Emerging Roles in Design Expansion: 'The Third Group' Involved in Design

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Abstract. Design, regarded as the key factor of innovation, has evidently developed diversified designer-user relationships in order to release productivity. However, to further leverage design capabilities, 'the third group' of people who are neither design experts nor users will collaborate with designers through their expertise and fill the skill gap between designers and users. This study therefore aims to explore how 'the third group' form integral roles in the design expansion terrain. To address the research question, this study adopts semi-structured interview as the research method, through which 17 informants experienced in design practices without design background are investigated. Subsequently, the results are classified into five roles 'the third group' can play in the design collaboration with detail clarifications, which include 'vision practitioner' 'business model designer', 'organization facilitator', 'language manipulator' and 'scenario composer'. Finally, the conclusion is set to contribute to identification of the design expansion terrain and the adaptive roles, which could be beneficial for non-design professionals to gain a position in design collaboration and also for designers to broaden abilities to collaborate across disciplines.

1 Introduction

The production mode in China and even the world has been going through an important transition. In the past, design department was regarded as the additional part of product development to serve client's need [1]. However, things have changed since China expects to turn the volume production to higher quality production, which suggests that innovation could be a strong stimulating factor and rely very much on design [2].

Considering limited design research community, there has to be a third group of people to join in the expanding design practices, to bring about product innovation and to lead design to success. Although some global market leaders have the foresight to merge business, technology and design for building innovation and exploring future possibilities, in fact, cross-discipline practice and project based learning still lack experience in China [3]. The adaptive principle, role, language and structure in this new terrain of design expansion remain little to be understood.

Based on the literature of cross-functional collaboration, participatory design and design leadership characterization, the research adopts interview as the research method. People who have already actively involved in design practice without design background are selected as the informants in this study. This research has explored the following three perspectives. What are the potential roles needed in the design expansion? How can non-design professionals adapt to the design practice and align their capability, task division and background? How can cross-discipline collaboration and project-based learning team come into being?

2 Theoretical Foundation

2.1 New terrain of design expansion

It is started with Kotler and Rath stating that: "design is a strategic tool that companies can use to gain a sustainable competitive advantage" [4]. The overall design awareness in management and organization studies is arising [5]. Design is welcomed to a broader range since it emerges as an approach meant to "harness the creativity of the designer within the context of business" [6], "orient innovation" [7], put into practices rather than just business strategy talking [8], serve as "strategy visualizers" and "core competency prospectors" [9].

Norman has specified "a third discipline" inserted in the middle of business and design to translate between the abstractions of research and the realities of practice [10]. This third discipline is more clarified in new product development. For avoiding time, human and financial resource loss, to bring new product to the market faster and cheaper [11], the collaboration between design and other functions is encouraged to add a new level of interactions [12] and to carry out a broad array of tasks [13]. It is also supported that design group should be product development process leader [14], which is specified as integrator, interpreter, coordinator and facilitator [15].

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Although the new terrain of design expansion is emerging, the nature of the functional integration and the roles of various functional groups are still under investigation.

2.2 Human resource gap for 'the third group'

The traditional design mode is very direct that designers make products while the target users adopt. As the problems are getting more and more complicated [16], user-centred design methodology comes up. While designers act as users, users can also act as designers to form participatory design, increasing users' power and adding productivity into the product [17, 18]. In addition, the user group are also linked with the direct and indirect stakeholders through the system thinking [19]. Moreover, the evolution to co-designing is changing the landscape of design practice, creating new domains of collective creativity [20]. Based on various designer- user relationships [21], it could be speculated that to empower human resource to join design will become a trend to fulfil a good design.

Sanders defines co-design in a broader sense to refer to the creativity of designers and people not trained in design, which will change how, what to design and who design and also affect the tools and methods that the new teams of co-designers will use [20].
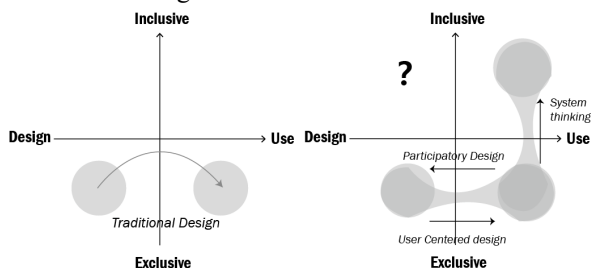

Figure 1. The transition of designer-user relationship with design quadrant still keeps exclusive.

