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11TH EUROPEAN ACADEMY OF
DESIGN CONFERENCE

APRIL 22-24 2015

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EXPLORING THE EFFECT OF DESIGN THINKING CONCEPT THROUGH ORGANIZATIONS' EXPECTATIONS FROM DESIGNERS

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ABSTRACT

The aim of this study is to explore the role of designers in today's organizations. It was investigated if designers' working environments and expectancies from designers can be linked with design thinking concept. Through this investigation, literature on designer abilities and design competence was also reviewed.

Recent studies hint that designers are getting more involved with decision making and designers' skills are adapted to managerial decision making processes. This tendency can be linked with design thinking, which also suggests that both managerial problems and design problems are "wicked" by nature, and the intellectual skills required for problem solving are alike. It may be expected that design thinking concept may lead organizations to require more leadership skills from designers. Design thinking concept also supports the idea of designerly problem solving combined with user oriented competition strategies. So, it can be inferred that organizations' may prefer to employ designers with good interpersonal and client communication skills to increase the efficiency of design researches done with customers.

In the scope of this study, job opportunities that were announced in Coroflot web site through a four-month period were examined to see capabilities that are expected from design and designers. The purpose was to identify abilities that are not directly required for product design practices, but hint managerial or behavioural capabilities. It will investigated if the most frequently required qualifications can be linked with the abilities of designers that are linked with design thinking concept

Keywords: Design thinking, designers' qualifications, process leadership

1 INTRODUCTION

Recent managerial concepts hint that designers are getting more involved with decision making and designers' skills are adapted to managerial decision making processes, therefore companies encourage their executives to develop designers' skills (Cooper et. al., 2009). This tendency can be linked with design thinking concept, which also suggests that both managerial problems and design problems are "wicked" by nature, and the intellectual skills required to solve them are alike (Dorst, 2011).

In this paper, design thinking and its' link with required designer competencies will be explored through job announcements. Job announcements will also be evaluated according to designers' skills and roles. The role and function of the designers in the companies will be investigated through desired characteristics that are not directly linked with design action.

Some of the studies done in this area (Perks et. al., 2005) define designers role through studies done within a single country, with limited amount of firms through deep case studies. This study aims to explore a broad range of data from various firms around the world, without any limitations, to see if defined roles are compatible with companies' expectancies from designers. Also, any other expectations that do not seem to belong to a role will also be defined to be discussed further.

2 DESIGN THINKING AND DESIGNERS' ROLES IN COMPANIES

Design thinking mainly stresses the idea of designers' problem solving abilities and it's link with business environment. Design thinking idea also supports the idea of designerly problem solving combined with user oriented competition strategies (Brown, 2008; Cooper and Junginger, 2009). Hobday et. al. (2011) state in their studies that, design concept is not included enough within innovation literature, however "...the treatment of design as a human-centred, core creative activity in business challenges the overly scientific, rational view of the firm and, with it, many of the standard intervention tools of innovation management.". They also declare that design's solution centred approach is different from other human-centred approaches, and design thinking can have important roles in business, society and economy (Hobday et. al, 2012).

Studies on designers' capabilities also hint that designers' can apply various problem solving techniques. Dorst (2003) declares that designers deal with three types of problems; determined, underdetermined and undetermined. While determined problems deal with objective problem issues, undetermined problems are mostly solved by designers' own taste and abilities; however underdetermined problems, which forms the majority of the problems designers deal with, are mostly formed within design process and designer solves these problems by evaluating possible problems and solutions (Dorst, 2003). The idea about underdetermined and undetermined problems seems to agree with Cross (1990, 2001), who declares that problem solving in design involves dealing with uncertain situations. Cross (1990) also wrote that designers are able to (1) create novel and unusual solutions, (2) work with incomplete information (3) work with uncertainty, (4) use their imagination to solve practical problems (5) use drawings and other modelling equipments to solve problems. The statement is again compatible with the others arguing that design mainly interact with "wicked problems" that are hard to define (Rittel & Weber,1973; Buchanan, 1992).

Studies on different design roles also may indicate that designers' skills on problem solving may lead them to have more interaction and involvement with other functions in the business environment (Stewart, 2011). In her study on how designers' role evolved in Finland, Valtonen (2005) states that while designers always worked in product development process, they increased their role in product development process and business in general. One of the design-service providers she quoted states that the corporate directors declare that they need to change companies' strategies, but they don't know how and why, and design-service providers deal with these situations (Valtonen, 2005). This statement briefly tells how design is implemented to companies' strategies to

create value, but it may also hint that the designers' capabilities about dealing with ambiguous problems may help corporates to clarify strategies.

