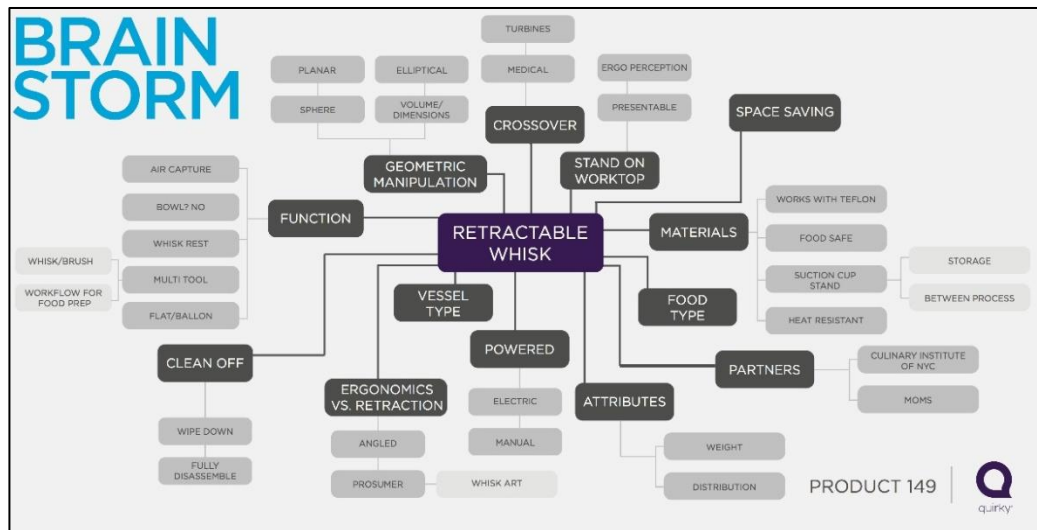


Figure 21 Transcription of retractable whisk’s mind-map from a Quirky brainstorming session. (Rob, 2012)

Although participants in brainstorming phase do not receive any influence, Live Brainstorm Sketching phase offer some influences; usually, during the live brainstorming project Quirky Design Staff draw some quick hand sketches in two minutes to visualize the first thing that come to their mind and then they describe their sketches to other staff and the community. Sometimes they also would like to see how community visualizes an idea. Hence, in conjunction with the live brainstorming, they open a Live Brainstorm Sketching phase which stays open for about an hour, and ask Quirky community to contribute by sending their hand sketches related to the discussed idea. After the time is up, it is not possible to submit any sketches; then the voting starts and it lasts about an hour.

2.2.1.2.3 Research Phase

Quirky has been experimenting with different methods for the research phase. During this phase, which is open for a few days, Quirky defines a task and simply asks the Quirky community to complete an easy mission that leads Quirky to

identify consumer preferences, potential use cases, and design directions for a new product; contributors of research process receive 5% influence (Research Projects 5%, n.d). Conducting surveys is one of the methods that Quirky uses to accumulate data from the crowd. Most of the design projects in Quirky start with a brainstorming phase whose results are used to prepare survey questions. Survey questions in Quirky have been prepared as yes or no questions, multiple choice, Likert scale or open-ended questions. The results of the survey is available after the research process is over. Figure 22 is a screenshot that shows part of the results of a survey on a space saving watering can. The result of a question can be displayed by clicking on the question (<http://www.quirky.com/projects/1096-Squish-Product-Research>).

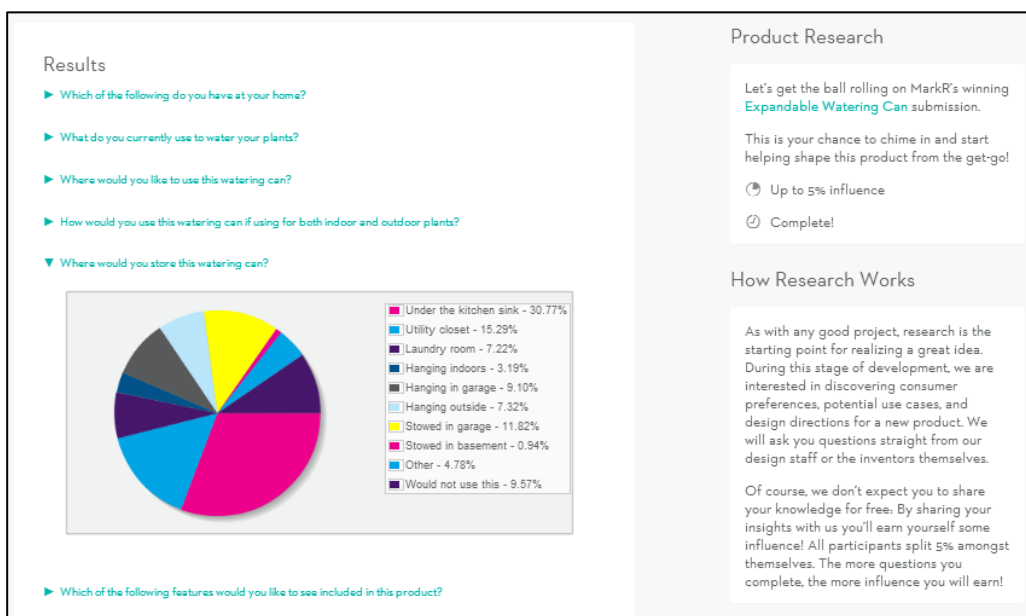


Figure 22 Screen shot of a part of a Quirky survey result (Squish product research, 2011).

Nevertheless, survey is not the only method that Quirky uses to utilize the crowd participation in research process. “Ethnographic Photo Research Phase” is a research project that Quirky once initiated during the design process of the **Covert**, a universal slide-on magnetic desk drawer lock which is invisible from

outside, to understand about the inside surface of the different drawers. Through this phase, Quirky asked its community to take photos of underside of the top of the drawer or cabinet, and inside of the front of the drawer or cabinet which they would most likely use for mounting the Covert. The community was also asked to identify the material of the object that Covert would be mounted on and to tag the location of the drawer or cabinet (e.g. kitchen, dorm room). Figure 23 shows a visual description prepared by Quirky as a reference for submitting the requested photos.

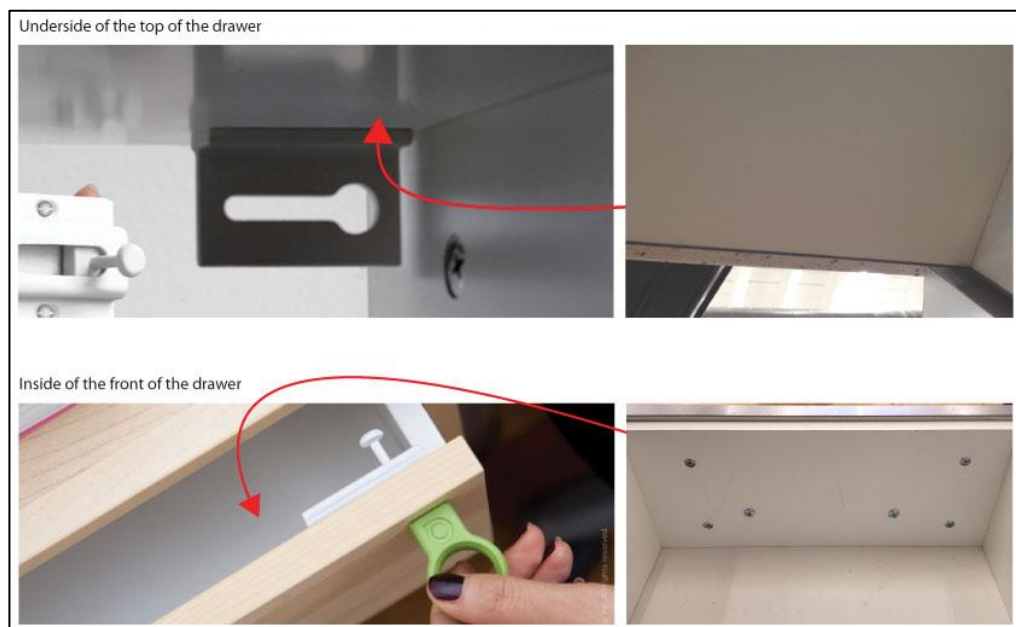


Figure 23 Visual description of the requested submission by Quirky.

The result was outstanding; Quirky marked 82 submissions as the winners who received influence for their contributions. Figure 24 is an example of a submission where, although it was not requested, the submitter even mentioned the model and the brand name of his furniture in the comment section; he also described his experience with similar products as follows:

[I am] Already using magnetic child locks to keep toddler from opening drawers. Lock from Safety 1st.
NOTE: Very difficult screwing the catch on the underside since the drawer is narrow and difficult to maneuver the screw driver and apply enough force to get the screws into wood since impossible to make pilot holes with drill since not enough space (Denny2020, 2011).



Figure 24 A submission from Quirky community during the Ethnographic Photo Research Phase of Covert (Denny2020, 2011).

In another project for designing a set of containers with suction cups that can be used as extra places to hold food on the wall or ceiling of a refrigerator, later called Frio, Quirky asked the community to take pictures or record a video from the inside of their refrigerators and freezers, and describe if they have any storage issue or if they use any existing product to solve this issue. They also wanted the community to think and submit the “placement tendencies” for their refrigerators and freezers. Moreover, Quirky especially restricted using stock photos and ask the community to submit original images. During this project 64 submissions received influence (Frio, 2011). Figure 25 is a screenshot from Quirky website; it shows part of the accepted images and videos.

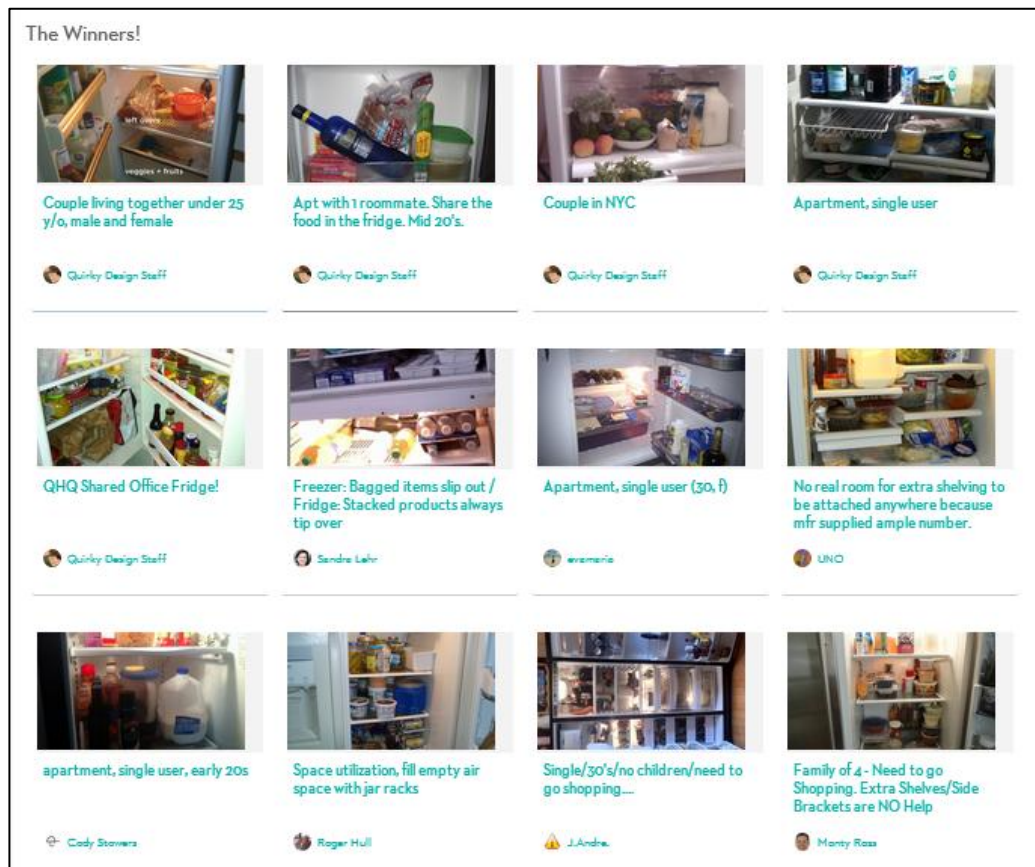


Figure 25 Part of the community images and videos accepted by Quirky during the Ethnographic Photo Research Phase of Frio (Frio Ethnographic Photo Research, 2011).

The place of the ethnographic photo research phase in the whole product development process of Quirky varies. While some ethnographic photo research phases, like Frio's, was initiated at almost the beginning of the project, after the survey session, the ethnographic research of Covert started before the last phase (Price Phase) after every other stage was finalized. Thus, it seems that Quirky benefits from the ethnographic photo research not only for design direction, but also for other purposes such as product testing and marketing.

There is also another research phase very similar to ethnographic photo research which is called *Product Environment Research*. Just like ethnographic photo research, Quirky asks the community to contribute pictures of a specific

environment to assist Quirky staff for better understanding the particular areas and objects surrounded. As it was mentioned before Quirky does not accept unoriginal stock images; the submitters are asked to shoot their pictures with a specific everyday object defined by Quirky as part of the requirements. For example, in product environment research of the Tool Hub, Quirky asked the submitters to include a cup as a common object in their photos if they wanted to receive influence (Figure 26).

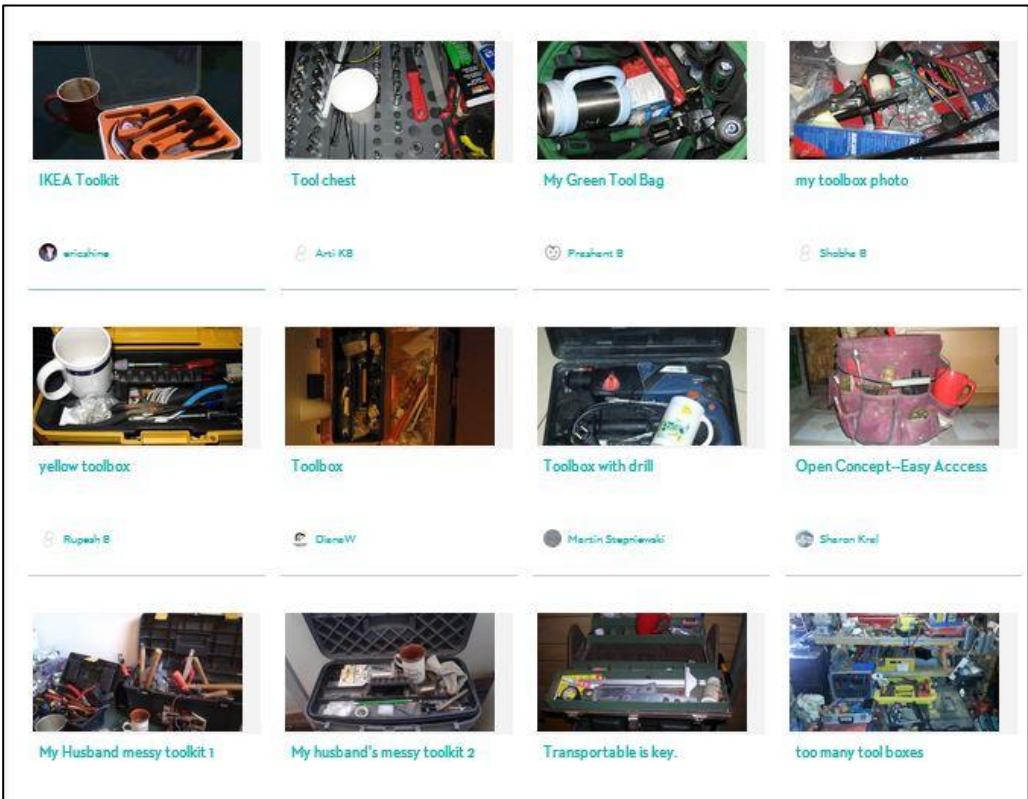


Figure 26 Part of the community images accepted by Quirky during the Product Environment Research of Tool hub (Tool hub, Product Environment Research, 2013).

2.2.1.2.4 Design Phase

Just like in other phases of product development, Quirky makes use of the crowd participation in the Design phase as well. As it is expected, the level of expertise and the degree of contribution of the community vary. Thus, there is a need to organize and find different techniques for the community to contribute and to guide them according to the design direction. In its four-year history, Quirky have commenced several design phases; these are Concept phase, Community Design phase, Sketch and Render phase, and Features and Function phase.

Concept Phase and Community Design Phase. During the Concept phase, Quirky industrial designers ask the community to consider the original idea and submit visual material such as sketches, images, videos, etc. to assist creating the design direction for the submitted idea. Most of the time Quirky designers also submit their own sketches and drawings along with the community proposals. After the deadline and review of all the submissions by the design department, Quirky announces the best submission/s that helped to define the design directions and reward the submitter/s with 3% influence. Quirky also encourages other community members who do not submit visual material by giving them three votes to support the submissions which, they think, would help to develop the idea, and reward the voters by splitting the 2% influence (Design projects 5%, n.d.). Besides voting, Quirky community can also show their praises or criticisms related to each submission in the comments section. Such a voting and evaluation system is valuable for the design department particularly when there are numerous submissions to be reviewed. For example, during the concept phase of Covert, two concepts were selected as the winners of the concept phase, one submitted by Quirky Design Staff and the other submitted by a community member, J. Andre (Figure 27). The impact of these concepts in developing the final product is quite apparent when the final renders of Covert lock (Figure 23 and Figure 31) and the two winner concepts (Figure 27) are compared. In other words, working

mechanism of the Covert lock is a combination of a magnet key which is a part of a concept submitted by Quirky Design Staff, and a sliding system which is Andre's proposal. J. Andre's concept did not receive notable amount of vote from the community, whereas Magnetic Lock submission by Quirky Design Staff received unanimous support (Figure 28).