However, there is still a quadrant which very few has studied. With the need to engage diversified expertise into the design procedure, there are not only 'user designers' in the crossroads of users and designers but also 'the third group' who are actually neither users nor design professionals and involve actively in design to leverage design capacities. To meet the future challenges in economic, technological and social areas, 'the third group' has a great potential.

2.3 Emerging roles characterizations

To feed the terrain of design expansion, various discussions are conducted on new standard of human resource and functional role clarifications.

With the departure as designers, Sanders conclude designer will go beyond designing products to design for people's purposes [20]. Valtone traces back from 1950s to depict the changing role of industrial designer, from sole creator, part of multi-disciplinary team, end-user expert, coordinator, creating experiences and pushing national innovation [22]. Similar classifications regard designer as strategist to coordinate with strategy, storyteller to build

experience, co-creator to empower users and facilitator to guide design process [23].

Beyond designers, roles in general cross-discipline collaboration are studied. IDEO characterises 10 personas to form a creative firm along the innovation developing stages which are to learn creative principles, to move idea forward and to make innovation into reality [24]. Similarly, a cross-discipline study identifies 8 roles as facilitator to manage process, informer to bring in specific knowledge, user contextualizer and storyteller to speak for users, and evaluator, idea generator, interpreter and questioner to work in the design process [25]. It is noteworthy that role studies on a broader range of people are usually conducted on the process timeline and the background of participants are merely taken into consideration.

Design leaders are the forerunners in the new terrain of design expansion. Their general characteristic is intermediate. Based on Norman's proposition of "transitional developers" bridging design and business [10], a role of advocacy is assumed as "design interpreter" to influence and synthesize opportunities from both strategic and operational views [26]. As to education background, Miller and Moultrie find formal design training and extensive industry experience are necessary based on fashion industry studies [27]. However, on a broader scale of business, studies also show that design training is not a prerequisite for leading design projects [28]. Topalian has mapped major tasks to lead design in a rich and demanding spectrum with business and society, while confirming executives from every discipline to play a full part[29].Furthermore, their common qualities can be concluded as envisioning future and nurturing environment for innovations [30]. In the skill domain, Miller and Moutrie identify 5 interdependent skillsets -- cognitive skills, interpersonal skills, business skills, strategic skills and design skills [27].

Successful practices on the terrain of design expansion are emerging and the human resource needs are transformative. It is hereby prospective for individuals from non-design background to enter design field, bring about innovations and even become design leaders.

2.4 Research gap

This study proposes the research gaps as follows: Firstly, the broadened roles for designers are still limited to the design research community, which can't bridge the gap in the new terrain of design towards business and society. Secondly, roles allocated by innovation process view are still disconnected with participants' expertise. Thirdly, inductive skills or quality requirements are too fragmentary to form into role portfolios in order to guide 'the third group'. Finally, the general characteristics are not specified into specific functions as well. Although design leaders can be used as reference for 'the third group', being a leader is not the only possibility.

The purpose of this study is to align the background, capabilities, working responsibilities into concrete roles in a design process, so as to provide an integral guide for

'the third group' to approach the new terrain of design expansion.

3 Research Method

As the aim of the research is to study how 'the third group' form integral roles in the expanded design practices, the nature of which is inherently exploratory and inductive, semi-structured interview is adopted to generate qualitative insights to form an integrated understanding of the roles in design practices. Themes of the interview questionnaire include the following: education background, personal characteristics, project experiences, behaviour and work division in a design process overall and also in each stage, influence and explanations for actions, related skills and capabilities, differentiations from designers and future plan. Informants are asked to narrate a typical design process which represents their common approach to get engaged in design activities. Then they are guided to go deeper into describing their actions, reasons and impact. Data of their common skills similar to designers as well as their unique skills to facilitate particular actions are both collected. How they form their skill sets and how they plan to develop further are asked as part of the questions to collect data for role paths. Moreover, they are encouraged to generate understanding of their own role with evidence of their project experiences.

Since the cross-discipline collaboration and project based learning oriented by design discipline are rare, cross-discipline master students whose bachelor studies are not related to design in the College of Design and Innovation in Tongji University are selected as the key informants. These interviewees experienced in design teamwork comprise a representative sample with different education background, grade, age and design project experience.