Another study on designers' roles in companies defines three different roles a designer may have in a company (Perks et. al., 2005). The study mainly categorizes these three roles as follows.

Design Role	Main Actions	Required Skills in General
Design as Functional Specialism	They concentrate purely on design and are evaluated as resource	Traditional skills (aesthetics, visualization, technical skills, etc)
Design as Part of Multifunctional Team	Generate interaction between team-members, being a key member in a team	Skills to enable interaction and communication, flexibility and team building
Design as NPD Process Leader	Getting more involved with marketing studies to set the direction, managing new product development process and informing other functions.	Non-functional skills such as business analysis, research, project management, motivating others, communication skills.

Table 1 - Design roles and their descriptions table, derived from Perks et. al. (2005) study.

The last two categories, "design as a part of multifunctional team" and "design as a NPD process leader", may hint to the design thinking effect on designers' roles. Team-building skills and general process management skills are compatible with the ideas that design supports product development process via designerly thinking techniques and designers' familiarity with wicked problem may aid them when they deal with process related problems.

In this study, the qualities that are not directly related to core design abilities were coded. Therefore, the roles and requirements other than main design function practice were tried to be identified.

3 THE RESEARCH

Job opportunities announced in Coroflot website job board was read and coded in this study, because:

- Some of the word or phrases used in texts may provide clues about working environment and behavioural expectations from designers
- Various types of announcements for different design disciplines can be found on this website
- Reading job announcements is a fast and easy way to have an idea about various companies' requirements and environments without disclosing any restricted data
- Via exploring one website, avoiding cross-coding among different web sites, especially with confidential announcements

In total 1602 job board texts, which represent all the jobs announced through a four month period were read for this study. During the sampling, an effort was made to select announcements about positions that are either calling designers, or were about duties that may be fulfilled by designers as their qualifications fit. Positions that do not require any specific knowledge related to main design function are eliminated (positions for marketing, buying, engineering, teaching positions etc.). Therefore, purposive sampling was used as the sampling method (Robson, 2002) Later, each of the announcements were coded for qualities that provide hints about business environment, workflow and behavioural requirements from designers.

Qualities or requirements that are coded were chosen in an effort to collect data about what were expected from designers other than abilities that are directly related to design activity (such as sketching, concept development in accordance with company strategies, usability research, etc.). Later it was examined if the qualities that are frequently wanted could be related to recent concepts about designers' role in a company.

A total of 163 job descriptions were eliminated since they were not linked to designer activities, and 9 descriptions could not be included as they were not written in English. A total of 1430 announcements were taken into account. In this total, there were various positions such as managerial, senior, junior or internship jobs. Jobs were divided into four groups. Lead/ managerial/director positions were coded as "managerial"; senior positions were coded as "senior", mid-level/junior/untitled announcements were coded as "regular" and finally intern/assistant positions were coded as "intern". Freelancers were not coded separately, as companies mostly wanted freelancers to work on project-base. Jobs for freelancers were not differentiated to others in terms of working

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conditions and employee quality and level; junior, senior or even managerial positions were open for freelancers.

Job board texts were published between 1 March 2014 and 30 June 2014. Text coding task was shared between two writers. URL links and date of access for the positions along with codes were recorded in a separate file. Numbers and frequencies for the categories were defined. Results of the first two months were compared with final results to see that there were not many differences in the frequencies.

4 THE RESULTS

The categories for behavioural qualities and expectations were defined as the job announcements were read. Any additional category needed was added to the list as the study went on.

Here, first the categories defined will be listed and briefly explained. Later the frequencies for the qualifications will be given.

4.1 BEHAVIORAL CATEGORIES DEFINED FOR THE STUDY

During the research, behavioural qualities and expectations were coded into groups listed and described as below.

- **Working in teams/cross-functional teams** implies that employer expects designers to be able to work in teams. The phrases "cross-functional teams" and "teams" were not separately coded as it was not clear in most of the jobs if the word "team" refers to a cross-functional team or a monofunctional team. So, the basic parameter for coding was being able to function as a team in a design environment.
- **Working independently/self-manage/self-motivated** refers to the ability of managing own work, without needing constant instruction and direction from a manager.
- **Working closely with executives** implies being able to work directly with executive staff.
- **Mentoring/leadership** refers to the ability of mentoring colleagues.
- **Marketing research** means taking role in marketing research activities.
- **Brand management skills** implies the ability to build and manage a brand. Brand identity application abilities (to the product and services) are not included in this category.
- **Business management skills** refers to being able to handle managerial issues such as dealing with subcontractors, accounting issues, etc.
- **Multi-tasking/flexibility** hints the abilities required for handling multiple projects at the same time and switching projects when needed.
- **Working in a fast paced environment** implies ability to work within tight deadlines.
- **Project management and organizational skills** means being able to keep and direct a project within defined timetables and budgets.