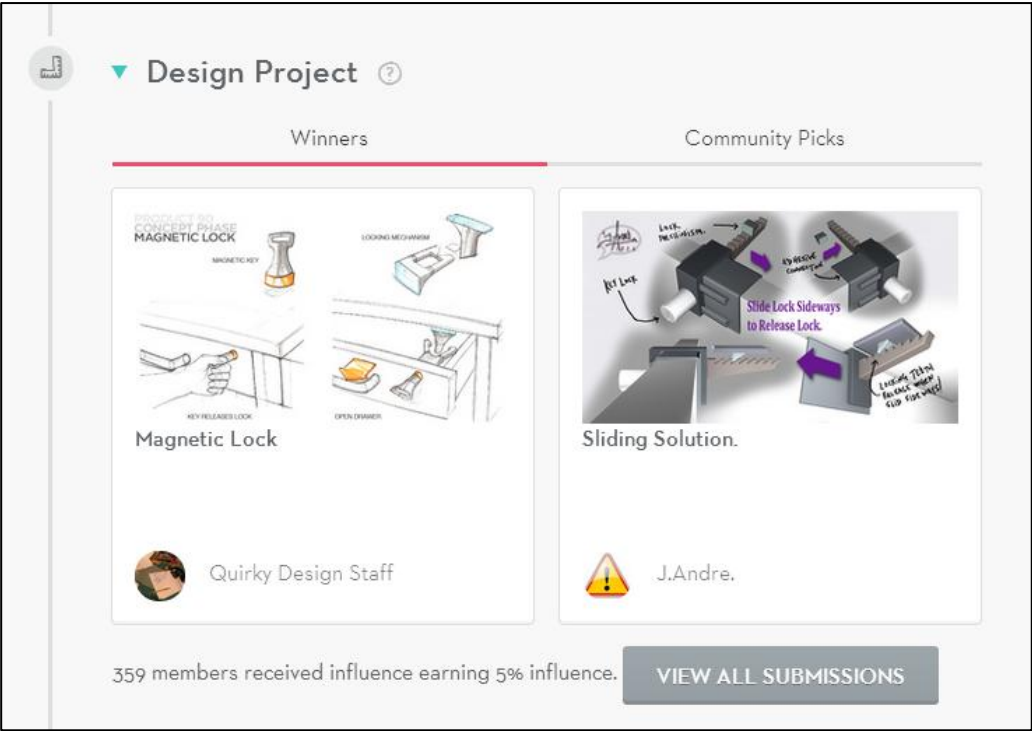


Figure 27 Winner concepts of the Covert lock project.

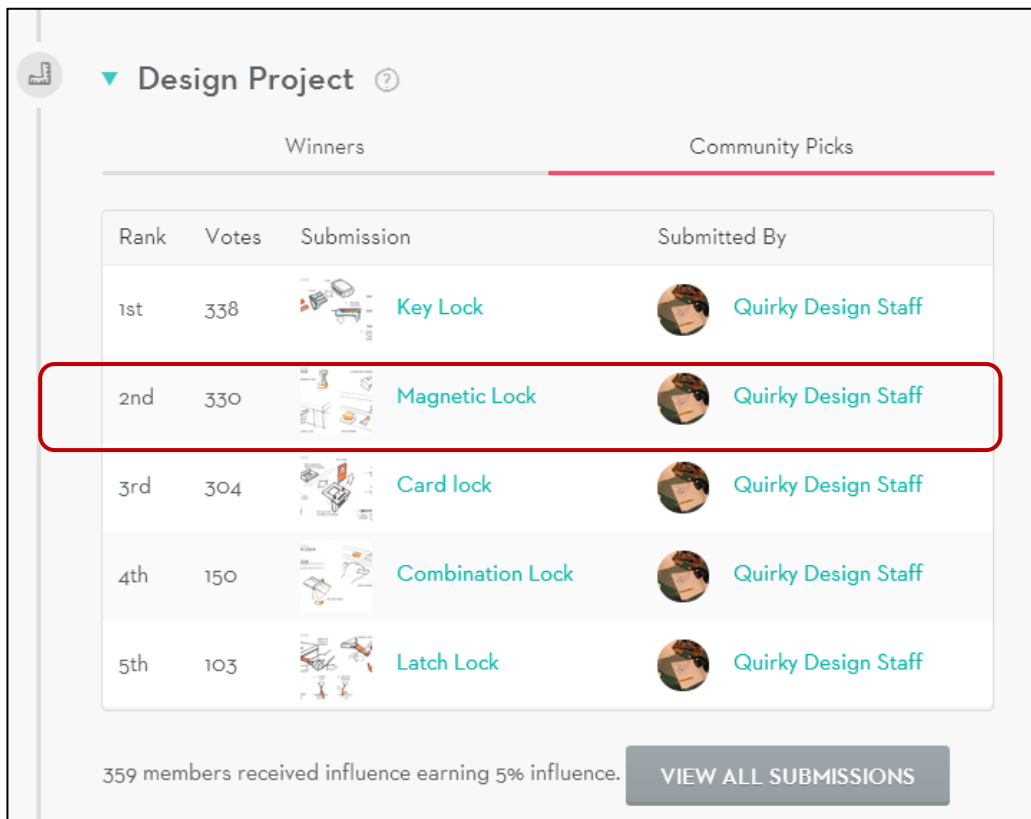


Figure 28 Top Community picks of Covert lock project concepts.

Features and Functions, Sketches and Renders. The Quirky community has different areas and levels of expertise; while some participants describe a problem verbally, some other submissions are designed and visualized in detail. Hence, currently Quirky is experimenting with different techniques to manage this issue and create a sense of fairness to better balance and assess the distribution of influences. For this reason, beside Concept phase there are two other sessions recently introduced by Quirky: Features and Functions, and Sketches and Renders. Both of these phases aim to facilitate community participation during the Design phase but emphasize different communication skills. Features and Functions phase usually starts before Sketches and Renders or other Design phases. It asks the community to verbally mention the essential features or functions that they think should be included in the product and explain why it is

important. Figure 29 is a mind-map made by Quirky and driven from submissions of the community during the Features and Functions phase of Grocery Bag Hanger product development (“Grocery Bag Hanger”, 2013).

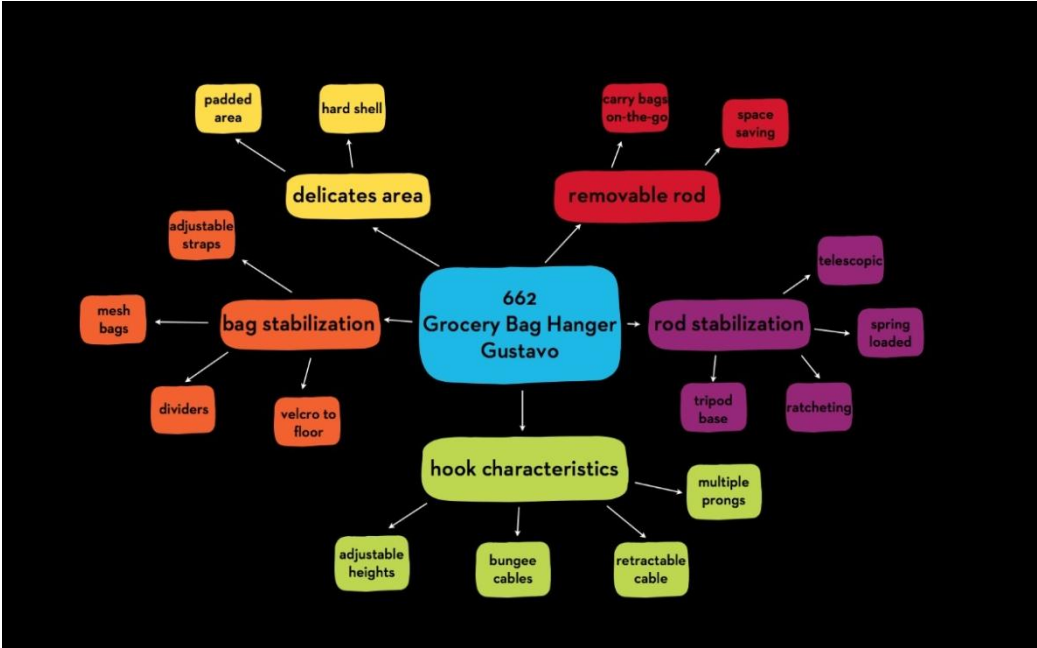


Figure 29 Grocery Bag Hanger mind-map (Buchbauer, 2013)

Although the similarities between the outcome of the Features and Functions phase and Brainstorming phase is quite notable, it is considered that the mind-map resulting from the Features and Functions phase is strongly based on the contribution of the community whereas the Brainstorming outcome is influenced more by the assumptions of the Quirky staff. Sketches and Renders phase is very similar to Community Design phase. It asks the community to present original hand drawings, sketches or CAD models regarding the results of Features and Functions phase, Research phase or other directions that Quirky identifies as the requirements of the phase.

2.2.1.2.5 Refine Phase

Although Quirky does not initiate this phase for every design project, some Concept phases are followed by a Refine phase. This session aims to enhance the selected concepts of the previous phase and further develop the concepts. Usually Refine phase starts by asking the community to vote and comment on a limited number of submissions from Quirky Design Staff which consist of renders, sketches or mockups regarding the outcome of the previous phase. For example, after reviewing the community's responses in the concept phase of the Frio, Quirky Design Staff submitted seven refined concepts to be voted by the Quirky community. Each of these concepts was visualized by hand sketches and mockups that were built for better visualizing and testing the product in use (Figure 30). Sometimes Quirky also asks the community to submit refined ideas along with Quirky Design phase.

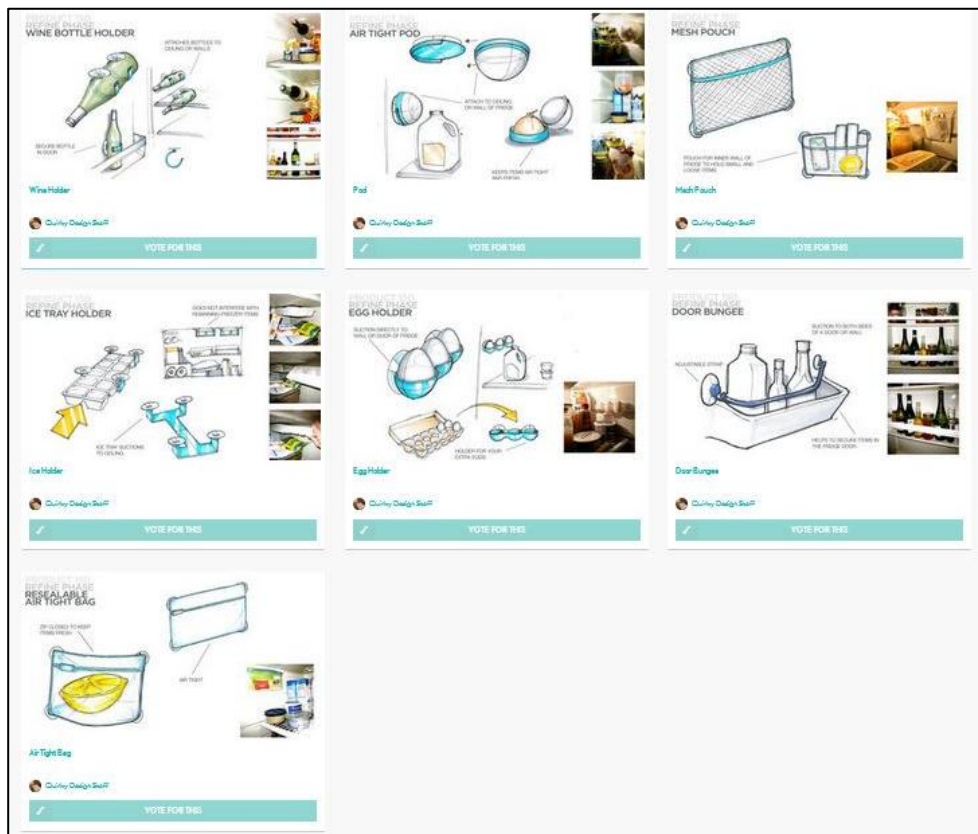


Figure 30 Seven refined concepts submitted by the Quirky Design Staff to the community for voting during the Refine phase of Frio (Frio Refine phase, 2011).

2.2.1.2.6 Style Phase

Style phase is the phase to finalize the appearance of a product in Quirky. The Quirky design staff present the ideal matches of color, material and/or finishing by providing computer renders and ask the community to vote and comment in order to choose the best style that suits the final product. Each community member has 3 votes and Quirky splits 5% influence to all the contributors (Style Projects 5%, n.d). Figure 31 is a snapshot from the Style phase of Covert.

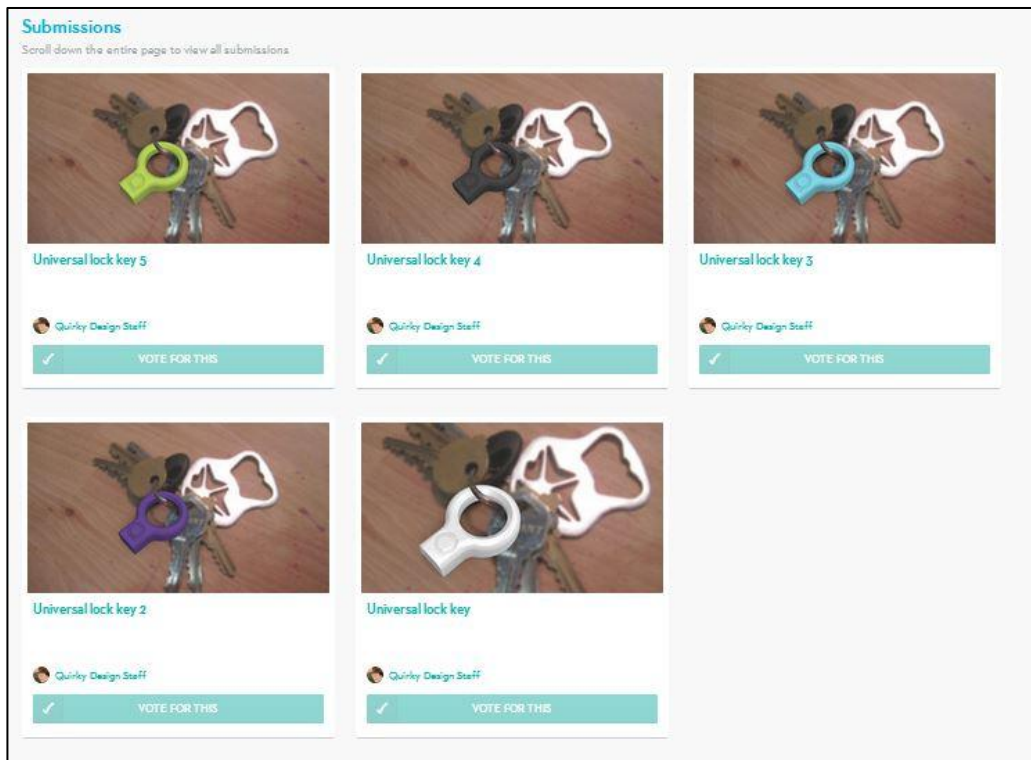


Figure 31 Style phase of Covert.

2.2.1.2.7 Name and Tagline Phase

Naming and choosing a tagline for a new product is part of product development process in Quirky. Quirky thinks that the best way to name a new product is to choose it from the proposals of the same community who contributed to the development of the product. Each community member can submit up to six names for consideration and/or vote for the name that he/she thinks suits the product. 3% influence is given to the submitter of the best name and voters share 2% influence. Although participants are free to suggest any name for the product, Quirky suggests participants to recall previous stages before submission. In order to facilitate it, Quirky provides a brief review of the history of the product's development. This review starts with an explanation of the problem that it solves,

specifications, material/s selection of each part and other features that are worth to mention. Concerning the tagline, Quirky claims that “A product's name may give it an identity, but the tagline gives it character.” (Tagline Projects 5%, n.d.). The rules for the Name phase are also valid for the Tagline phase.

As previously indicated, Quirky always wants to better communicate with its community. However, they faced limitations regarding the Web 2.0 as a medium to communicate with a large number of participants. One of these difficulties was encountered during the voting session of the Name phase. For Quirky, voting is a proven technique to find out the popularity of a proposal. In 2009 when Quirky was introduced, the number of contributors was limited and it was not a difficult task to track all the submissions and vote for the best ones. Nonetheless, in four years about 400,000 individuals joined the Quirky community. Accordingly, the huge number of proposals, especially during the Name and Tagline phases, made it almost impossible for the community to review all the suggestions and vote for their favorite ones. In April 2013, Quirky introduced a new tool for the name and tagline platform. This new tool did not only make evaluation of the names and taglines easier, but also it made it more fun and joyful for contributors to vote. While the process of submission remained almost the same, the voting procedure was replaced by a game called “This or That” (Figure 32). A pair of cards with the submitted names written on it is presented to the voter and he/she is asked to pick the one he/she likes best (Nagy, 2013). As soon as the voter selects one card, he/she receives feedback regarding the rank of both cards among the other submissions, name of the submitter and the number of votes each card received so far (Figure 33). Baron Naggy, the content manager at *Quirky.com* claims that this new system harnesses the data and ranks from the best to the worst by utilizing *Elo rating system* which is used in chess.



Figure 32 “This or That” naming game.



Figure 33 “This or That” naming game feedback.

2.2.1.2.8 Price Phase

The last phase of product development in Quirky is Price phase. The goal of this phase, which is also called Pricing Game, is to estimate the price of a prospective product by asking the community four simple questions. Similar to Name and Tagline phase, this phase includes several images of the product, a product description, materials and dimensions of the prospective product. The information helps the community to better estimate the price. For completing this stage, community members need to answer four questions:

- At what price would you consider this product **too cheap/of poor quality?**
- At what price would you consider this product **a good value/bargain?**
- At what price would you consider this product **a bit pricey but still worth buying?**
- At what price would you consider this product **too expensive/not worth the money?**

After answering all four questions, the submitter receives a feedback regarding his/her answers and the projected price for that product (Figure 34).

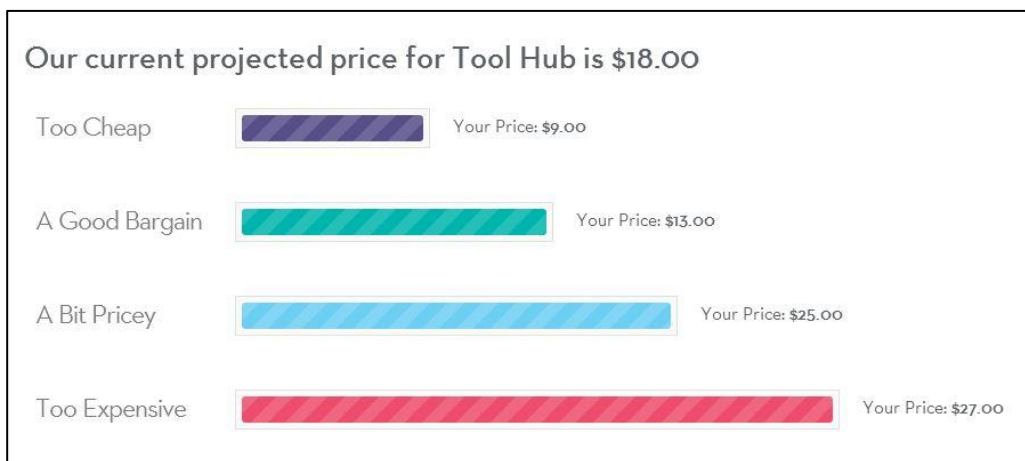


Figure 34 The feedback of Pricing game (Tool hub, Price project, 2013).

CHAPTER 3

FIELD STUDY

This chapter presents the methodology, data collection and analysis, and the findings of two field studies conducted in order to find answers to the research questions. The first study was conducted during the early stages of this research, and it provided insights into the second field study. The following sections explain each study in detail.