Table 1. Participant composition

No.	Education Background	Gender	Design Projects Participated
1	Business Management	Male	18 Projects
2	Political science	Female	15 Projects
3	Economics	Female	7 Projects
4	Accounting	Female	15 Projects
5	Communication Media	Female	14 Projects
6	Advertising	Male	15 Projects
7	Chemistry	Female	7 Projects
8	Physics	Female	6 Projects
9	Materials science	Male	6 Projects
10	English	Female	8 Projects
11	French	Male	18 Projects
12	Information Management	Female	10 Projects
13	Computer science	Male	19 Projects
14	Civil engineering	Male	7 Projects
15	Environmental engineering	Female	8 Projects
16	Electronic engineering	Male	18 Projects
17	Mechanical engineering	Female	17 Projects

In total, 17 interviews are conducted. Each of them ranges from 30 minutes to 60 minutes. The interviews are audio recorded and transcribed to generate around 58000 words of text-based data. Through ground analysis, the interview transcript is generalized into categories with sufficient meaning by coordinating background, capabilities, work content and work importance. Then the clusters emerge around distinct roles which correlate with themes addressed in literature review. The outcome of this research is robust characterizations of roles for 'the third group' and how they illuminate the practices in the new terrain of design expansion.

4 Research findings

Five key roles are synthesized from research data, which include vision practitioner, scenario composer, language manipulator, business model designer and organization facilitator. All the roles are interrelated in the design collaboration.
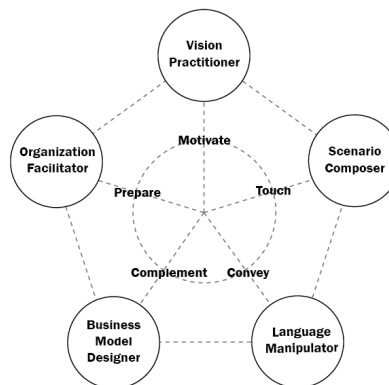

Figure 2. The 5 key roles 'the third group' can play in design collaboration.

4.1 Vision practitioner

Currently, the mainstream of designers are treating existing problems as the design space. However, more opportunities lie in the new design space which is open source and question-oriented [31]. The design space should be expanded from only examining the current situations to asking questions behind the situation and towards the future [32].

Through interview, there are insights guiding to characterise vision practitioner:

- When there are no authorities, students with strong self-efficacy always lead the team.

- Some students get anxious easily in facing enormous possibilities and new directions, which shows their dislike of ambiguity.

Common ways to empower students to build vision are to allow them to select the problem they take excitement in or to find them a real client.

The role fighting for a shared value and posing thought-provoking questions to the society is identified as vision practitioner. It is proved that committed enthusiasts can build idea visionaries to "persevere against frustration and ambiguity" [33]. Vision practitioners might not be design experts, while they are visionary and responsible to endow products with new or added value. People possessing large amount of user experience often come up with identified vision, perceive unrecognized ideas, turn ideas into feasible framework and persuade people the value of ideas.

4.2 Business model designer

A business model describes the rationale of how an organization creates, delivers, and captures value [36]. Since business model generation is based on exploring all opportunities and options, analytical and synthesizing abilities of politics, economy, society and technology are rather significant.

In the business aspect, the customer-product tie is strengthened by examining customer segmentation, product mix, brand strength, customer loyalty and distribution channels. As to the industry environment, the industry market growth and industrial environment factors like new technologies are primarily to be investigated for developing strategies. Moreover, the competitive strategy, partner strategy and the business canvass need to be developed through contemplating the major players, their market shares and product differentiation.

In addition, money is not the only trade-off. Business models not only organize "the way they make money" but also "the way they convey meanings, beliefs, values and organizational culture" through operational and strategic circles [34]. To form a feasible and sustainable operation model for product and service, the physical and emotional gain of user as well stakeholders are usually carefully analysed. Business experts should take value considerations and identify value conflicts based on psychological propositions. The whole model needs to be evidence based and to be tested and modified.

To achieve that, people who study business management, public relations or who are employed in management consultancies are great candidates. The most obstacle for them is getting familiar with design practice.

4.3 Organization facilitator

Facilitator who aims at assisting design project by managing the internal and external human source is of great significance. This role takes effect in many circumstances.

Firstly, to contact direct users as well as exterior consultants and stakeholders, facilitators are good at identifying and engaging targeted people through diversified ways, such us social network and low-cost online tools. Interpersonal skills are needed to inform users of their roles in the design process, to motivate users in different stages and to ensure users a delightful experience.

Secondly, since the schemes of workshop need to align with the goal and stimulate productivity, facilitator always thinks of diversified organizational forms by setting human contacts, number of groups, amount of time, tools as well as the physical environment. In that way, facilitators could also be able to bring inspirations to designers and to facilitate teamwork.

Finally, facilitator should also appear as the representative of the company to business partner in the industry chain. Facilitator acts as negotiator to understand the value of potential partners and maintain relationships with partners.