- **Working under pressure** refers to being able to handle stress in a work environment.
- **Self starter/proactive** indicates skills for acting entrepreneurial and innovative without being told; being able to take initiative.
- **Problem solving** points out ability to solve process oriented problems in a work environment. Design related problem solving skills were not included in this title.
- **Client interaction/ management** means being able to handle client accounts, presenting to and meeting with clients directly.
- **Communication skills** indicates having positive interpersonal skills and handling daily process related communication issues in a constructive way. Design related communication skills such as visual and verbal presentation skills are not included in this category.

4.2 FREQUENCY OF THE CATEGORIES

Frequencies of the categories are listed below along with approximate percentages.

Category	Managerial (out of 228)	Senior (out of 243)	Regular (out of 912)	Intern (out of 43)	Total (out of 1430)
Working in teams/cross-functional teams	172 (75%)	190 (78%)	610 (62%)	22 (51%)	994 (69%)
Working independently/self-manage/self-motivated	41 (17%)	52 (21%)	242 (27%)	16 (37%)	351 (25%)
Working closely with executives	13 (5,6%)	10 (4,1%)	31 (3,3%)	2 (4,6%)	56 (3,9%)
Mentoring/ leadership	111 (48%)	70 (29%)	65 (7,1%)	0 (0%)	246 (17%)
Marketing	22 (9,6%)	22 (9%)	62 (6,7%)	3	109

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research				(6,9%)	(7,6%)
Brand management skills	33 (14%)	23 (9,4%)	46 (5%)	1 (2,3%)	103 (7,1%)
Business management skills	45 (20%)	22 (9%)	46 (5%)	0 (0%)	113 (7,8%)
Multi-tasking/flexibility	52 (23%)	57 (24%)	208 (23%)	8 (19%)	325 (23%)
Working in a fast paced environment	56 (24%)	67 (28%)	265 (29%)	13 (30%)	401 (28%)
Project management and organizational skills	169 (73%)	133 (55%)	450 (49%)	12 (28%)	764 (53%)
Working under pressure	13 (5,6%)	19 (7,8%)	48 (5,2%)	1 (2,3%)	81 (5,6%)
Self starter/proactive	35 (15%)	40 (16%)	131 (14%)	8 (19%)	214 (15%)
Problem solving	47 (20%)	53 (22%)	151 (17%)	5 (12%)	256 (18%)
Client interaction/management	77 (33%)	77 (32%)	152 (17%)	4 (9,3%)	310 (22%)
Communication skills	135 (59%)	151 (62%)	448 (49%)	16 (37%)	750 (52%)

Table 2 – Frequencies for qualifications.

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Three of the mentioned qualifications were observed in more than half of the job announcements. "Working in teams/cross-functional teams" were seen in 69% of the texts. In 53% of the jobs, "project management and organizational skills" were needed. The other frequently seen qualification is "communication skills", with a frequency of %52. In these three categories, percentages of managerial positions (manager and senior) seems to be higher than subordinate positions (regular and intern). Number of announcements that asked for all of these three qualifications were 391, which represents a 27% frequency.

Four of the qualifications observed had frequencies between 30%-20%. "Working independently/self-manage/self-motivate" was seen in 25% of the texts. "Multi-tasking/flexibility" can be seen in 23% of the texts. "Working in a fast paced environment" was detected in 28% of the jobs, and "Client interaction/management" was requested in 22% of the jobs. Between those four qualifications, "working independently/self-manage/self-motivate" and "working in a past paced environment" was mostly seen in subordinate positions. "Client interaction/management" was mostly seen in managerial positions and "multi - tasking/flexibility" had a balanced distribution among positions.

Three of the categories were requested with frequencies between 10%-20%. "Mentoring/ leadership" position was required in 17% of the jobs. This category was definitely seen mostly in managerial positions, as out of 912 regular positions, only 65 jobs demanded this qualification and none of the intern jobs required mentoring or leadership ability. Being "self starter/proactive" was detected in 15% of the jobs and distribution among the defined positions were balanced. "Problem solving" was required in 18% of the jobs, and again a decrease in percentages can be seen as the position goes to subordinate from managerial.

Five of the categories were mentioned in less than 10% of the job announcements read and they were "working closely with executives", "marketing research", "brand management", "business management skills" and "working under pressure".