3.1 Study 1: Perceived Values of Web-based Collective Design Platforms from the Perspective of Novice Industrial Designers

The first study was conducted during the initial phases of this research to explore the potential of newly developed web-based collective design platforms from the perspective of industrial designers. This initial study was conducted in response to the second research question of this study and mainly focuses on the perceived values of web-based collective design platforms from the perspective of novice industrial designers. Since young and novice industrial designers in particular are likely to try and use these new platforms, this study was conducted with novice industrial designers rather than experienced professional industrial designers who may have more reservations about using such platforms to share and expose their ideas and design solutions publicly.

3.1.1 Methodology and Collection of data

11 senior-year industrial design students and eight industrial designers with maximum two years of experience were selected for semi-structured interviews

based on availability. None of the participants have been tried OpenIDEO's platform and Quirky's platform before. All the participating students were from Middle East Technical University (METU) Department of Industrial Design, and all the professional designers were the graduates of METU. Six interviewees were male and 13 interviewees were female. All the interviews were conducted in April 2012, and completed in two weeks.

The interview was divided into two parts. The first part was an introductory session; the interviewee watched the introductory videos of OpenIDEO (IDEO, 2010) and Quirky (Quirky, 2012), which lasted 2:32 minutes and 1:43 minutes respectively. After watching each video, the interviewee was given additional information through the website of the platforms, which lasted approximately five minutes and covered the following activities:

- Summarizing the whole process from ideation to finalization/evaluation through navigating each platform's website,
- Presenting the ways in which participation takes place in each platform (submitting, commenting, voting, etc.),
- Showing various evaluation methods such as online voting and commenting used in each platform,
- Showing the type of reward gained through participation in each platform.

After the introductory session, the interviewees were asked to compare these two platforms. Secondly, they were asked if they would like to participate in any stage as an industrial designer. Lastly, they were asked to imagine a third, alternative platform and explain how this platform would differ from Quirky and OpenIDEO. The interviews were all conducted in Turkish and voice-recorded; the total duration of each interview varied between 17-20 minutes.

3.1.2 Analysis of data

The analysis of data included the following phases: Half of the interviews were transcribed word by word in Turkish. The transcribed interviews were read; the parts that were thought to be related to the motivational factors and the perceived values of the platforms were highlighted, and the emerging themes were noted down. After fully transcribing half of the interviews, it was decided to continue the analysis of the remaining interviews without fully transcribing each interview in Turkish due to time limitations. The remaining 10 interviews were listened to several times, only the quotes were noted down and transcribed directly in English together with the emerging themes. Then, all the quotes were brought together and organized into a table in an Excel file (Figure 35).

| Quirky / OpenIDEO Interviewee's code | Quote | Emerging Themes | Personal Notes |
|--------------------------------------|---|---|--|
| Q 113 | There is a risk of stealing my idea. Copyright! How can I be sure that someone from China will not take my idea and produce it there? And I don't want to waste my time and energy to pursue the laws and copyright (issues). | Trustworthiness (-) Intellectual property risk due to openness | |
| Q 113 | Instead of money system, points system will be much better. It will be more like gifts. | Trustworthiness (+) Reward (Nonfinancial) | |
| O 113 | In Openideo, at the end of project, sponsor have to bring the idea to life so participant's work will not be wasted. | Trustworthiness (+) Realization of the Outcome | Realization of the end result gives value to participant's work and build trust. Otherwise she might thought that her effort was wasted. |
| Q 114 | For Quirky, intellectual property might be my concern because I can see (all of) these ideas and use it somewhere else easily. I know it will happen. There is not anything that guaranty or secure your idea here. | Trustworthiness (-) openess Intellectual property Risk | |
| O 114 | Here (In Openideo) I don't concern (about intellectual property) that much. it's like a design competition, you read the problem and brief and design something for it. But here you do the design (task) altogether and you already know that you dose not own the idea completely. That's why everybody is here for the same thing. | Trustworthiness (+) Collectivness | 1. she is also talk about intellectual property. Maybe it is good to talk about it in the text. Preserving the intellectual property to build trust. Relation between Collectivness and Intellectual Property can be investigated. 2. Talking about the process of platforms means Representation |

Figure 35 Excel sheet for data analysis.

The table was filled in as to indicate whether the quote was mainly related to Quirky or OpenIDEO, the code of the interviewee, the quote itself, the emerging themes, and personal notes. For example, the first row in Figure 35 presents a quote from the interviewee 13; the quote is related to Quirky and it implies a concern about the “openness” of the platform and the intellectual property issues

in relation to the identified theme “trustworthiness” of the platform. The Excel filters formed for each column facilitated grouping or subgrouping of data during the analysis.

3.1.3 Findings

Before presenting a detailed account of findings, it may be insightful to mention that during the interviews the interviewees were observed to assume different roles or identities. For example, they imagined themselves in scenarios in which they were an idea submitter, or a participant who voted or commented on others' ideas. Therefore, their expectations from, and impressions of, web-based collective design platforms were also influenced by the identities they assumed. In addition, these assumed roles elicited from interviews makes compelling match with Quirky's latest classification of contribution, explained in sections 2.3.1 and 2.3.2; idea submitters (inventing) and idea developers (influencing).

The findings indicate that there are six major values concerning the collective design platforms from the perspective of industrial designers. The following sections present exemplary quotes from interviewees that highlight these perceived values together with the related issues.

3.1.3.1 Supportiveness

Supportiveness is a value related to the support provided by the platform in different phases of the process, and it seems to be one of the significant motivation factors for industrial designers in terms of professional career and recognition. The interviewees drew attention to various types of support including the platform's providing professional support to finalize, produce or

commercialize a design, or providing framework and guidance to contribute to solving big challenges for social good.

(Interviewee 1, industrial designer, in relation to Quirky)

If I solve a problem that I have in my mind, I may go to a producer, negotiate and get it produced. But, of course, this takes a lot of effort. But here, there are people who would do this for me; also I can get support from someone else for a detail that I have not thought about, for a material or usage...

(Interviewee 4, industrial designer, in relation to OpenIDEO)

Everyone may desire to change the world and make it a better place, however, usually people do not know how to do this. OpenIDEO, in my opinion, is like a guide for people, and help them change the world.

3.1.3.2 Collectiveness

The value of collectiveness refers to sharing and exchanging ideas in an open environment; it is related to the degree of interaction and communication among the members in a collaborative manner. Having access to what others do is an integral part of collectiveness, and it allows members to surf through others' ideas and participate in their processes.

(Interviewee 14, senior-year industrial design student, in relation to OpenIDEO)

...maybe I have a good idea for one project but, I might have some weak points that are others' strong points, so they can help and complete me."

Authenticity and authorship were the related issues that some interviewees were concerned about in such collective platforms.

(Interviewee 5, industrial designer, in relation to Quirky)

It is also important to what extent they [Quirky Staff and other participants] intervene with the product; I may be concerned about how

much the final product differs from the one I originally sent, and whether it is still my design.

3.1.3.3 Appreciativeness

Appreciativeness refers to the care, value or attention given to a contribution made by a participant. Getting recognition or attention both from the crowd and from the platform's staff may play a significant role both for a participant's maintaining an active role in the system, and also for his/her feeling confident and recognized about his/her contribution.

(Interviewee 2, industrial designer, in relation to Quirky)

If commenting is a free right, then I think I would comment on many products. But, how the corresponding person takes the comment is very important. If my comments are not considered at all, then I would not continue.

3.1.3.4 Responsiveness

Responsiveness is related to the capacity of the platform to allow or incorporate participants' intervention in different phases of the design process. In some cases it was found to be related to the platform's allowing or not allowing participants to formulate their own problems and solutions. For example, there were comments related to the way in which OpenIDEO formulated its challenges; some interviewees suggested to incorporate the crowd into the initial formulation of challenges. In some other cases, responsiveness was more related to the flexibility or rigidity of the process.

(Interviewee 2, industrial designer, in relation to Quirky)

Any idea you come up with may attract attention [in Quirky]. That is, unlike a competition, for example, which dictates what to do, Quirky does not limit your freedom. That was the first thing I found unattractive in OpenIDEO, and attractive in Quirky, that is, the way I was set free in

Quirky... It [Quirky] even allows you to come up with a problem that no one is aware of.

(Interviewee 15, senior-year industrial design student, in relation to OpenIDEO)

In OpenIDEO it is good to see the steps. They actually make a plan for you with deadlines. But, on the other hand, it brings limitations. For example, in the evaluation process if a good idea comes to my mind, I cannot go back and share it anymore, because the deadline for ideation is over.

3.1.3.5 Trustworthiness

Trustworthiness was found to be a significant value from the perspective of industrial designers in web-based collective design platforms. Since almost all the activities and communication take place in an open and virtual environment, it is challenging to build trust among the members and the coordinators of the platform, as well as among the members of the crowd itself.

Considering the openness of collective design platforms, and their capacity to engage and empower the crowd for participation, the interviewees expected to find numerous submissions or contributions in various qualities. Participation quality was a concern for some interviewees.

(Interviewee 6, industrial designer, in relation to Quirky)

After all, there is no entrance exam. Therefore, everyone can come up with an idea, and after a while it turns into a junkyard of ideas. A kid may say “This is what I have done for making my mum give my allowance. What do you think?” But in OpenIDEO, a global solution directly... There, a kid cannot ask such a question; because there is no room for that; there is a sponsor who says “I would like to see solutions for such and such a thing.”

Evaluation quality or the “fairness” of evaluation in such collective platforms was also a concern for some interviewees. Since Quirky rewards influencers who vote for and evaluate submissions, some interviewees were concerned about their

submissions being underestimated, and were hesitant about the way their submissions would be evaluated through an open commenting and voting system.

(Interviewee 12, industrial designer, in relation to Quirky)

[There is] no reliability [in Quirky] because anyone can comment; anyone! There will be more negative criticism than positive one... Not everyone can give critiques [related to product design]; therefore, it is not trustable for evaluating a product... It is not nice to get paid by commenting or voting on someone else's idea.

The reward system employed by the platform was also found to be important for a sense of fairness and trustworthiness. OpenIDEO creates a sense of involvement and recognition by giving the participants a design quotient for different phases and aspects of the process; Quirky, on the other hand, calls the participants “influencers” who receive royalty based on the degree of influence they make in each project and in each phase. Concerning Quirky in particular, some interviewees were critical about the reward system and were not sure whether it was equally fair for all the parties playing different roles in the system.

(Interviewee 13, senior-year industrial design student, in relation to Quirky)

But it is obvious that they [Quirky] will make much more money than the participants [influencers], and this is annoying. Although it encourages people to participate in design process, I think it is more beneficial for themselves [Quirky] and this is not good; because the system is money-based... Maybe if it were a points-based system in which you spend your points on products, it could be much better.

Intellectual property issues were also mentioned in relation to trustworthiness. Some interviewees stated that they did not trust the system enough to publish their ideas in Quirky since there was a risk of their ideas being stolen. On the other hand, they were less concerned about these issues for OpenIDEO, and felt more comfortable about participation.

(Interviewee 13, senior-year industrial design student, in relation to OpenIDEO)

I am not worried about my idea being stolen here too much, because what we are doing here is going to be used for a social benefit. So if someone steals it, let it be! I don't feel like I lost something here!

Finally, it should also be mentioned that while an interviewee was totally satisfied and motivated by the previous projects and the products of Quirky in the market, another interviewee found OpenIDEO's outcome difficult to imagine and less feasible. Thus, past performance or previous history was identified as a factor which may affect trustworthiness.

(Interviewee 3, industrial designer, in relation to Quirky)

The [previous] winner products do not look bad at all; they are all realized, and that builds trust. Nice products which are produced would make me feel less concerned. If I had something simple and nice, I would add it to the site.

(Interviewee 18, senior-year industrial design student, in relation to Quirky and OpenIDEO)

[In Quirky] It is nice [that the products] are produced and commercialized in a fast way. But in the other one [OpenIDEO] it may take months and maybe it won't get realized.

3.1.3.6 Tangibility of Outcome

Concerning the implications of, and strategies used in, collective design platforms, Quirky and OpenIDEO represent diverse examples. Despite the similarities in empowering the crowd and engaging it in different phases of the design process, the outcome in these platforms was described as tangible or intangible by some interviewees. The interviewees stated that Quirky focused on rapid commercialization and brought innovative product ideas into a global competitive market; OpenIDEO, on the other hand, served a social good, and implied a longer ideation phase to develop solutions to big challenges. This value

was described by the interviewees as “design centeredness” or “research centeredness”.

(Interviewee 18, senior-year industrial design student, in relation to OpenIDEO)

It [OpenIDEO] is more academic. It can be given as an assignment; something like “We would like everyone to seek an answer to the problem defined.” It is more at the concept level, academic... But in Quirky, there is production and royalty; it is more industrial. (...) In OpenIDEO the ideation is longer, in the other one [Quirky] the idea or the solution to work on is already given.

Design centeredness mainly refers to the capacity of the platform to manufacture and market innovative ideas in conjunction with a design process adopted to finalize and bring product ideas to life. For example, interviewee 7 and interviewee 11 considered that the Quirky’s process was more similar to a professional competition, or to a classic design process considering the fact that submissions were evaluated and only a few of them were selected for further development.

(Interviewee 11, senior-year industrial design student, in relation to Quirky)

It is like an individual work; you upload your own idea and define your problem/solution and others evaluate it; therefore, it is more for designers to use this website.

(Interviewee 7, industrial designer, in relation to Quirky)

I think Quirky is more designer centered; you need to draw, communicate your idea, etc. You need to communicate, present your idea to people; since the buyer of Quirky is not certain, it is designer’s responsibility to appeal to people and sell his/her idea.

Research centeredness, on the other hand, was characterized by the intangible outcome of design process. The statements related to intangible outcome, serving public good or dealing with community problems were categorized as research

centered. Some comments described the research centeredness as educational, academic oriented or as more focusing on design research phase.

(Interviewee 10, industrial designer, in relation to OpenIDEO)

OpenIDEO seems more educational. I mean [it is] the other dimension of the process, an earlier phase, the one before the product realization. It maintains a step by step process, and shows that outcome is achieved through a series of phases; the process can change from one designer to another; the mindset differs from one person to another, and there is no single, clear cut answer. This is what we see in real life, too. Therefore, I feel like it is more educational.

3.1.4 Discussion

The study reveals six values emphasized by the industrial designers concerning the web-based collective design platforms: Supportiveness, collectiveness, appreciativeness, responsiveness, trustworthiness, and tangibility of outcome. These values give reference to some potential motivation factors or drivers for industrial designers' participation in collective design platforms.

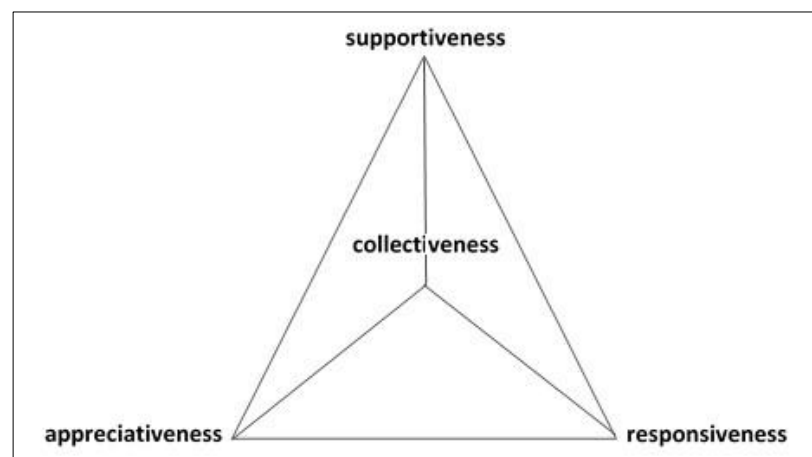


Figure 36 The value of collectiveness in relation to the values of supportiveness, appreciativeness and responsiveness

The findings indicate that the value of collectiveness may be interrelated with the values of supportiveness, appreciativeness and responsiveness (Figure 36).

Providing a supportive system, giving and taking recognition, and incorporating intervention seem to encourage participation, create a sense of solidarity, and foster an environment suitable for collective design. The concerns about authenticity and authorship seem to be linked with the professional identity of designers, and may have negative implications for the value of collectiveness. Since this study was conducted with a small group of novice industrial designers only, more research is necessary to further explore these values and their interrelationships for various professional and non-professional groups.

The value of trustworthiness is a rather complex construct. Participation quality, evaluation quality (or “fairness” of evaluation), fairness of reward system, intellectual property risks, and past performance of the platform were the issues brought to focus by industrial designers in relation to trustworthiness in collective design platforms. More research is necessary to further explore the multi-dimensional structure of the value of trustworthiness for designer and non-designer groups.

The findings also indicate that OpenIDEO and Quirky may represent diverse models for collective design platforms. Therefore, the tangibility of outcome may provide a useful reference for re-interpreting the values in accordance with the type of collective platform. For example, if the outcome is more design-centered, tangible and commercial, the value of supportiveness may need to get more professional. When the outcome is relatively more research-centered, less tangible and less commercial, the values of appreciativeness and responsiveness may need to get more pronounced.

3.2 Study 2: Quirky In-house Industrial Designers and Crowd Participation in Design Process

The second study was conducted to understand the role of the crowd and in-house industrial designers professionally working for Quirky in the design process in Quirky. This study also aimed to further reveal the qualities and features of Quirky as a web-based collective design platform and to provide insights into the interplay of in-house industrial designers and the crowd in different phases of the design process in Quirky.

In order to prevent any confusion the Quirky employees are referred to as “Quirky team” or “Quirky staff” in the text. The sum of individuals from the public who need to create a Quirky account to be a member of the Quirky community are referred to as “the community”, “the Quirky community” or “the online community”.

3.2.1 Pilot Study

For the pilot study an industrial designer who worked in Quirky headquarters in New York City was selected for a semi-structured interview. He is an industrial designer with a bachelor’s degree from Turkey and he worked in Quirky for three months in 2012. Although he started as an intern, since he had industrial design background, he worked there more as a freelance industrial designer than as an intern. The interview was conducted via Skype in Turkish on November 2012 and it lasted an hour and 43 minutes. The purpose of the interview was to get general information related to the design process in Quirky and to understand and explore the role of industrial designers and the crowd in the process.

To understand the design process in Quirky headquarters and the role of industrial designers and of the crowd in various phases of the process, three open ended questions were prepared:

- Could you please briefly describe the Quirky design process?
- What are the roles of in-house industrial designers in Quirky?
- What are the roles of the crowd in different phases of the design process?

The pilot interview was fully transcribed in Turkish and utilized to develop a detailed interview guide.

3.2.2 Interview Guide

The interview guide contains 55 questions regarding the Quirky design process. The full interview guide is presented in Appendix B. The guide starts with an introduction during which the researcher introduces himself and briefly describes the aim of the study. Then, the interviewees are informed that the content of the interviews will be used for scientific purposes only and their personal information will be kept confidential, and in order to recall the conversations the interviews will be audio and video recorded. The researcher also indicates that, he would be happy to share the findings and results of the research. Following the introduction, in the first part, several questions concerning the personal information and the professional experience of the interviewee in Quirky are asked.