As facilitators, they come up with lots of organization innovations by activity planning and public relationship management. So the targeted expertise mainly comes from marketing professionals and human resource managers.

4.4 Language manipulator

Language, which locates in the deep root of nation and culture, is very general and stable. Language has been essential to enable common ground and synthesis via mixing disciplinary language, use of analogies and metaphors, sketches, imprecision and hedging words around project goals, gestures to communicate issue and generating new languages [25]. Language takes effect mainly in two process of design, the fuzzy front end of adding possibilities and the final stage to convey the design outcome to users.

In the first process of exploration, communicating and synthesizing the right message of ideas to the team is the top priority. A hypothesis of design thinking is to use visualization as much as possible. The assumption is challenged due to that efficient communication is based on participants, encoding, transmitting, decoding and the environmental noise. Visualization requires the expertise of encoding, otherwise it will slow down the decoding or cause misunderstanding instead. Therefore, concise verbal language expressions as well as other languages must be combined with visualizations, while the proportion of languages should depend on the features of participants.

In the second process to convey design value to users, language skills are necessary for converting vison into compacted and essential words which can be understood by everyone. Analogies and metaphors are treated as effective social interaction role of as language tools for elaborate mental representations and for reducing uncertainty [36].

Therefore, except for new languages like programming, verbalization, dialogue, copywriting and naming are all great expertise for 'the third group' to get competitive, which add great value to the whole process.

4.5 Scenario composer

Scenario composer means to envision users' roles, motivations, behaviours, reactions, obstacles as well as satisfaction, based on a set of integrated assumptions in deep root of culture. Unlike the language, stories provide a narrative that unfolds over time, which allows for a more complicated set of relationships to develop [37]. Informants also emphasize frequently the importance of building visual stories with reasonable imagination.

There are many similarities between design and screen writing. They both stand on qualitative research which emphasizes empathy, insights and vivid characters. Moreover, neither composers nor designers will stop upon that point, since both of their final aims are to propose questions, to inspire people, to get social responsible and to construct a whole new world view, which can arouse trust, feelings, opinions and behaviour changes from the audience. Although screen writers tend to be more imaginative and artistic, which makes them look unrealistic and unfocused, the core spirit of composing is increasingly needed in the innovation-driven and future-oriented era.

Composing scenarios is an appropriate field for 'the third group' to make breakthroughs and build expertise upon, since innovation need composers to add flesh and blood to the blueprint, to evoke sympathy as well as to convince audience. People who study advertisement, marketing, writing, theatre and drama are all candidates ready for this work.

5 Conclusion

This study synthesizes 5 key roles for 'the third group' to play in the design expansion terrain, which include vision practitioner to question assumptions and motivate people, business model designer to formulate feasible operation strategy, organization facilitator to coordinate human resource, language manipulator to manage communication and scenario composer to create story plots. Each role aligns definition, features, capability together with work responsibilities, which not only portray the new terrain of design expansion, but also provide appropriate entries for people to build their paths into design collaboration.

As 'the third group' from different disciplines gradually enter the vacant area and work inclusively into design process, they can grasp the design skills and thinking, form strong ties with designers and bring about synergistic effect to improve the design process and outcome.
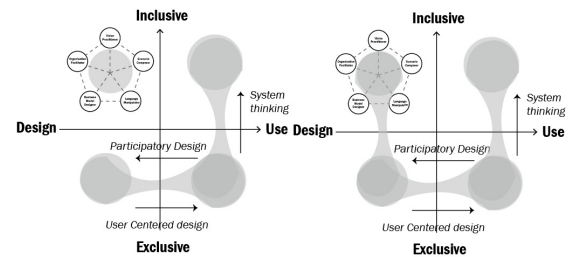

Figure 3. 'The third group' enter the landscape, complete functions and connect closely with designers.

This study has important implications for career as well as education. Guides of roles not only help people who are interested in design to gain a right position and to explore new opportunities, but also help them capture a leading position in the current market vacancy of design collaboration. In addition, they can also choose to gain experience in design, grow competitive and go back to their original field. Moreover, it also provides guidance for professional designers to extend abilities to collaborate across disciplines. In addition, students who participate in design-led collaboration programs can ease their pressure and adapt the active learning as soon as possible according to the role paths explanations. They may use the guide as measurement dimensions of their performances.

With the demanding spectrum of design awareness toward business and society, this study is expected to help clarify the ambiguity and facilitate the efficacy of design collaboration. Meanwhile, through the role paths clarifications, we believe that more people from non-design background would be encouraged and engaged in design practices to push innovations into a new level.

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