Among all of the announcement, 67 required none of the listed qualifications, which represents 4,6% of the announcements.

4.3 EVALUATION OF FREQUENCIES

The categories that formed were evaluated in three groups. First two groups are formed according to Perks et. al.'s (2005) definitions for three designer roles. Since the core design abilities were not coded, the group "design as functional specialism" was left aside. The third group was formed by qualities that simply describe the environment that designers work in. Groups and related qualifications are listed below.

Groups	Qualifications and Total Frequencies	Number of Announcements That Require at Least One of The Categories
Design as Part of Multifunctional Team	Working in teams/cross-functional teams - 69% Communication skills - 52%	1179 (82%)
Design as NPD Process Leader	Working closely with executives - 3,9% Mentoring/leadership - 17% Marketing research - 7,6% Brand management skills - 7,1% Project management and organizational skills - 53% Problem solving - 18% Client interaction/management - %22 Communication skills - 52%	1169 (82%)
Designers' Working Environment	Multi-tasking/flexibility - 23% Working independently/ self-manage/self-motivated - 25% Working in a fast-paced environment - 28% Working under pressure - 5,6% Self-starter/proactive - 15%	826 (58%)

Table 3 – Frequencies evaluated in groups

The top three most frequent qualifications fell into first two groups, "design as a part of multifunctional team" and "design as a process leader". "Communication skills" category fell into both groups, as it was needed in both design roles. Three out of four qualifications that had a frequency between 20% and 30% fell into "designers working environment" group, and the one other fell into "design as NPD process leader" group. The third most mentioned qualification rank was shared between "designers working environment" and "design as NPD process leader" groups.

The qualifications that fell into "design as a part of multifunctional team" group are only two, but they are two of the most mentioned categories; "working in teams/cross-functional teams" and "communication skills". This may indicate that designers are often asked to be integrators of multifunctional teams. Among the entire announcements %82 asked for at least one of those two categories.

"Designer as NPD process leader" group has also two of the most desired skills; "project management and organizational skills" and "communication skills". These two may imply the designers' role as a process leader. Also there are three mediocre and three less frequent groups, which were mostly desired for managerial positions. Even the frequencies are not high; existence of these six more groups may imply designers' or design managers' roles as strategy builders. Again, 82% of the jobs required at least one qualification that fell into this group.

The category of "designers' working environment" involve qualifications that hint a fast-paced environment that designers' juggle with multiple problem and solution environments. The environment implied may indicate that designers were asked to lead their own design process from initiation to finalizing. This requirement may be a result of designers' capabilities about solving different

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type of problems, as they are expected to deal with many various problems by their own that can appear in a project process. More than half of the jobs announcements required at least one qualification that belonged to this group.

5 DISCUSSIONS AND CONCLUSIONS

When the categories are grouped and evaluated within concepts about designers' roles, it can be seen that companies may ask designers to be facilitators of product development processes.

A little more than 27% of the announcements were asked for designers that are able to work in a multi-disciplinary team, manage and organize projects and communicate effectively with others. These three categories together indicate a designer profile that can run a product development process.

When categories are evaluated in groups, it can be seen that more than 80% of the jobs require at least one qualification that indicated "design as a part of multifunctional team" role, and same applies for "design as a NPD process leader" role. Those strong tendencies also support the idea that companies require their designers to facilitate and run new product development processes. At least one of the qualifications that was in group that represented "designers' working environments" were seen in 58% of the jobs.

When the results are evaluated with their link with theories about designers' roles and skills, it may be seen that companies want designers to get more involved with new product development processes. Companies want to benefit from designers as process facilitators and leaders, and this maybe resulting from the idea that designers' capabilities about dealing with problems may be supportive for a company in managerial tasks. This result may be an indication of design thinking concept's reflection on companies' requirements about designers.

6 FURTHER STUDIES

Due to time constraints, this study evaluated design jobs that were announced in a period of four months. Study may be continued further to get a better perspective about companies' requirements from designers. Also, if extended to a enough length of period or repeated frequently, this study also may reflect changes and developments about companies' expectations on designers.

Another aspect that can be studied further is evaluation of categories with companies. Especially for qualifications that refer to designers' working environment, the categories maybe a result of the sector that the company is operating. It may be helpful to make interviews with several companies to make a more accurate evaluation of classifications and definitions of requirements.

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Finally, some of the qualifications that had a frequency below %10 that were not discussed enough in this study can be investigated further. A possible increase of frequency for those qualifications may hint a change about expectations from designers.

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