The second part starts with questions asking the interviewees to describe the Quirky design process in general, and this is followed by the questions related to the specific phases in Quirky:

- Idea Submission phase
- Expert Review and Live Evaluation Process phase
- Research phase
- Brainstorming phase

- Design phase (Quirky industrial designers and community design phase)
- Enhance phase
- Style phase
- Price phase
- Testing phase

Regarding the qualities of each phase, the following roles and topics are questioned in order to better understand and clarify the ways in which Quirky industrial designers work internally in different phases:

- Clarification of the phase
- Role of Quirky in-house industrial designer
- Role of Quirky community
- Role of experts from the community
- Role of inventor

The third part of the interview covers complementary questions, asking the opinions of the interviewees regarding the most and the least significant aspects of the community's contribution, intellectual property rights in Quirky, and future potential of the crowd participation in design process. Lastly, the interviewees are asked whether they would like to add anything.

3.2.3 Data Collection

Since the researcher had no access to the contact information or e-mail addresses of Quirky in-house industrial designers, and since the researcher wanted to inform the Quirky company about this research, an informative e-mail was sent to question@quirky.com. In this e-mail, the researcher introduced himself, briefly explained the aim of the study and kindly requested the company to forward the interview request letter, which was attached, to the Quirky in-house industrial designers. The full content of the e-mail and its attachment are provided in Appendix A and Appendix C. Moreover, to make sure that the company received

the e-mail and the letter, the researcher called the Quirky headquarters in New York city and made sure that a Quirky employee from community support received the email, and she informed the Quirky product department and the project manager of the product team about this study. Unfortunately, after phone calls, sending several emails and tweeting the CEO and the Quirky Company, the researcher was informed that the Quirky in-house industrial designers are very busy and cannot spend time for the interviews. Therefore, the researcher got in touch with several industrial designers who previously worked in Quirky; two industrial designers accepted to be interviewed.

The first interviewee (interviewee A) was an industrial designer who worked in many projects in Quirky for about three years. The interview with him was conducted via Skype video call on December 2013. This interview took 61 minutes. The second interview was conducted on December 2013 and it lasted 52 minutes; he (interviewee B) was an industrial designer who worked in Quirky in a senior and managerial position for more than two years. Both interviews were conducted in English, and were audio and video recorded.

3.2.4 Analysis of Data

The analysis started by listening to the recorded interviews several times; both interviews were fully transcribed in English word by word and stored in a Microsoft Word file. The parts from the interviews that were related to the role of Quirky in-house industrial designers, the role of Quirky community, the role of experts in the community, the role of inventor in the community, and the qualities of Quirky company were highlighted. The lines in each interview file were numbered and the highlighted quotes from each interviewee were color-coded; the quotes from interviewee A were coded as blue, and the quotes from interviewee B were coded as red. In order to better analyze the color-coded quotes, the

highlighted sentences and paragraphs were printed out, cut, and pasted on a large sheet of paper under various topics in such a way that the researcher could reposition them during the analysis (Figure 37); these topics were as follows:

- Role of community in design process in Quirky
- Role of experts from the community in design process in Quirky
- Role of inventor (i.e. the idea submitter whose idea is selected) in design process in Quirky
- Role of industrial designers in different parts of the design process in Quirky
- Product Development Process in Quirky
- Qualities of Quirky company

The analysis sheet provided the researcher with a full vision of the categorized data together with the main topics that assisted the researcher during the data analysis and writing. The quotes under each topic were reviewed several times to understand the differing or common views on a particular topic. The emerging sub-themes were noted on sticky notes, coded with the related line numbers and interviewee's code and pasted on the analysis sheet. Moreover, when it was necessary, the researcher added personal notes regarding the emerging sub-themes or highlighted quotes. For example, as it is illustrated in Figure 38, the quote between the lines 467-473 belongs to interviewee B which is categorized with other related quotes under the topic of the "role of experts from the community in design process in Quirky"; there is also a personal note by the researcher.

After reviewing all the quotes, the topics and the emerging sub-themes were finalized into five topics and 22 sub-themes. These topics and sub-themes are explained in the following sections.



Figure 37 Data analysis sheet.

| Line No. | Text | Code |
|----------|--|--------------------------|
| 100 | to move through faster. If we felt that the submission had the already covered a number of different details then we did not feel the need to do the redundant work. For example if a submission have a very good prototype as part of the submission there wouldn't be all a lot of need to, you know, go back to the drawing board and start from scratch. | Aciklama [mh9]: 01 or 02 |
| 101 | | |
| 102 | | |
| 103 | | |
| 107 | meaningfully involved in various phases. Ehm! So it's very 'hit and miss' so far. I mean, occasionally you would have an expert, who would way in on a phase and have a great influence on it and be rewarded for that influence. And often times because of the system you would have an expert involved, greedy? (43:21) Influence something with a comment for example and then they wouldn't get influence rate and they would be pissed off, another people would see that you know, this expert should've really get, being get influence and wasn't and then there would be disenfranchised! Right? So, | Aciklama [mh57]: 01 |
| 108 | | |
| 109 | | |
| 110 | | |
| 118 | that we had very high quality presentations, obviously if we are gone go forward with the design as submitted or the idea as submitted that really help the design department by definition Right? Because a lot of the visual work is already been done, Ehm! Or you know, lot of engineering work may have been already done. So you can argue the | Aciklama [mh22]: 0 |
| 119 | | |
| 120 | | |
| 121 | Yeah I mean, hopefully if they can come in to the office. If they are in New York city or near area Quirky will bring them in, pay for it, cuz all other companies do that too. They are bringing the expert and staff | Aciklama [mh71]: 01 |
| 122 | | |
| 123 | | |
| 124 | | |
| 125 | | |
| 126 | | |
| 127 | | |
| 128 | | |
| 129 | | |
| 130 | | |
| 131 | | |
| 132 | | |
| 133 | | |
| 134 | | |
| 135 | | |
| 136 | | |
| 137 | | |
| 138 | | |
| 139 | | |
| 140 | | |
| 141 | | |
| 142 | | |
| 143 | | |
| 144 | | |
| 145 | | |
| 146 | | |
| 147 | | |
| 148 | | |
| 149 | | |
| 150 | | |
| 151 | | |
| 152 | | |
| 153 | | |
| 154 | | |
| 155 | | |
| 156 | | |
| 157 | | |
| 158 | | |
| 159 | | |
| 160 | | |
| 161 | | |
| 162 | | |
| 163 | | |
| 164 | | |
| 165 | | |
| 166 | | |
| 167 | | |
| 168 | | |
| 169 | | |
| 170 | | |
| 171 | | |
| 172 | | |
| 173 | | |
| 174 | | |
| 175 | | |
| 176 | | |
| 177 | | |
| 178 | | |
| 179 | | |
| 180 | | |
| 181 | | |
| 182 | | |
| 183 | | |
| 184 | | |
| 185 | | |
| 186 | | |
| 187 | | |
| 188 | | |
| 189 | | |
| 190 | | |
| 191 | | |
| 192 | | |
| 193 | | |
| 194 | | |
| 195 | | |
| 196 | | |
| 197 | | |
| 198 | | |
| 199 | | |
| 200 | | |

Figure 38 A detail from data analysis sheet

3.2.5 Findings

The following sections present the findings of the study as emerging topics and sub-themes together with exemplary quotes from interviewees A and B.

3.2.5.1 The Roles of Quirky Community in Design Process

This section highlights the community's contribution to the design process under six sub-themes: Community involvement, community as research source, community as supplementary assessor, community as idea developer, community as vice-director or advisor, and community and marketing. While the first sub-theme, as stated by both interviewees, indicates the attempt of Quirky to create a sense of involvement among the community members by engaging them in different parts of the process, the other five sub-themes describe the qualities and roles of Quirky community.

a. Community Involvement

According to interviewee B, Quirky intends to make the participants feel involved and think that they are contributing in a way that they have the power to direct and shape the outcome of projects. During the interviews, this issue was mentioned for different phases of the process, and especially for the community design phase when the community is expected to submit visual material.

(Interviewee B, lines 376-369)

When looking at sketches, rough, rough sketches make them [clients] feel involved because it doesn't feel like it was final product yet. As opposed to, you know, certain designers will show clients 3D work right from the beginning. So it is more refined and it is more polished, then the client doesn't feel like it can be changed and they don't feel as involved. Cause,

you know, 3D rendering kind of feel like the final product. So I think the same thing applies with the community. You want to make them feel involved from the very beginning and feel like they have the power over the direction of the product which is, you know, the community concept phase.

Moreover, as it was described, sometimes during the community design phase, Quirky in-house industrial designers upload their own sketches and ask the community members to submit their concepts as well as to vote and comment on the other submissions. According to interviewee B, doing so can be a source of inspiration for the community and may encourage them to submit their own concepts, but it also distracts the attention of community and creates an unbalanced environment. In another words, the community might think that the submissions by Quirky industrial designers look more polished and attractive and this might cause them to loose their incentive to submit their own submissions. Thus, according to interviewee B, it was always a challenge for Quirky industrial designers to show the community that there was not any competition between them and the Quirky industrial designers.

Nevertheless, creating a sense of involvement became a bigger issue as the number of individuals in Quirky community increased.

(Interviewee B, lines 225-228)

[In Quirky] that was an ongoing battle and I am presuming still is now. Like, how do you make people feel involved, how do you make sure people don't feel disfranchised when the community gets a lot larger which it has done.

Technological limitations to communicate and interact with the online community during the live evaluation, brainstorming and ethnographic research phases were mentioned by interviewee B as a restrictive factor in involving the community in the process.

(Interviewee B, lines 259-265)

I've hoped that they find new ways and new technologies to be out conduct design research in a very meaningful way with the online community. Plenty of, you know, ethnographic and ergonomic research was done in-house. And more that a community is involved, the better really.

(Interviewee B, lines 261-265)

A meeting of that nature [Eval] was a very physical meeting. A seventy people locked in a room until we decide what we're gonna make, then of course, it's somewhat difficult to involve this outside community in that kind of that feel. In the same way [that] you are watching a football match on TV you have little, you know, influence than the actual crowd in the ground will have.

(Interviewee B, lines 278-283)

A lot of these came back to the technology available to actually make people involved in these kind(s) of discussions. I am sure. Doing industrial design yourself, you understand, how difficult would be to get an online community involved in something like a brainstorm which is about the energy in the room between just a few people and then getting ideas down physically on paper. How do you get digital online community involved in that?

As it will be discussed in the following section, interviewee B believes that the advancement and accessibility of technology can also effectively improve the research tools and methods that Quirky and its community have been using during the ethnographic photo research.

(Interviewee B, lines 344-350)

For example if we're designing for a student dorm, student dormitory. It wasn't really enough to have photos of student dorms. You really, a true ethnographic study would be to, to film students in the dorm and how they use it, and how they interact with it, but that was kind of beyond the reach of the technology available now, that could change in the future. You could imagine if, you know, a bunch of the Quirky community members had, you know, Google Glass eyewear and they were filming their day to day life. That could be useful.

Lastly, interviewee B is of the opinion that though it is very beneficial to involve large number of individuals in different phases of the design process, there are

also times when it is better to focus and work in a small group with few people or even individually.

(Interviewee B, lines 517-529)

There is time that a lot of people incredibly useful and there's time when they're completely useless. And what you really want is a team of a people, you know, what they talking about, a very small team three or four people in a room. Just, you know, knocking ideas back and forth. So I think it's very fashionable to talk about the notion of social product development in, you know, community driven design. It is very trendy and cool! But at the same time, most of the most amazing inventions come from one person in the history of people. Typically, it is a one person [who] is very obsessed with something for decades to scramble across it. You know, you think of like Thomas Edison and those, those types of people ... So I think we should be very careful with the things that more people equals more ideas or better ideas. It is not always the case. Often times you're just looking for that one spot.

(Interviewee B, lines 216-224)

There is a time in the creative's flow where you actually want less people, you want more for focus, want more for vision from, from smaller team. And it always fascinates me that, for example when you're doing a brainstorm you kind of only one five or six people in the room. As soon as you get more than five people, people start switching off and they feeling like, there is enough people around, they don't have to involve anymore and they kind of fall silent. So there is always a kind of tipping point in human interaction, especially around creativity. So I always think that, there is a benefit to bouncing back and forth between kind of group work, and you know community work and then singular work.

Figure 39 illustrates the level of community's involvement in Quirky product development, according to a quote from interviewee B; the vertical axis of this chart demonstrates the level of community involvement and the horizontal axis represents the various phases mentioned by interviewee B.

(Interviewee B, lines 454-459)

I think what we found is, if you look to the like, a bar chart in the very beginning the involvement would be very high and as it went down to a

sort of more expert activity, then the involvement would be drop off. We come back up to naming and tagline and drop off again the manufacturing and when it up to market the social sales, etcetera, that would put it up again.

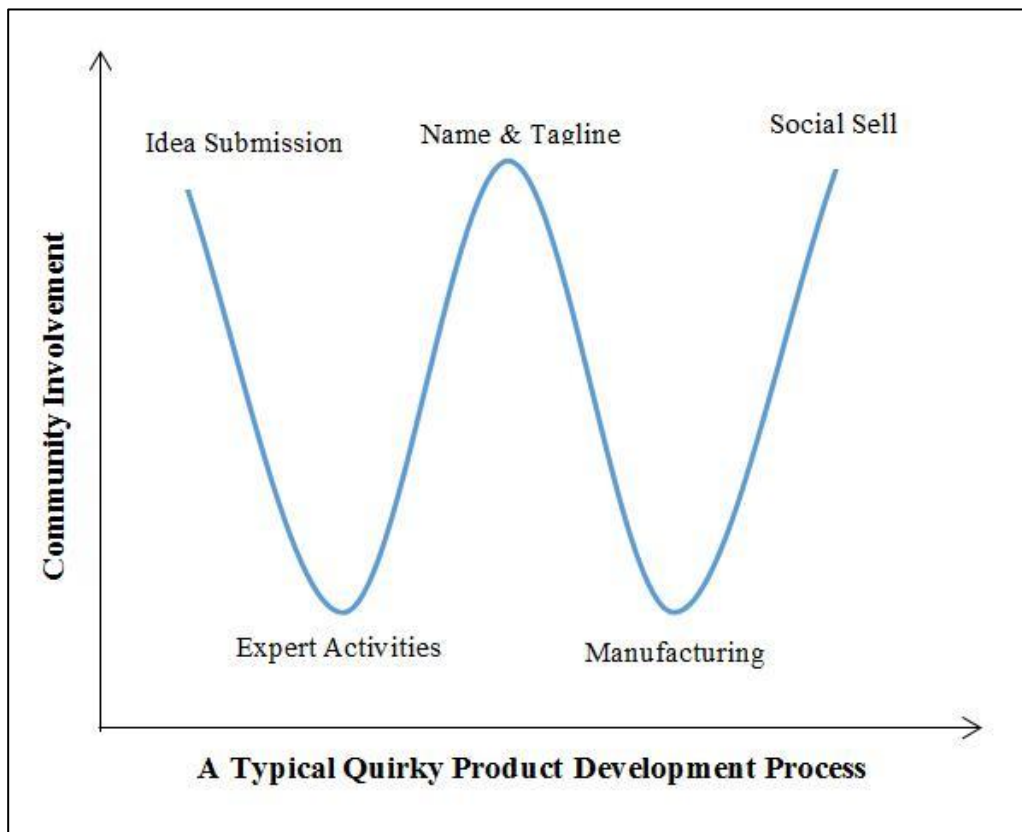


Figure 39 Community's involvement in Quirky product development process

b. Community as a Research Resource

As it was explained in previous sections, conducting surveys and gathering ethnographic photos are two common methods that Quirky uses during the research phase. During the research phase, Quirky widely benefits from its heterogeneous community by asking them multiple choice and short open-ended

questions. The community has few days to answer the questions and receive influence for their contribution.

Both interviewees claim that, acquiring data from the community by conducting surveys is a quick way that assists Quirky industrial designers to decide on details of the products according to the outcome of the research.

(Interviewee A, lines 81-83)

It's like a back bone that you could. No not a back bone. It's like a resource that you go back to it as you're refining and designing. You know do I need five outlets in my power strip or do I need six outlet(s), do I need more? These are things that you should ask in research questions. It is the data that can help you figure out details like that. That's what it is.

(Interviewee B, lines 321-323)

If you have an online community as large as Quirky does, there is certain demographic research you can do from get-go.

In addition, Quirky conducts ethnographic research by asking the community members to take photos of their environment or their items related to the project and upload them to Quirky website. In interviewee A's view, ethnographic research phase is a reliable way for Quirky to rapidly and freely accumulate global ethnographic data related to a specific subject in an effective way. As stated by interviewee B, on the other hand, producing successful results from ethnographic research requires more investigation and it needs more effort than receiving photos from the online community only.

(Interviewee A, lines 394-402)

[Ethnographic research is the] same thing! It just feeds back in. It is just a resource free to go. I remember ... [during a] project ... we had people take pictures of their fridges. So yeah, during the designing, lots of people shows that their fridge looks like this, how the people pack their freezers, what their doors look like. Of course, it's not every fridge in America or world but it is a sample that is bigger than what is in the office so it helps. And it is a recent sample also whereas if you just do that research on the internet, you do not gonna get, you have no idea where it is from or it's

real or it's fake. I mean at least here you know that this is real people. I think also other design firms also would do the design research like this but, I know, for instance, they are located in to the New York, they just gone go to 5 to 10 houses in New Jersey; New Jersey is more suburban. It's like more houses. New York is like apartments and it's right across the river. It is really close. So those just goes to the suburban and see 5 to 10 houses and see what is that like. But that is a very marginal group. Good thing with the Quirky is at ethnographic researches it is all over the world.

(Interviewee B, lines 340-348)

Those phases could be debated. You know ethnographic research itself is its own discipline within design. So it was some more difficult to make it meaningful and you know substantives using the online community. So typically those rounds were awfully helpful. It wasn't. Often times it was not really enough to have. You know, for example, if we're designing for a student dorm, student dormitory. It wasn't really enough to have photos of student dorms. You really, A true ethnographic study would be to, to film student in the dorm and how they use it, and how they interact with it, but that was kind of beyond the reach of the technology available now...

c. Community as Supplementary Assessor

According to the interviewees, Quirky's platform provides certain tools that assist the community to get involved and acquire certain responsibilities like evaluation of submitted ideas by voting and commenting in order to promote the best ideas to the top.

(Interviewee A, lines 48-51)

Community is able to pitching on the design process and sort of gives their feedback throughout the whole process. So the bad ideas don't make it through because the community constantly checking and we are constantly checking. So, Quirky is constantly checking.

Interviewee B states that the community's evaluation is not the only decision factor to put an idea under expert review. Instead their effort is useful to filter the good ideas among the enormous number of submissions. However, interviewee A claims that sometimes the community's decision does not match with Quirky's

criteria to put an idea under expert review and for this reason a professional assessor team from Quirky is assigned to make the final decision.

(Interviewee B, lines 131-137)

We had a number of tools that has disposals to help bring the good ones to the top and there where much based on algorism that took into account the voting and comments; sort of trajectory of activity around certain ideas. So we were using those tools. A lot of it was just, you know, manually looking through ideas which try to involve the whole company. So each week as many ideas being looked out for a good enough time as possible.

(Interviewee A, lines 57-62)

When I was there, [there] was a weekly consul, rotating [Quirky] people who look through a lot of ideas but also the community, the online community, everybody is there looking at the ideas and they are voting on the ideas. So theoretically they're gonna bring the best ideas to the top. But I think, in reality, there is definitely a difference between what online community as a whole think, is a good idea, versus what the experts who are working in Quirky think is a good idea. So, that's why we have that consul.

Moreover Interviewee A mentions that it was quite challenging for industrial designers who were working for Quirky to elicit the useful comments of the community. In other words, in an open platform where all the communication takes place in a virtual environment, it is quite demanding to review all the responses and find the inputs that are good match for the development of a project. So in several cases the community's comments were considered more as supplementary data.

(Interviewee A, lines 323-326)

If there is a good voice or comment it helps. Like a smart comment, it helps. But there is a lot of noise. So, you usually have to tune it out and you kind of have to, like, keep one eye to in it in case there is a good comment. But most of the time you cannot take it seriously because in the internet there are so much noise.

(Interviewee A, lines 449-451)

... there is not a lot of good comments but you still read them, because you want to make sure. You don't read all of them. You read comments and ideas that you are looking further into it.

In the same way, interviewee A is of the opinion that the community's assessment is not credited as final decision. Instead, it is a way to find out the general thoughts of people.

(Interviewee A, lines 81-83)

When the community votes on the stuff, it's not like they have the final say, it's sort of like, taking the pulse of the whole community. What's the community as a whole thinking?

He believes that the community's opinion and contribution is demanded as a supplementary input that can help the industrial designers to make their minds.

(Interviewee A, lines 199-206)

When I look through stuff I wasn't really, hmm, I would do the community second and my own opinion first. Maybe that's just me. So if I saw something and it is like, I think this's like what you call "half-baked" idea. Like it's a good idea I think, but it is a little crazy that I'm not totally sure. Then I read the community comments and see if they said anything that just makes me say: Oh yeah, this is a great idea! Or, oh yeah, this is a terrible idea! Maybe they thought about something that I couldn't see at first. Which is, you know, that's why they are there. They are there to check the balances. They are making sure that we won't mess up.

d. Community as Idea Developer

Besides community's assessment about the design alternatives from Quirky industrial designers and Quirky community's ideas and concepts, interviewee B claims that the collaboration and interaction among the community members can also be very beneficial for Quirky. He mentions that many times community members assist them by their comments in clarifying the ideas.

(Interviewee B, lines 143-150)

[Community's involvement helps] in same way when you have a room full of 3 or 4 people. So you can have an idea and those other people in the room add to it such that the original idea is actually becomes better and more understandable. ... Often time people have a great idea but don't have the way to actually explaining that. So often times, the community comments will help to explain an idea further, to make it more, full and you know, catch the attention of Quirky itself.

e. Community as Advisor

Interviewee A indicates that the community's opinion can be beneficial to assist Quirky industrial designers to push ahead the projects.

(Interviewee A, lines 139-141)

When you are sitting in-house and you don't have any answers, that's really when you need to go bounce ideas of the community. You need create some sort of community presentation of what you have been working on and put that up to the community.

He indicates that during the Style phase, as the community is required to choose a color, material and finishing among the given options, the community's advice can be used to test a possibility or to receive suggestion about Quirky's internal decision.

(Interviewee A, lines 498-500)

[The community's input] is helpful if, let's say, I design something like I say: oh! It's gonna be all black, it's gonna be great all black, and nobody likes it, then I say, ok, it should not be all black.

The following is a specific case that shows how the community's advices can influence and direct the path of a project. Concerning this particular project, interviewee A is satisfied with the community's position and its focus on the project.

(Interviewee A, lines 623-630, 636-637 and 639-641)

[During Pivot Power project,] I think internally there were a lot of discussions about like: should we add the USBs? Should we make it like sustainable, environmentally friendly product? Should we, and what direction should we do with it? So we did a question round like: Is this an environmental product? Is this a tech product? You know, this or that. Or is it maximizing the use of all six outlets? And that's the one we end it up with. Which is great, I think that's what always should have been. That was the original idea was. ... I think the community really help(s) in that question around by keeping it on that straight path. ... So it is good that community actually focused. ... Usually it's opposite. Usually the community is all over the place and we are there to focus it. So, that's good.



Figure 40 Pivot Power strip, one of the Quirky's best selling products (Pivot Power a creative outlet, 2011).

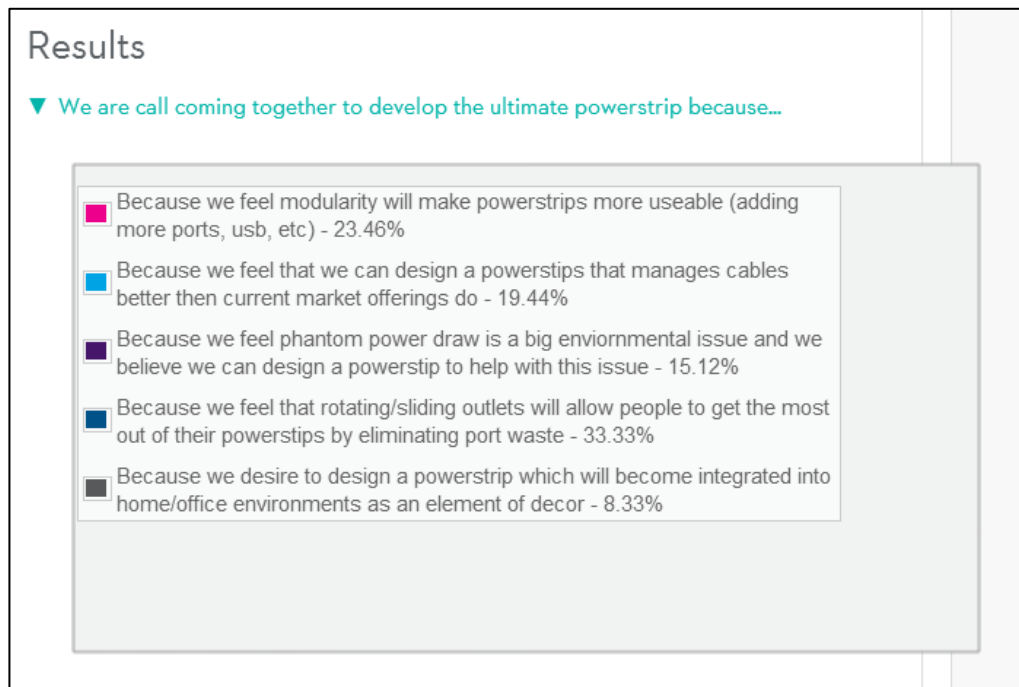


Figure 41 Results of the second research phase of the pivot power project (Pivot power results, 2010).

f. Community and Marketing

According to interviewee A, the contribution of the community creates a community-based consumer strategy to market Quirky products. In other words, Quirky can be sure that the contributors are motivated enough to buy the product they helped to develop and also they are eager to inform their friends and family about their experience and their co-created product in Quirky.

(Interviewee A, lines 84-92)

[For instance, when] Quirky put out “pivot power strip” they already had a set of, you know, thousands [of] people who helped work on that project. So you can count on a lot of those people going out and buy that product right away just because they’re involved. So that’s sort of base customer you want to please, you have these people who are evangelists, who are telling their friends, telling all of the people in Facebook and Twitter; you know, “look what I did, look what Quirky did. This is a cool thing.” But

anyway, that's why you keep going back to the community, to keep getting their involvement and also to make sure that you are, you are in tune with where the customer is.

As it is indicated by interviewee A, Quirky widely benefits from the distribution of its products through the big shopping stores. In that way, while Quirky engages the community to estimate a price for its prospective product, the outcome of the price phase also assists Quirky to negotiate with the shopping stores in an effective way.

(Interviewee A, lines 103-115)

They do the pricing and from there it's kind of out there all. The information is out there. I think, Quirky kind of says that this is the point where we want to engage the interests of the community but the biggest thing is they want to engage the interests of the stores that they try to sell it. If Target or Bestbuy, one of the big stores, they says to you; we love this product, we want that product in our shelves immediately, Quirky is gonna go make that product. You know, because those are the people who are gonna buy tens of thousands whereas the community member just gonna buy one! So, the community pricing data is also used to talk to those buyers at those large stores and show like: you know, what they said, they want to sell it for, you know, \$10, Quirky can show them the data that it says, well look, our community is willing to pay for \$15. We should sell it for 15. We should assure change ourselves. Or you know, vice versa, or you know, they want charge a lot of money, we said Oh! They're gonna do it for that. It too risky for us, so...

3.2.5.2 Community Members' Level of Expertise and Design Process

This topic is based on the expertise and the professional quality of the members of the Quirky community. As it was discussed before, Quirky is a platform with an open environment that any individual with any background can receive an account and be a member of Quirky community. So, it was observed that the Quirky participants have different areas and levels of expertise; while some participants describe a problem verbally, some other submissions are designed and visualized

in detail. This characteristic of Quirky was investigated in terms of the role of the experts who are part of the community in the development of a related project. Regarding this fact, during the interviews, researcher explained the variety in quality of ideas by comparing a submission with a prototype to a submission with a verbal description. The following sections are the sub-themes which emerged during the analysis of the role of experts from the community in Quirky design process: Level of design development, quality of presentation, essence of an idea, experts in the community as advisors, and special issues and concerns in relation to the experts in the community.

a. Level of Design Development

According to interviewees A and B, the participation of experts and the design quality of the submitted ideas are beneficial in the design process and they can assist to reduce the devoted time and effort of the Quirky industrial designers.

(Interviewee B, lines 379-382)

The more work that was done up from the community, the easier it would be for the Quirky design staff. So if the design quality is very low from the community then that is way more pressure on the Quirky design staff to actually make something interesting.

(Interviewee B, lines 100-103)

If we felt that the submission had already covered a number of different details then we did not feel the need to do the redundant work. For example, if a submission have a very good prototype as part of the submission, there wouldn't be all a lot of need to, you know, go back to the drawing board and start from scratch.

(Interviewee A, lines 236-237)

Well, when there is a prototype, we usually ask them to send it to the office or bring it to the office. And if it is really good, then maybe we don't have to do anything.

Figure 42 is a screenshot from the video of a prototype recorded by its inventor and posted to the Quirky website.



Figure 42 Screenshot from video posted by Quirky Inventor showing his prototype (Monorome1, 2009)

Figure 43 and Figure 44 demonstrate Quirky in-house industrial designers exploring the prototypes of the inventors which were sent to Quirky office.



Figure 43 Quirky in-house industrial designers explore the prototypes of an inventor (Rustle, 2013)



Figure 44 Quirky in-house industrial designers explore the prototypes of an inventor (Rustle, 2013)

b. Quality of Presentation

Interviewee B thinks that the quality of presentation of a submitted idea could assist Quirky industrial designers in the same way that the level of design development does. In other words, if the aesthetic characteristics of a submitted product idea matches the desired standards of the Quirky industrial designers, they could retain it without working on the appearance or shape of the product.

(Interviewee B, lines 187-191)

The times that we had very high quality presentations, obviously if we are gonna go forward with the design as submitted or the idea as submitted that really help the design department by definition, right? Because a lot of the visual work is already been done, or, you know, lot of engineering work may have been already done. ... The more, the higher the quality of submission in terms of presentation, in terms of design and engineering thoughts, then theoretically the less stuff the Quirky design department would have to do.

As stated by interviewee B, during the idea submission phase, communication quality of a submitted idea also affects the chance of that idea to be promoted as a submission under expert review and/or to pass the evaluation process. Thus, better presentation quality does not only support the Quirky industrial designers but it also helps the community and the Quirky employees to better understand the submission during evaluation sessions. Therefore, it is beneficial for the idea submitter in the first place.

(Interviewee A, lines 311-313 and 316-317)

[During the evaluation phase] ideas are being looked over and over by a room of over hundred people. I don't know about now but when I was there it was about hundred people in this room, A75. So that's differently group mentality at the certain way and if there is a visual, I say, a visual is so much powerful. If there is a video of prototype [it is] so powerful. It is very easy to get. No explanation needed, nobody needs to read anything. ... If there is a video, they [Quirky employees] will have to get behind it

because all the evidence is right there in front of you. So it does help if it is a good idea.

(Interviewee A, lines 212-217)

I think in terms of presenting your idea, it always helps to have a visual. Cause, do you know, they say “a picture is worth a thousand words”. So if I just use words, for my Quirky submission, I can only use 140 characters, 144 characters, whatever. It is very limited. But if I put a picture, that could explain everything and you can look at the picture and get it instantly, whereas words, there is a lot of words in a page and you cannot get it instantly.

c. Essence of an Idea

Despite the two sub-themes that were explained above, interviewee B also believes that at the very beginning of the project, all the submitted ideas should be treated equally regardless of their presentation qualities. He claims that even an idea that was described in a few words might have potential to be developed and be a great product, and submissions should not be handled as final products but as product ideas. Moreover, interviewee A also believes that during the concept phase, it is the industrial designers’ duty to consider the submitted concepts regardless of their presentation quality.

(Interviewee B, lines 171-177)

It was a huge range of quality of idea and often times, you know, Jonhatan Ive of Apple always saying, very early on the process, ideas are very fragile. You have to be very careful not to break them very early. Same goes to Quirky when someone submits an idea it is very easy to shoot it down or to, to be negative about it. Important thing is to get it into the process and see what the community could come up with around an idea to make it more fully formed product. Because none of the submissions are products, they are ideas. So you have, it has to be very careful in balance.

(Interviewee B, lines 239-244)

Each submission when we came to that evaluation meeting was sort of judge inside of its matter, right? It wouldn’t be fair to, to compare

someone with the prototype against just you know a line of text, and discount the line of text because just there is no prototype. It might be still amazing idea. ... Sort of be able to break the idea down to the bear essence and just evaluate it on that as well.

d. Experts in the Community as Advisors

Experts' advices can be beneficial for Quirky, and as interviewee A states, it is possible to consult the expert members of the community if Quirky works on a project related to their professional expertise. They can be reached out directly and invited to the Quirky office for taking their professional advice.

(Interviewee A, lines 567-570)

During the research and prototyping, let's say Quirky do a product about coffee and there is somebody like coffee expert, we reach out them and when we refining, prototyping the product we bring them in as the expert. That's helpful. ... Hopefully, if they can come in to the office, if they are in New York City or near area Quirky will bring them in. Pay for it. Because all other companies do that too; they are bringing the expert and stuff.

Depending on the requirements of the project, communicating with particular members of the community can be useful. However, as interviewee B mentions, indirect communication may not be very effective and it may lead to undesired results.

(Interviewee B, lines 324-328)

If you have an online community as large as Quirky does, there is certain demographic research you can do from get-go. And, a lot of questionnaire was potentially set up trying target the people that would actually be useful. For example if you're designing a dog lead. You want questions answered by dog owners. You don't want cat owners answering the questions about dogs which is often an issue; because people could potentially get influenced from answering a questionnaire which is answer a question for the sake of it, instead of truthfully.

e. Special Issues and Concerns in relation to the Experts in the Community

Interviewee B points out that having a community with varied background is an advantage and Quirky has desire to identify the professionals of their fields in order to benefit from their expertise. Nonetheless, in his view, Quirky did not effectively focus on this issue and consequently, they have not been fully successful in managing and encouraging experts to fully contribute. In addition, he explains that attaining their collaboration is beyond acclaiming them with influence according to a predetermined rule set; it requires qualitative assessment which demands labour and time.

(Interviewee B, lines 463-473)

It was always the intend of the Quirky to, to trying be able to, to find the experts in the community and get them involved as much as possible in Quirky. You know that was really, that's really kind of power having that in the community. I don't think they, they find a way of getting those experts meaningfully involved in various phases. So it's very "hit and miss" so far. I mean, occasionally you would have an expert, who would weigh in on a phase and have a great influence on it and be rewarded for that influence. And often times because of the system you would have an expert involved; influence something with a comment for example and then they wouldn't get influence rate and they would be pissed off.

Another people would see that, you know, this expert should've really get, being get influence and wasn't and then there would be disenfranchised. Right? So, that's like another huge, you know, community issue that I presume Quirky is addressing. Maybe they're not... But you would want a community where, it was very much like meritocracy. You influence something, you get rewarded for it in a very simple way and of course in the reality how do you track that. You know, it's not necessary something you could track algorithmically. It is more sort of qualitative notion. So that means more man power and time to make sure these people are getting rewarded. So it's kind of difficult.

3.2.5.3 Role of Inventor in Design Process

As it was explained before, Quirky have employees called “invention ambassadors” who can contact the idea submitters before and after the weekly evaluation phase. When the idea of a submitter passes the Quirky evaluation process, he or she is dubbed as inventor who receives the most royalty from the product. The following sections explain this issue under two sub-themes, Quirky’s relationship with inventors and the inventors’ trustworthiness.

a. Quirky’s Relationship with Inventors

Close relationship with inventors, keeping the inventors informed about the development of their submission, and informing the Quirky industrial designers of the concerns of the inventors were mentioned as the duties of the invention ambassadors. Interviewee B believes that meeting the inventor and talking with him or her in person is the best way to interact with the inventor.

(Interviewee A, lines 456-461)

There is invention ambassador. That’s the department that is their soul job is to call the inventors, all day long, make sure the inventors are updated on the project, [and] are happy with what’s going on. You know, tell them like we’re manufacturing this, oh we’re showing this to this store whatever, or designers are making prototype. Whatever they’re doing, they just have to update. So, they also give us feedback about what inventor say.

(Interviewee B, lines 387-393)

The most successful way of interacting with inventor in the first place was to physically have them come to the office and explain their idea in person. You know if someone have a very good prototype, we actually would typically pay to have them come to New York City and film them talking about their prototype. And those are the ones when they truly got the actuality to like, share their vision and to verbalize it and to show off you know, the prototype or any other work they done.

b. Inventors' Trustworthiness

In the following section, Interviewee A describes a case that illustrates the power of an inventor to direct a project's outcome and Quirky's position to follow the inventor's decision, which ended as an unsuccessful product. According to interviewee A, it is necessary to find a balance in order to keep the inventors, who are very obsessed with their selected ideas, believe in the expertise of the Quirky team and emphasize that Quirky's benefit is interlaced with the inventor's interests.

(Interviewee A, lines 456-461)

[Once] We listened to the inventor a lot ...like we listened to the inventor so much that we got a bad product out of it. Because the one specific inventor had a lot of, they've got loud voice in the community and everybody had its back and we just like, OK. We can't, like, you know, give a big F.U to the community, we had listened to them. The end result was we had a terrible product that we could not sell. And we moulded it. We open up a mould and you know, it waste a lot of money so we learned, we couldn't do that again. ... But it is still their baby, they came up with an idea and they are trusting us with it. So it is a tricky balance in terms of, you definitely want to make them happy but at the end of the day, your decision, as a designer, you are higher as an expert. You are making an expert decision in the interest of Quirky, the company, which is therefore at the interest of the inventor. ... So everything that the designer doing is for the interest of the inventor, whether they know it or not.

At the same time, he is of the opinion that while keeping the inventor pleased, the industrial designers should be confident about their expert decisions and believe in themselves.

(Interviewee A, lines 530-532)

My philosophy was, I am hired as the expert here, so I am gonna trust myself as an expert. I have to trust my opinion. The inventor is just inventor. So yes! it is tricky because it is their baby, you want to make them happy.

3.2.5.4 Role of In-house Industrial Designers in Different Phases of the Design Process in Quirky

The sub-themes under this topic are related to the duties and the role of Quirky in-house industrial designers in different phases of the design process. These sub-themes are as follows: Curating and design management, community management, assessment and evaluation of submitted ideas, liaison between design and engineering, and independency of in-house industrial designers. Quirky industrial designers also work with a non-product creative department in Quirky which works on the final presentation, photography and other artistic activities, which is explained in the last section of this topic.

a. Curating and Design Management

As mentioned by interviewee A, it is the duty of industrial designers to take a project, decide about the initiation of necessary phases, and carry out the process to the point that it can be passed to the other departments. In that sense, they are free to construct the design process of the project. For instance, after the concept phase, if the industrial designer feels like he still needs some information from the community, he can open up another research phase and ask the community to contribute.

(Interviewee A, lines 122-127)

You kind draw yourself a roadmap as a designer. It is your job to be curating this process. Really it is your job to be getting it to, you know to finish the 3D model and to get to the point where the photo team can get it, [and] lunch it to the pre-sell. I think it's called the hand-off. I don't know what it is called now. When I was there they call it "Handing-off" the project. So designers will do the entire design of the project.

(Interviewee A, lines 65-84)

It's up to design staff to kind of push that product development along. There is a lot of different method that you can do at that point. ... If it is a simple product, just go build a 3D CAD and render it. Really quick! If it is more complex that we will do some prototype ... in a woodshop or we may do some more refine sketches and put that back up to the community. Maybe we do some videos of the prototypes and put that out to the community.

Moreover, interviewee B states that the design process of each project might be varied and it depends on the decision of the Quirky in-house industrial designer to manage the process in an effective way.

(Interviewee B, lines 104-106)

It's all about finding the sort of quickest path to getting the idea to market. In some cases the submission was still very open, and those are typically the ones that would definitely go to all different phases.

b. Community Management

Community management refers to the responsibilities of industrial designers in relation to keeping the community involved in almost every phase of the project in conjunction with receiving their votes and/or comments as feedback. In other words, as it was mentioned by interviewee A, "taking the pulse of the whole community" and responding to it is Quirky's industrial designers' duty throughout the whole process including research phase, concept phase, refine phase, prototyping and color, material and finishing phase.

(Interviewee A, lines 70-74,78-83 and 93-98)

... [We prepare] some product research questions that you put out to the community, [then you] do some concept sketching and create some concepts around that idea that we select it and then put those online for the community to vote on, to rate, to comment and also build of those ideas to submit new ideas or just submit completely new concepts that we need to think of. ... We may do some more refine sketches and put that back up to

the community. Maybe we do some videos of the prototypes and put that out to the community. And when the community votes on the staff, it's not like they have the final say, it's sort of like taking the pulse of the whole community. ... Once you did the 3D CAD, we do renders called like CMF round; color, material and finishing. Where we put up few different options where color, material and finishing what is essentially the same design, but it's a way for the community to get like a first look at the product. And also you know, another way to get them involved and help us out and let you know, for us to figure out like: oh is this color scheme is crazy? Or is it cool? Did they like it?

In order to facilitate the communication with the community during the live brainstorming, a Quirky employee assists to keep track of the community's voice and acts as a community representative manager who frequently reports the community's thoughts to the Quirky employees.

(Interviewee A, lines 70-74,78-83 and 348-351)

[In online brainstorming] there is a lot of noise but when there is good comment coming, it's good. And there is usually a representative in the room who is just watching the community feedback so let everybody in the room know when there is something good from the community.

Furthermore, as it was indicated by interviewee A, during the community concept phase early submissions have more chance to be reviewed and receive votes from the community; later submissions, on the other hand, have the advantage of being more advanced by considering and developing early concepts. Interviewee A is of the opinion that the industrial designers can balance this situation by giving enough attention to the latest submissions which are also theoretically superior.

(Interviewee A, lines 427-434)

When they are in the concept phase, you look at them in terms of the votes. Because you want to see who has got the most votes. But you really have to look at all of them because somebody might put up a concept a week after, you put up the first concept, so the ones that out there from the beginning are gonna have more votes. [However] the newer concepts often have the advantages of taking in over the old concepts and it's like a response to those. So theoretically those concepts should be better. And a

lot of time, you take a lot of concepts and maybe the five concepts win because it takes a little something form five concepts.

c. Assessment and Evaluation of Submitted Ideas

Interviewee B emphasizes that, the quality of presentation of ideas varies and some community members might not be able to clearly explain their ideas. He explains that part of being a designer is to have the ability to break down the submission to assess its essence, and to be able to develop the idea further and make a product out of it.

(Interviewee B, lines 145-150)

As a designer, you know, part of being the designer is, to understand how you explain your ideas and make it compelling to other people. Ehm! Which is a skill set to have and often time people have a great idea but don't have the way to actually explaining that.

(Interviewee B, lines 240-246)

It wouldn't be fair to, to compare someone with the prototype against just, you know a line of text, and discount the line of text because just there is no prototype. It might be still an amazing idea. Ehm! So again like part of that is helping out to build a skill set of, Ehm! Sort of be able to break the idea down to the bear essence and just evaluate it on that as well. By same token, if you are a product company, it's not enough to have ideas. An idea is not a product. You can't patent an idea, you can patent a product.

Interviewee A also emphasizes this issue from another perspective. He mentions that a very well presented idea might not have very much to say, and the industrial designers are in a better position to distinguish good ideas without being seduced by presentation quality.

(Interviewee A, lines 271-280)

I tried to train myself to look at the opposite way. And not be seduced by nice a rendering or nice picture. Because, I know that everybody else in the room is. Not everybody but, it is easy to be seduced by nice rendering but it doesn't always mean that the idea is nice. And as an industrial

designer I know the tricks of how to seduce somebody by rendering. So I am not easily tricked by that and that's why I really want to focus on being the person there or having the ID team be the people on the room who kind like pass that stuff when some of the new people I think, would expect us to like that stuff better because it is just nice looking. But then that's clear to me. They don't really understand industrial design and they are being seduced by those tricks.

d. Liaison between Design and Engineering

In addition to the industrial designers' responsibilities that were mentioned so far, Quirky industrial designers also work very closely with the factories and Quirky engineering department during the manufacturing phase to bring the designed product to the market. To keep the community informed about the progress during the manufacturing phase of the product, Quirky used to upload a series of short videos called "Production Report" (For instance see: Production Report Vid #2: Pivot Power)¹. But unlike the design phase, production process in Quirky is not fully exposed to the community, and as stated by interviewee B, it is a demanding effort to reveal the manufacturing process and production details to the people who do not have this kind of knowledge.

(Interviewee A, lines 161-169)

Once you launch a project onto the website and pre-sales, if they don't receive manufacturing that you have a project that reopens itself and somebody has to work on that. It needs a designer to assign it to manufacturing, because at that point, you have an engineer and designer work on it together.

(Interviewee B, lines 64-93)

There is also liaising very closely with the factories and actually getting stuff manufactured. And design department is very much involved to that, up in till its launch on to the market. So you could be, you know, a fairly junior designer at Quirky and not only would you be working with design

¹ <http://www.youtube.com/watch?v=uVfVzDpNsMM>

online community and doing your design work, you also be liaising with factories and making sure the product you designed half a year ago, a year ago we actually getting it made correctly. ... Quirky try to make it as transparent as possible but the reality is, the design department and engineering department, they trying to do so much that can't all be sort of published to the community. ... So there was a lot of that was definitely not as transparent to the community as it could ideally be. But it is very tricky too, explain that stuff to people who don't really understand that. And that's part of you know, one of the challenges in Quirky was, you know, educating this, this kind of feverish online community as to exactly what was happening in Quirky headquarters.

e. Independency of In-house Industrial Designers

Interviewee A claims that in-house industrial designers who are working for design consultancies are limited to work with the initial idea and the framework defined by their clients and they have less freedom to inject their personal ideas into the design process. However, as stated by him, since Quirky treats the selected idea as one of its prospective products, the Quirky in-house industrial designers have more control over the outcome of the submitted ideas.

(Interviewee A, lines 261-284)

It is newer for industrial designers to be exploring their own ideas commercially through places like Kickstarter. I think that is really new thing. Look at (it) like this, if you are an industrial design consultancy like Fuseproject, Fuseproject is a very successful design firm, design consultancy that does product design, companies come to Fuseproject and says we have this technology, we have this idea, what we do with it, how do we make it a product. So there is always a starting point that their client giving them. ... Because a company that comes to the design firms has a lot of money behind him and you know, money make, gives them the freedom to make that product under their own. ... [On the contrary] when a person come(s) to Quirky, they are not paying you the same way a company paying you. So, you actually have more freedom to explore than a design firm might. The design firm that has a client that pays thousands or tens of thousands, sometimes hundred thousands of dollars. If the client says don't do this, do this, you have to do it. I mean, you could, your consultancy so you can tell them I think you should do this but at the end

of the day, they are paying you and they are telling you this is what you need to do.

f. Other Creative Team in Quirky

Towards the end of each project, there is another department in Quirky that prepares a set of photos for the product. These photos and renders visually explain the features and functions of the designed product. As it was stated by interviewee A, the employees in this department work with in-house industrial designers in order to generate the final presentation of the end products by doing the final renderings, take photos and create product scenarios. In that way, industrial designers do not need to spend time on presentations and can keep their focus on developing the functional and aesthetic qualities of the product.

(Interviewee A, lines 127-129)

When it comes to the presentation, there is like a whole team in place now. That does all the photography, they do the renders, they do the Photoshop. So the design team is really focusing on the function and aesthetics and not on the presentation as much.

3.2.5.5 Qualities of Quirky Company

The analysis indicates that Quirky has three major characteristics as a web-based collective design platform: Quirky as an innovation-centered company, Quirky as an open social product development company, win-win strategy for intellectual property rights.

a. Quirky as an Innovation-Centered Company

Both interviewees indicate that innovation is not only a requirement for them to consider an idea, but also a factor that makes Quirky successful. Interviewee B claims that he was always looking for the ideas that were innovative in irregular ways. He is of the opinion that Quirky should make products that have something beside their basic functions. In the same way, he thinks that Quirky would be really unsuccessful if it were making products very similar to the ones manufactured by other companies and already existing in the market. He also mentions that the app-enabled product category is a successful path that Quirky have been following.

(Interviewee B, lines 112-117)

I was always looking for those ideas that would be potentially disruptive in that category. So regardless of category be kitchenware(s) or, you know, consumer electronics or furniture or whatever it is. It should've always be in some way that actually bring some into that category and potentially change it, and be a non-obvious solution. Because the worst thing that we could have been done in Quirky is to just follow what other people are doing, and be a sort of "me too company". I think Quirky now, is definitely getting to the areas where is becoming a sort of leader and category changer, especially when it comes to be app-enabled hardware that they've been doing in the last year or so. That is the stuff that really Quirky becomes much more a powerful thing [than] when they are doing, when they are doing stuff like that as a post you know, like pizza cutter, other stuff that also do whatever it is.

Interviewee A also describes innovation as the first priority for him to put an idea under expert review. Secondly, it is important for him to consider the ideas that have the mass market potential like power strips.

(Interviewee A, lines 174-181)

For me it was number one, is it some sort of innovation or some new idea. To me it's like why even make a product when there is already a product out there that is the same thing. For instance, Quirky make some iPhone cases. I understand why you do that from the business perspective. It is a

very good business; make a lot of money and it's, it is very cheap to make and very expensive to sell. So that's great. But honestly I think it is not something that I will ever put into consideration because, there is so many iPhone cases out there, none of them are super innovative. It's to me, it's just a little unfair, if you are make innovation accessible. Where is its invention now? So that was for me, it is like, is this an invention? Is this really a new idea? And then secondary is Ok, it is a new innovative idea but does anybody gonna buy it? For pivot power, it is an innovative idea as everybody use power strips so it's super mass market.

(Interviewee A, lines 187-192)

Walmart is like the lower end store everybody still shops there but it's the cheap one. And Target is like mediator one. So that's like a really mass market in Target, that's where you want to be. It's hard to get products in there that everybody can buy. That's why pivot power was so successful of them and that's what you are looking for; something innovative and mass market. That's what Quirky want to be, mass market.

b. Quirky as an Open Social Product Development Company

Both interviewees describe Quirky as a social product development company that is for people who have product related ideas but do not have the expertise or knowledge of how to bring it to the market. According to them, Quirky does not only provide the necessary expertise to bring the ideas to market, but also it is a community-based platform that open up the product development process and invites everyone with various backgrounds to participate and help each other.

(Interviewee A, lines 46-51)

[Quirky is a] social product development platform where people can submit their invention or product ideas and then the company does the heavy lifting to bring those products to market but community is able to pitching on the design process and sort of give their feedback throughout the whole process. So the bad ideas don't make it through because the community constantly checking and we are constantly checking. So, Quirky constantly checking.

(Interviewee B, lines 42-49)

I think the social product development is pretty accurate. You know, Quirky meant a lot of different things to the lot of different people. Depending on what you are interested in but it really did borrow down to the product. Try to get people as involved as possible and product development psycho and giving a platform to people it would have no other way getting their own inventions out people. So actually giving them a platform to be able to, you know, first of all submit their idea and then be out to develop it with a team of experts. It is really the beauty of Quirky.

Interviewee B describes Quirky as an open platform that does not ask for any professional qualification from its community. On the contrary, Quirky's aim is to provide an environment where non-professionals and non-experts feel confident about submitting their ideas.

(Interviewee B, lines 158-167)

One of the very early ideas around Quirky, would be; you could regardless of your background and regardless of how well formed your ideas was you should feel like you're able to submit it to Quirky; above a set or very low. So it was no, you know, we talked internally about having a sort of checklist of things people have to do before submitting, like a working prototype or sketch or 3D drawing. But what we trying to do is to get an environment where, you know, housewives who never designed anything before they had an idea they could submit in the same way that an engineer who have a working prototype and 3D modeler could also submit that. So it is very reassuring to see just how inventive human beings can be regardless what they do for the living or where they live or their background.

c. Intellectual Property Rights: A Win-Win Strategy

Both interviewees claim that the intellectual properties of undeveloped ideas have no values. However, if they get published in Quirky website and get select for further development with, while Quirky receive the intellectual property rights, it provide royalty and recognition to the idea submitter. Moreover interviewee A signifies the Quirky employees' effort to develop the ideas to perfect products

because if the product is successful in the market, Quirky shares its earning with the inventor and other influencers.

(Interviewee B, lines 499-504)

You can have amazing idea but if you keep it in your notebook, it's useless. If you give it to Quirky than show you lose, your. The IP is no longer held by you directly but you get the royalty if it made, your name would be on the patent as the inventor or co-inventor. You get the public recognition. So that's a personal decision people have to make when submitting to the website.

(Interviewee A, lines 586-592)

I think it's smart. I think it works very well. Like I said before, the inventor who is sitting with an idea making zero dollars, so they give it to quirky because they want to make money out of it. If they are upset about giving their intellectual property to Quirky, then they shouldn't submit their idea. ... So, I think It's fine. You basically trade your intellectual property which has the value of zero dollars for the chance of getting more money. Your IP has zero value if you are sitting at home and doing nothing about it.

According to interviewee A, the intellectual property rights of the products in Quirky belong to the Quirky company. However, the original idea submitter and influencers receive royalty while Quirky is responsible from designing, manufacturing and bringing the products to the market.

(Interviewee A, lines 281-286)

At Quirky the difference is that, a person gives you a starting point, the same way a client would be, except now it is Quirky's idea, Quirky owned it basically and the incentive for that community member is that Quirky is going to do all of this heavy lifting that they don't have the money or expertise to do. That includes industrial design that includes idea explorations. So they want quirky to make the best idea out of it and that will make them the most money.

(Interviewee A, lines 472-477)

You are making an expert decision in the interest of Quirky the company, which is therefore at the interest of the inventor. Cause, Quirky tries to

make the money out of that product and the inventor gets a percentage of that money so the more money that is, the more money that inventor gets.

3.2.6 Discussion

The study reveals 22 sub-themes categorized under five major topics, which were highlighted by two former Quirky in-house industrial designers. The findings reveal a win-win strategy for the community and the company, which is embodied in the Quirky system. This quality also creates a strong relation between the company and the community members by giving royalty to all the participants, which makes the influencers realize that the company's achievement is closely connected to their monetary rewards.

Another interrelation revealed by the findings is the connection between the role of Quirky in-house industrial designers and the qualities of the Quirky company. Since Quirky company is based on "making innovation accessible", and its primary goal is to find innovative ideas for making new consumer products, it is the duty of Quirky in-house industrial designers and all other Quirky employees to consider the company's preferences when selecting an idea for further development.

Other conclusion includes the interrelation between the role of Quirky in-house industrial designers and the role of Quirky community. It was observed that the community's assessment (vote and comment) is not considered as the final decision, instead, their feedback is a way for Quirky experts for "taking the pulse of whole community" and understand "What's the community as a whole thinking?" Likewise, according to the findings, a significant part of the industrial designers' role is to react to the community's input, keep community members motivated and create a sense of involvement within the community. This role of Quirky in-house industrial designers can be considered as a vital one for Quirky

because failure in this duty may result in losing the motivation and incentives of community to participate. In addition to assessment and evaluation, the Quirky in-house industrial designers can also affect the inventor's faith in Quirky's expertise. Thus, it can be concluded that, ideally, the role of Quirky in-house industrial designers in preserving the community involvement results in the contribution of the community with innovative ideas, which is interrelated with the intention of Quirky as an *innovation-centered* Company. Figure 45 illustrates the relations between sub-themes.

This study was conducted with two former Quirky industrial designers. Therefore, studies with Quirky industrial designers who are currently working in Quirky are necessary to further explore these qualities and interrelationships. It is also necessary to study the impact of other departments and identify their role in design, manufacturing and marketing in Quirky.

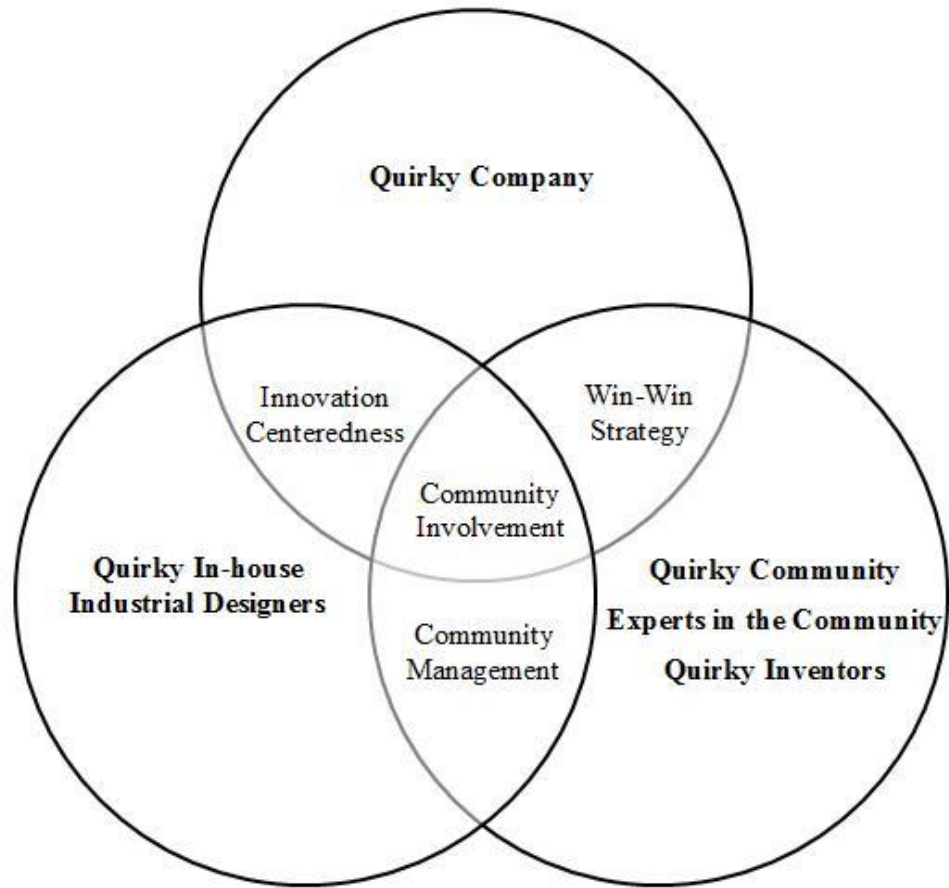


Figure 45 Relations between sub-themes

CHAPTER 4

CONCLUSION

This chapter highlights the results of this study by revisiting and answering the research questions. The chapter also discusses the limitations of the study and makes recommendations for future research.

4.1. Research Questions Revisited

The aim of this study is to understand the ways in which industrial designers professionally working for web-based collective design platforms benefit from the participation of the crowd in different phases of the design process in reference to Quirky, a web-based collective design company. Regarding the research questions a literature review and two studies were conducted.

4.1.1 What is a web-based collective design platform?

In order to understand the web-based collective design process it is necessary to identify the participants and define their roles in the design process. Based on the literature study, creation of unique value with consumers, changing role of passive consumers into active contributors in product development, having close relations with users, and advancement and affordability of computational technology that facilitate connection and aggregation of large number of individuals with heterogeneous background are the key factors for integrating the crowd into the design process. The results of this study reveal the unique characteristics of the

crowd and it shows that a motivated crowd can provide diverse and creative ideas, and assess them effectively.

4.1.2 What are the qualities of web-based collective design platforms from the perspective of industrial designers?

According to the outcome of the first field study, the crowd has two major identities. The first identity defines the crowd as the submitter of ideas or as the inventor who introduces innovative approaches to a specific problem. The second identity is related to the crowd as collaborator in assisting to further investigate, evaluate and even motivate other participants to contribute. The crowd is not a pre-selected group or team and in order to facilitate its participation, it is vital to investigate, understand and increase the incentives of it. This research reveals the following motivation factors that should be taken into consideration for creating an environment encouraging the crowd participation.

- **Supportiveness:** Once an individual from the crowd publishes an idea or a proposal he or she demands to receive professional support and guidance especially from the platform employees to further develop the input. Failure in providing enough support may result in a decrease in participation of the crowd.
- **Authenticity and Authorship:** It is challenging to create an open environment and to provide open access to participants' ideas and to support the interaction and communication of the members in a collaborative manner. Moreover, authenticity and authorship are related issues that are connected to the strategic planning and the mission and vision of the company that demands the crowd participation.

- **Creation of Sense of Involvement:** Sustaining the members' participation requires effective feedback and attention from both the community members and the platform's employees. Valuing the participants input might be as simple as appreciating and applauding or may be more complex like replying with a professional advice or highlighting the role of individual through the development process especially if it is related to the profession of the participants (*recognition*). This factor can also be supported with the *monitory rewarding* as a proof of valuing the contribution.

Moreover, according to the field studies conducted, the crowd is a source of innovation that can be utilized especially during the early phases of research and development process. The crowd is also comprised of globally accessible individuals with heterogeneous backgrounds; their varied insights can be leveraged in various parts of the design process; however, it is essential to provide an effective communication environment and deeply consider the motivation factors of the crowd prior to initiating design activities. Motivated individuals of the crowd can freely reveal their ideas and they are eager to participate in design activities. The findings of this research also highlight that the contribution of the crowd in every phase of collective design process requires supervision, guidance and management by an internal team of professional industrial designers and other experts. Lastly, according to the literature review, it can be concluded that the effort of the crowd in collective design process generates added value to the end co-created product.

This study also shows that the collective design is an emerging design process model that can be leveraged by the crowd participation and converted into a web-based design environment. It can support design process by providing varied input from large number of people with different backgrounds and expertise. Unlike participatory design, user-centered design and other conventional design

processes which require selecting and enabling a limited number of stakeholders, users or non-designers, the participants of the collective design process are not pre-selected and not limited in number. The collective design participants are the motivated individuals who do not necessarily know each other but they want to collaborate in various phases of the design process for various reasons. Nonetheless, the participation in collective design process requires the preparation of a web-based platform supported by the management and supervision of professional designers and other experts.

The second field study also reveals the characteristics of Quirky. This study focuses on Quirky as a case of web-based collective design platform. The company defines itself as a company who “makes innovation accessible”. The quality of accessibility of the company can be observed in its characteristic described as *social product development company*. Quirky offers an open and collaborative environment that provides design, engineering and marketing services to individuals who have innovative ideas but do not know how to develop their ideas into products and/or do not have access to expert knowledge for manufacturing and marketing. Furthermore, according to the results of this study, Quirky aims to create innovative products and guide its community to avoid product ideas that do not meet the innovation criterion of Quirky. Besides, it was observed that Quirky desires to utilize recent technology not only to make innovative products such as an app-enabled power strip but also to create effective relation and communication with its community in various stages of product development such as live product evaluation or chat-enabled live brainstorming with Quirky in-house industrial designers. Last but not least, the submitter of ideas selected for further development are crowned as Quirky inventors and the inventors and other influencers receive recognition and royalties in accordance with the level of impact of their contributions. Giving royalty and crowning contributors as influencers is another characteristic of Quirky that causes the community have close connection with Quirky and feel less concerned about the

intellectual property issues. This quality of Quirky and the role of giving royalty and recognition to the participants require further investigation.

4.1.3 What are the ways in which the crowd participates in the design process in the case of Quirky?

The results of this study reveal not only the general qualities of Quirky community and its role in design process, but also, the second field study, highlights two other groups within the Quirky community: Quirky inventors and varied types of expert members within the community. In general the Quirky community can be characterized as research resource, as supplementary assessor, as idea developer, and as advisor. Furthermore, the Quirky community is comprised of unknown numbers of professionals and experts in varied fields and industries who can promote the design process by providing more developed ideas such as submission of a working prototype and by submitting higher quality presentation and visualization of their ideas which result in effective communication and discussion in the Quirky community and the Quirky staff. Another aspect of experts' contribution is the consultation and leverage of their professional advices. The results of this field study also highlights the inventors as an important group within the Quirky community, and it is important for Quirky to keep them informed and be in touch with them. Further research is necessary to better understand the groups within the Quirky community.

4.1.4 What are the roles of in-house industrial designers in the design process in the case of Quirky?

The following sections explain the role and responsibilities of in-house industrial designers in design process in the case of Quirky in particular.

- **Curating and design management:** According to the results of this study, it is the duty of Quirky in-house industrial designers to create the path of design process by deciding about the needs and requirements of each project, initiate related phases and develop the selected idea by evaluating the outcome of the phases and feedback of the community.
- **Community management:** The products designed in Quirky are the result of close relation of Quirky in-house industrial designers and the Quirky community. Hence, throughout the design process, the community submissions and the result of each phase have to be considered by Quirky in-house industrial designers, and they are the ones who assess the submissions and pick the best proposals and consequently they identify the level of influence of each contributor.
- **Assessment and evaluation of submitted ideas:** According to the results of this study, every employee in Quirky is able to put any submitted idea under expert review. However, it is part of Quirky in-house industrial designers' expertise to assess and reveal the potential of ideas regardless of how they are presented or how much they have been developed before they are submitted to Quirky.
- **Liaison with design and engineering:** In conjunction with the design activities and working with online community, once the design process of a product is finalized, Quirky in-house industrial designers also work closely with Quirky engineering department and they are in contact with Quirky manufacturing partners to make sure that the end-product will be manufactured according to their design criteria. According to the results of this study, although Quirky briefly reports the manufacturing process of its

products, this process is not as transparent to the community as the design process is.

Changing roles of industrial designers. According to the results of the second field study the role of Quirky industrial designer can be summed up as design director who identifies the design requirements and design process, not innovator but educator and assessor of innovative product ideas, idea and concept developer and decision maker, community manager and community responder, design and engineering liaison, developer of functional and aesthetic qualities of products who is not responsible from artistic presentation of product features and scenario.

4.1.5 How and to what extent do industrial designers benefit from the participation of the crowd in the design process in the case of Quirky?

Quirky highly benefits from the contribution of its community at the very beginning of the design process by providing an environment to crowdsource ideas. Any individual can join Quirky community and submit consumer product ideas that solve a problem inventively. Quirky platform also supports community to vote, comment and submit similar products that solve the same problem and exist in the market. Thus, the future of Quirky relatively depends on the effective contribution of its community. The results of this study also show that the community is not the final decision maker and there are internal expert teams in Quirky who are reviewing the community picks as options for innovative and potentially mass marketable ideas. The final weekly decision to select ideas is broadcasted live where almost all the Quirky employees (and the Quirky community) discuss, vote and select few ideas to design, manufacture and market. The selected ideas are brought to Quirky design department and Quirky in-house industrial designers decide about the required phases for further design and development. These stages can be varied depending on the work that already has

been done by the idea submitter and the level of development of the idea. Quirky in-house industrial designers announce the initiation of brainstorm, research, design, refine, style, name and tagline phases. Pricing phase is always announced as the final phase for the community contribution after finalization of product presentations, and announcement of the product portfolio prepared by the Quirky non-product creative department. Each phase is open for a certain amount of time and the community votes for their favorite proposal and/or provides different inputs to be voted related to the requirements of each phase. At the end of each phase, Quirky in-house industrial designers evaluate the phase, announce the influencers, and in accordance with the result of that phase decide about the next phase. On the whole, it can be concluded that almost every design process in Quirky is completed with the collaborative contribution of the Quirky community and the Quirky employees. However, the community highly needs to be guided and be asked to provide specific input within the framework defined by Quirky employees. Moreover, the findings indicate that on every occasion from idea submission to naming, community input needs to be assessed or selected for further improvement by Quirky staff.

4.2 Limitations of the Study

The study conducted on the perceived values of web-based collective design platforms from the perspective of industrial designers, is limited to the opinions of a small number of METU Industrial Design students and recent graduates. Moreover, since this study covered OpenIDEO and Quirky only, more research in reference to various types of platforms is necessary to further explore the implications of the tangibility of outcome. The interviewees had no previous experience of using Quirky.com and OpenIDEO.com, and these platforms were introduced to the interviewees by presenting the platforms' introductory videos and navigating the platforms' websites. Further research with novice and

experienced users is needed to fully understand the perceived values of web-based collective design platforms.

In the second study which focused on Quirky in-house industrial designers and the crowd participation in design process, it was not possible to interview the current Quirky in-house industrial designers; thus, the study covered three interviews; one pilot interview with an industrial designer who worked in Quirky as an intern for three months, and two interviews with former Quirky in-house industrial designers who worked in Quirky for more than two years. The interviews were conducted through the Skype video calls and the questions were designed in a way that can be answered in less than an hour. Furthermore, the outcomes of this study reflect insights from (former) Quirky industrial designers only, and further research with Quirky employees in other departments such as community management department is needed.

4.3 Further Research

This study was conducted in reference to the role of the crowd in design process in the case of Quirky in particular. Additional studies investigating other collective design platforms may provide further insight into the crowd participation in design process. Moreover, it would be useful to include the community members and interview them to explore the web-based collective design platforms from the crowd's perspective.

The first field study which was conducted with novice industrial designers shows that some interviewees have concerns regarding the intellectual property rights and the reliability of these platforms. The implied "resistance" of professionals concerning collective design in general and web-based collective design platforms in particular may be further investigated as a separate topic.

The first field study in particular implies that web-based collective design platforms also provide an environment for collective learning or self-training. Future studies may focus on this feature of these platforms as a motivational factor.

The changing role of industrial designers as creative experts and the impact of web-based collective design platforms on industrial design profession and education also need to be further investigated.

Another interesting research topic to further investigate is the potential of the contribution of professionals and expert users in web-based collective design platforms.

Computational technology is a rapidly evolving area and it continuously develops new tools that can be utilized in web-based collective design platforms. One important topic for further research is the boundaries, limitations, pros and cons of these tools for enhancing the crowd participation in design process in web-based collective design platforms.

The contribution of the crowd through voting may also present an interesting research topic in terms of the potential of the crowd in assessing the *perceived* success of a design in collective design process.

REFERENCES

- About InnoCentive. (n.d.). *InnoCentive*. Retrieved January 16, 2014 from <http://www.innocentive.com/about/index.html>
- About Quirky. (2013). Retrieved November 02, 2013 from <http://www.quirky.com/about>
- Ahn, E., Clotfelter, J., Durlak, M. and Wong, L. (2013). The launch of OpenIDEO. Retrieved September 21, 2013 from http://meagandurlak.com/Drop/OpenIDEO_CaseStudy.pdf
- Atkinson, P. (2011). Orchestral Manoeuvres in Design. In Van Abel, B., Evers, L., Klaassen, R. and Troxler (Eds.), *Open Design Now, Why Design Cannot Remain Exclusiv*, (pp. 24-31). Amsterdam: BIS publishers.
- Blocking the Sense of Taste. (2013). *Challenges*. Retrieved January 16, 2014, from <https://www.innocentive.com/ar/challenge/9933378>
- Boboltz, S. (2013). *Gadgets make home life easier by letting you check the fridge and turn on the AC from afar*. Retrieved November 05, 2013 from <http://www.psfk.com/2013/10/quirky-ge-connected-home-devices.html>
- Boudreau, K. J., & Lakhani, K. R. (2009). How to manage outside innovation. *MIT Sloan Management Review*, 50(4), 69-76.
- Boutin, P. (2010). *Quirky's 23-year-old CEO finds love with the supply chain*. VentureBeat. Retrieved November 02, 2013 from <http://venturebeat.com/2010/04/27/quirky-ben-kaufman/>
- Brabham, D. C. (2008). Crowdsourcing as a Model for Problem Solving: An Introduction and Cases, *Convergence: The International Journal of Research into New Media Technologies*, 14 (1), 75–90.
- Buchbauer, A. (2013). This Week's Brainstorm Forecast. Retrieved November 23, 2013 from <http://www.quirky.com/blog/post/2013/09/this-weeks-brainstorm-forecast-7/>
- Chesbrough, H. (2003). *Open Innovation: The new imperative for creating and profiting from technology*, Boston, MA: Harvard Business Press.
- Covert, Defend Your Drawers. (2013). Retrieved November 11, 2013 from <http://www.quirky.com/products/90-Covert-Magnetic-Lock>

Dan Hope, (2012). Retrieved June 20, 2012 from <http://www.OpenIDEO.com/profiles/endovert/>

Denny2020. (2011). Ethnographic Photo Research Phase, Desk Drawer - Home Office. Retrieved November 15, 2013 From <http://www.quirky.com/ideations/202547>

Design Projects 5%. (n.d.). Retrieved November 20, 2013 from <http://www.quirky.com/help/influence/design-projects--5-->

Frio Ethnographic Research. (2011). Retrieved November 11, 2013 from <http://www.quirky.com/projects/936-Frio-Ethnographic-Research>

Frio Refine phase. (2011). Retrieved November 11, 2013 from <http://www.quirky.com/projects/950-Frio-Refine-Phase>

Füller, J., Bartl, M., Ernst, H., & Mühlbacher, H. (2006). Community based innovation: How to integrate members of virtual communities into new product development. *Electronic Commerce Research*, 6(1), 57-73.

Füller, J., & Matzler, K. (2007). Virtual product experience and customer participation: A chance for customer-centred, really new products. *Technovation*, 27(6-7), 378-387.

GE & Quirky Expand Partnership to Grow New Line of Connected Devices & Accelerate WINK Consumer Platform. (2013). Retrieved November 15, 2013 from <https://www.genewscenter.com/Press-Releases/GE-Quirky-Expand-Partnership-to-Grow-New-Line-of-Connected-Devices-Accelerate-WINK-Consumer-Plat-43d4.aspx#downloads>

Grocery Bag Hanger, Adjustable apparatus that fits in the trunk of any car. Allows you hang grocery bags to prevent the[m] from spilling onto the floor. (2013). Retrieved November 23, 2013 from <http://www.quirky.com/products/662>

Güneş, S. (2012). Wisdom of Firms versus Wisdom of Crowds. *International Journal of Business, Humanities and Technology*, 2(3), 55-60

Hippel, E. V. (2005). *Democratizing Innovation*, Cambridge: MIT Press

Hippel, E. V. (2013). Open User Innovation. In *Soegaard, Mads and Dam, Rikke Friis (eds.). "The Encyclopedia of Human-Computer Interaction, 2nd Ed."*. Aarhus, Denmark: The Interaction Design Foundation. Available online at http://www.interaction-design.org/encyclopedia/open_user_innovation.html

How can we manage e-waste and discarded electronics to safeguard human health and protect our environment? (2012). Retrieved June 20, 2012 from <http://www.OpenIDEO.com/open/e-waste/inspiration>

- How ideas get picked by Quirky. (n.d). Retrieved November 18, 2013 from <http://www.quirky.com/help/invent/how-ideas-get-picked>
- Howe, J. (2006a). Crowdsourcing: A Definition, Retrieved January 16, 2014, from http://crowdsourcing.typepad.com/cs/2006/06/crowdsourcing_a.html
- Howe, J. (2006b). The Rise of Crowdsourcing, *Wired*, 14(6). Retrieved January 16, 2014 from <http://www.wired.com/wired/archive/14.06/crowds.html>
- Hulme, T. (2011). Social problem solving by collaboration. In Van Abel, B., Evers, L., Klaassen, R. and Troxler (Eds.), *Open Design Now, Why Design Cannot Remain Exclusiv*, (p. 222). Amsterdam: BIS publishers.
- Huston, L., Sakkab, N. (2006). Connect and develop. *Harvard business review*, 84(3), 58-66.
- IDEO. (August 2, 2010). *Introduction to OpenIDEO / OpenIDEO.com*. [video file]. Retrieved June 20, 2012 from http://www.youtube.com/watch?feature=player_embedded&v=eUApGJBZU8M
- Istock search results. (2013). Retrieved January 16, 2014, from [http://www.istockphoto.com/search/vetta/?facets={%2234%22:\[%221%22\]}#1a766474](http://www.istockphoto.com/search/vetta/?facets={%2234%22:[%221%22]}#1a766474)
- Jess. (February, 2011). What *Does Quirky Look For?* Retrieved January 16, 2014 from <http://aquirkyblog.com/2011/02/what-does-quirky-look-for/>
- Kano, N., Seraku, N., Takahashi, F., & Tsuji, S. (1984). Attractive quality and must-be quality. *The Journal of the Japanese Society for Quality Control*, 14(2), 39-48.
- Kuznetsov, S., & Paulos, E. (2010). Rise of the expert amateur: DIY projects, communities, and cultures. In *Proceedings of the 6th Nordic Conference on Human-Computer Interaction: Extending Boundaries* (pp. 295-304). ACM.
- Levy, P. (1997). *Collective intelligence: Mankind's emerging world in cyberspace*. Cambridge, MA: Perseus Books.
- Lojacono, G. and Zaccai, G. (2004). The Evolution of the Design-Inspired Enterprise. *Sloan Management Review* 45(3), 75–79.
- MacCormack, A., Verganti, R., & Iansiti, M. (2001). Developing products on “Internet time”: The anatomy of a flexible development process. *Management science*, 47(1), 133-150.

Maher, M., Paulini, M. and Murty, P. (2010). Scaling up: From individual design to collaborative design to collective design. In Gero, J. (Ed.), *Design Computing and Cognition '10*, (pp. 581-600). Netherlands: Springer.

Monorome01. (November 28, 2009) *Grab It.wmv*. [video file]. Retrieved January 20, 2013 from http://www.youtube.com/watch?v=y4e_F_pA4fo

Naggy, B. (2013). The New Face of Names and Taglines. Retrieved November 20, 2013, from <http://www.quirky.com/blog/post/2013/04/the-new-face-of-names-and-taglines/>

Nakakoji, K., Yamamoto, Y., & Ohira, M. (October, 1999). A framework that supports collective creativity in design using visual images. In *Proceedings of the Third Conference on Creativity & Cognition*. (pp. 166-173). ACM.

Norton, M. I., Mochon, D., & Ariely, D. (2012). *The IKEA effect: When labor leads to love*. *Journal of Consumer Psychology*, 22(3), 453-460.

Padgett, N. (2012). Quirky Product Eval 101. Retrieved November 11, 2013 from <http://www.quirky.com/blog/post/2012/06/quirky-product-eval-101/>

Paulini, M., Murty, P., & Maher, M. L. (2013). Design processes in collective innovation communities: a study of communication. *CoDesign: International Journal of CoCreation in Design and the Arts*. 9(2), 90-112.

Pivot Power: A Creative Outlet (2011). Retrieved November 11, 2013 from <http://www.quirky.com/products/44/timeline>

Pivot Power Results (2011). Retrieved November 11, 2013 from <http://www.quirky.com/projects/327-Pivot-Power-mission-statement>

Porter, M.E. (1985). *Competitive advantage*. New York: The Free Press.

Prahalad, C. K., & Ramaswamy, V. (2004a). Co-creating unique value with customers. *Strategy & Leadership*, 32(3), 4-9.

Prahalad, C. K., & Ramaswamy, V. (2004b). *The future of competition: Co-creating unique value with customers*. Boston, MA: Harvard Business Press.

Qaalfa, D., (2013). Ever Heard of the IKEA Effect? Increasing perceived value while reducing costs. "*Beyond Philosophy*". Retrieved January 11, 2014 from <http://www.beyondphilosophy.com/blogs/ever-heard-of-the-IKEA-effect%3F-increasing-perceived-value-while-reducing-costs>

Quirkydotcom. (2012, May 3). *Introducing the Quirky + GE Project*. [video file]. Retrieved November 04, 2013 from <http://www.youtube.com/watch?v=o3EFecAEJe0>

Quirky. (2012). *Quirky Eval Process*. [video file]. Retrieved June 20, 2012 from <http://vimeo.com/30313733>

Quirky Terms and Conditions. (2013). Quirky.com user terms of use. Retrieved November 05, 2013 from <http://www.quirky.com/home/terms>

Research Projects 5%. (n.d.). Retrieved November 11, 2013 from <http://www.quirky.com/help/influence/research-projects--5>

Rustle. No leaf left behind. (2013). Retrieved January 17, 2014 from <http://www.quirky.com/products/562/timeline>

Sanders, E. B. N., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *Co-design*, 4(1), 5-18.

Score designs. (n.d.). Threadless, Retrieved January 17, 2014 from <http://www.threadless.com/pick/score/?sort=popular&page=1>

Shaw, S. (2013a). A week in the life of the Eval team, Part 1: Meet the Eval team. *The Quirky Blog*. Retrieved November 05, 2013 from <http://www.quirky.com/blog/post/2013/10/a-week-in-the-life-of-the-eval-team-part-1-meet-the-eval-team/>

Shaw, S. (2013b). A week in the life of the Eval team, Part 2: DEAR time. *The Quirky Blog*. Retrieved November 18, 2013 from <http://www.quirky.com/blog/post/2013/10/a-week-in-the-life-of-the-eval-team-part-2-dear-time/>

Shaw, S. (2013c). A week in the life of the Eval team, Part 3: Tuesday is Preval day. *The Quirky Blog*. Retrieved November 19, 2013 from <http://www.quirky.com/blog/post/2013/10/a-week-in-the-life-of-the-eval-team-part-2-dear-time/>

Stappers, P. J., Sleeswijk Visser, F. & Kistemaker, S. (2011) Creation & Co: User Participation In Design. In Van Abel, B., Evers, L., Klaassen, R. and Troxler (Eds.), *Open Design Now, Why Design Cannot Remain Exclusiv*, (pp. 140-151). Amsterdam: BIS publishers.

Style Projects 5%. (n.d.). Retrieved November 24, 2013 from <http://www.quirky.com/help/influence/style-projects--5-->

Squish Product Research. (2011). Retrieved November 19, 2013 from <http://www.quirky.com/blog/post/2013/10/a-week-in-the-life-of-the-eval-team-part-2-dear-time/>

Surowiecki, J. (2004). *The wisdom of crowds: Why the many are smarter than the few and how collective wisdom shapes business, economies, societies, and nations*. New York: Doubleday.

T. Annie Nguyen, (2012). Retrieved June 20, 2012 from <http://www.OpenIDEO.com/profiles/tudannguyen/>

Tagline Projects 5%. (n.d.). Retrieved November 24, 2013 from <http://www.quirky.com/help/influence/tagline-projects--5->

The Quirky + GE Project: And the Winner Is (2012). Retrieved November 04, 2013 from <http://www.quirky.com/blog/post/2012/05/the-quirky-ge-project-and-the-winner-is/>

The Quirky Process. (2012). Retrieved June 20, 2012 from <http://www.quirky.com/learn>

Tool hub, pricing project. (2013). Retrieved November 24, 2013, from <http://www.quirky.com/projects/4279-Tool-Hub-Price-Project>

Ulwick, A. W. (2002). Turn customer input into innovation. *Harvard business review*, 80(1), 91-7.

Verganti, R. (2008). Design, meanings, and radical innovation: a metamodel and a research agenda, *Journal of Innovation Management*, 25, 436-456.

Verganti, R. (2009). *Design driven innovation: changing the rules of competition by radically innovating what things mean*. Boston, MA: Harvard Business Press.

Von Ahn, L., Maurer, B., McMillen, C., Abraham, D., & Blum, M. (2008). reCAPTCHA: Human-based character recognition via web security measures. *Science*, 321(5895), 1465-1468.

Walter, A., Ritter, T. and Gemunden, H.G. (2001). Value creation in consumer-supplier relationships – theoretical considerations and empirical results from a supplier’s perspective, *Industrial Marketing Management*, (30), 365-377.

What is influence? (n.d.) Retrieved November 16, 2013 from <http://www.quirky.com/help/influence/what-is-influence->

APPENDIX A

E-MAIL MESSAGE TO QUIRKY IN-HOUSE INDUSTRIAL DESIGNERS

Title: Request to Interview Quirky In-House Industrial Designers

Hello Quirky Staff,

My name is Milad Hajiamiri. I am an industrial designer, a master's student in industrial design at METU (Ankara, Turkey), and a passionate Quirky member since December 2011. Currently, I am working on my thesis which is about web-based collective design platforms. My study focuses on the ways in which industrial designers working for web-based collective design companies can benefit from the crowd participation in different phases of design process.

Attached you will find a letter in which I introduce myself and kindly ask the Quirky in-house industrial designers to dedicate some of their valuable time to a Skype meeting with me to answer some questions related to my research.

Since I do not have access to Quirky industrial designers' e-mail addresses, I wonder if you could be so kind and spread the word to all Quirky in-house industrial designers by sending them the attached letter.

With grateful thanks,
Milad Hajiamiri

--

Milad Hajiamiri, M.Sc. student
Middle East Technical University
Department of Industrial Design
Ankara, Turkey
E-mail: miladhamiri@gmail.com
Mobile: 506 213 27 65
Address: Çiğdem Mah. Ankara Evleri 1578. Sokak
C Blok No: 16/5 06520 Çankaya, Ankara, Turkey

APPENDIX B

INTERVIEW GUIDE FOR THE INTERVIEWS WITH QUIRKY IN-HOUSE INDUSTRIAL DESIGNERS

Interview Code:

Interviewee Name:

Date and Time:

Web-based collective design platforms and professional industrial designers

Thesis focus: The ways in which industrial designers professionally working for web-based collective design platforms benefit from the participation of the crowd in different phases of the design process in reference to Quirky.

INTERVIEW GUIDE

INTRODUCTION

Thank you very much for accepting my request. Before I start asking the questions please let me introduce myself: As I mentioned in my e-mail, my name is Milad Hajiamiri. I am Master of Science student in Industrial Design Department at METU in Ankara, Turkey. I am doing this research in order to understand how and to what extent industrial designers professionally working for web-based collective design platforms benefit from the participation of the crowd in different phases of the design process.

I will ask you some questions related to this topic. Your answers and comments will be used for scientific purposes **only** and I will keep your personal information confidential. In order to recall our conversation in full detail, I will audio and video record the interview for myself. At the end of the study, I would be happy to share the findings and results of my research.

Do you have any questions before starting our interview?

1. PERSONAL INFORMATION

First I will ask some identification questions for the record:

- 1.1 What is your name please?
- 1.2 What is your birth year?
- 1.3 What is your educational background? From which school and department did you graduate?
- 1.4 Do you have any other qualifications that you would like to mention?

- 1.5 What is your title and position in Quirky?
- 1.6 How long have you been working for Quirky as a full time in-house industrial designer?
- 1.7 Have you received any training in Quirky?

2. QUIRKY DESIGN PROCESS

Thank you so far, now I have some questions related to the Quirky design process.

2.1 Overall Quirky Design Process

- 2.1.1 As you may know Quirky has been discussed under different titles such as social product development platform, crowdsourcing platform and collective design platform. How *do you* describe Quirky?
- 2.1.2 Could you please describe the major phases of the design process in Quirky?
- 2.1.3 Do all the products follow the same order of brainstorming, research, design, enhance, etc. phases?
 - 2.1.3.1 If not, how do you decide to initiate each phase? Could you describe it through examples?

2.2 Idea Submission

- 2.2.1 As an industrial designer in Quirky, what are your criteria to put an idea under expert review?
- 2.2.2 What role do feedbacks, votes and submissions of similar products from the crowd play in putting an idea under the expert review?
- 2.2.3 We observe that the Quirky participants have different backgrounds and levels of expertise. While some participants describe a problem verbally, some other submissions are designed and visualized in detail. What do you think about the participants' qualifications?
- 2.2.4 How does the visualization of a submitted idea affect the design process?

2.3 Expert Review and Live Evaluation

- 2.3.1 How do you get prepared for online evaluation?
- 2.3.2 How does the crowd feedback affect the evaluation process?
- 2.3.3 How does the visualization of a submitted idea affect the evaluation?

- 2.3.4 As an industrial designer, what do you think about the entire evaluation process in Quirky for selecting an idea for further development?

2.4 Research

- 2.4.1 When do you open a research project?
- 2.4.2 How and by whom are the survey questions prepared?
- 2.4.3 Beside conducting surveys, what other activities does the research phase include? Do Quirky in-house industrial designers also conduct any further research?
- 2.4.4 How do the Quirky in-house industrial designers benefit from the outcome of the research phase? Could you please give examples?

2.5 Brainstorming

- 2.5.1 Could you please briefly describe the brainstorming phase?
- 2.5.2 How do you get prepared for the brainstorming phase?
- 2.5.3 What is the role and importance of the crowd in brainstorming phase?
- 2.5.4 How does the Quirky in-house industrial designers benefit from the outcome of the brainstorming session? Could you please describe it with examples?

2.6 Design Phase (Quirky Industrial Designers and Community Design Phase)

- 2.6.1 Could you please briefly describe the design phase in Quirky with examples?
- 2.6.2 How does participants' design submissions during the community design phase influence the design decisions? Could you describe it with examples?
 - 2.6.2.1 How do the comments and votes from the crowd influence the design decisions?
 - 2.6.2.2 How does the visualization of design proposals from participants affect the design decisions?
 - 2.6.2.3 How does the visualization of inventor's original submission affect the design decisions?
- 2.6.3 How do the Quirky industrial designers work after the community design phase?
- 2.6.4 Under which circumstances does Quirky start a *community design phase 2 or Refine Project*?

2.7 Enhance Phase

- 2.7.1 Could you please briefly describe enhance or refine phase?
- 2.7.2 When do you initiate a refine phase? Could you please give example?
- 2.7.3 How does the crowd's input influence the outcome of enhance phase?

2.8 Style Phase

- 2.8.1 As an industrial designer, how do you decide on the color, material and finishing of a product?
- 2.8.2 How does the crowd's input influence the color, material and finishing of a product?
- 2.8.3 How does material, finishing, color scheme of a product affect the design process?

2.9 Name and Tagline Phase

- 2.9.1 Does name or tagline of a product affect the design process?
 - 2.9.1.1 If yes, in which ways does it affect the design process? Could you please describe it with examples?

2.10 Price Phase

- 2.10.1 Does the pricing of a product affect the design process?
- 2.10.2 If yes, in which ways does it affect the design process? Could you please describe it with examples?

2.11 Testing

- 2.11.1 Do you take into the consideration the feedback about your products from the end users? Could you please give with examples?
- 2.10.2 How do you benefit from the *Product Testing Program*¹?
(¹http://www.quirky.com/product_testers/faq)

3. PARTICIPATION OF THE CROWD

Thank you very much. We are almost done. There are just a few final questions before we finish.

- 3.1 Since Quirky widely benefits from internet to communicate with the crowd, how do you think this kind of communication with large number of individuals affect the design process?
- 3.2 In which phases of the Quirky design process does the contribution of the crowd have **the most** impact in the design process and outcome?
- 3.3 In which phases of the design process there is **no need** or there is **less need** to work with the crowd?
- 3.4 What do you think about intellectual property rights in Quirky?
- 3.5 In the future, how do you think industrial designers can further utilize the participation of the crowd in design process?
 - 3.5.1 What is the potential of this kind of platforms for the benefit of industrial designers?

4. FINAL QUESTIONS

4.1 Before finishing I would like to ask whether there is anything that you think we have not covered or missed. Is there anything that you would like to add?

4.2 Would you like me to send you a summary of my findings?

Thank you very much for your time and participation. If you have any comments or questions related to this interview you can send an e-mail to me or to my thesis advisor. Thanks again for your great help.

Milad Hajiamiri,

Milad Hajiamiri, M.Sc. student
Middle East Technical University
Department of Industrial Design
E-mail: miladhamiri@gmail.com
Mobile: 506 213 27 65
Address: Çiğdem Mah. Ankara Evleri 1578. Sokak
C Blok No: 16/5 06520 Çankaya, Ankara, Turkey

Advisor: Fatma Korkut, Assist. Prof. Dr.
E-mail: korkut@metu.edu.tr
Mobile: 533 726 33 02

Address: Middle East Technical University
Faculty of Architecture
Department of Industrial Design
Üniversiteler Mahallesi Dumlupınar Bulvarı No:1
06800 Çankaya, Ankara, Turkey

APPENDIX C

LETTER TO QUIRKY IN-HOUSE INDUSTRIAL DESIGNERS

Dear Mr. / Ms. Industrial Designer,

I am an industrial designer and a Quirky member since 2011. Currently, I am working on my Master of Science thesis in the Department of Industrial Design at Middle East Technical University (METU) in Ankara, Turkey. My supervisor is Assist. Prof. Dr. Fatma Korkut. My research aim is to understand the ways in which industrial designers working for web-based collective design companies can benefit from the crowd participation in different phases of design process.

I am seeking the advice of professional industrial designers working in Quirky. I wonder if you kindly assist me by answering some questions related to my study in a Skype meeting. Roughly, our interview will last less than an hour. We can arrange a Skype video call meeting for our conversation at any time that is best for you. It would be really kind of you if you can spend few minutes of your time and write down your name and e-mail address in the following interview schedule.

Here is the Google Docs link to our interview schedule:

<https://docs.google.com/spreadsheets/ccc?key=0ArbYJ8R6F7e2dHo0UIR2Rjh2eS1iNFk1V3hUUEXxSnc&usp=sharing>

Please do not hesitate to contact me or my advisor if you have any questions. I am looking forward to hearing from you.

With grateful thanks,

Milad Hajiamiri, M.Sc. student
Middle East Technical University
Department of Industrial Design
E-mail: miladhamiri@gmail.com
Mobile: 506 213 27 65
Address: Çiğdem Mah. Ankara Evleri 1578. Sokak
C Blok No: 16/5 06520 Çankaya, Ankara, Turkey

Advisor: Fatma Korkut, Assist. Prof. Dr.
Middle East Technical University
Department of Industrial Design
E-mail: korkut@metu.edu.tr

Mobile: 533 726 33 02
Address: Middle East Technical University
Faculty of Architecture
Department of Industrial Design
Üniversiteler Mahallesi Dumlupınar Bulvarı No:1
06800 Çankaya, Ankara, Turkey