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ABSTRACT   How to practically monitor what is
sought from designers in practice forms a basic con-
cern for educators in design. In this paper, we analyse
what employers require from applicants in 230 job
advertisements for graphic design positions from Fin-
land. We structure the requests stated in the

advertisements in terms of what graphic designers are expected (a) to deliver, (b) to know, and (c) to have. We compare the specific requirements listed for traditional and digital graphic design positions. The results of our analysis suggest that the skill set outlined in the advertisements for traditional graphic design positions suggests a more 'generalist' professional, whereas the skill set outlined for digital positions suggests a more 'specialist' professional. We end the paper by discussing the implications of our findings for graphic design education and how our research process could inform educational programme developments.

Introduction

The professional domain of graphic design is expanding. Digital technology has had a profound effect on the scope of graphic designers' work. The rise of desktop publishing and hypertext in the 1980s and 1990s changed the work practices of graphic designers, pushing for a transition to an increasingly digital workflow (e.g. Frascara 2004; Julier 2008). Nowadays, graphic designers work under new job titles such as interaction designer, user interface, and experience designer, which presents a new labour market reality for educators to consider in planning graphic design education.

In this paper, we report on a study of the skills required from graphic designers applying for job openings in Finland. In replicating and extending our prior study in the United Kingdom (Dziobczenski and Person 2017), we analyse 230 job advertisements in studying (a) what skill sets employers articulate as required for graphic design positions and (b) how the required skill sets compare for traditional and digital graphic design positions. We structure the requirements in terms of what graphic designers are expected to deliver and to know, as well as the personal traits they are expected to have. We distinguish between the general requirements stated for graphic designers and the requirements that differentiate traditional and digital graphic design positions.

Studies suggest that educators are challenged by how to cover the skill set needed by graphic designers in practice within the limited study period of a degree (Heller 2006) and a changing professional environment (Davis 2008). In relation to the latter, several studies suggest that design is nowadays recognized as strategically important for companies and that designers should take on new roles within organizations (e.g. Calabretta and Gemser 2012; Perks, Cooper, and Jones 2005; Ravasi and Lojacono 2005; Valtonen 2005). In particular, a number of studies have addressed the scope of industrial designers' work (Bohemia 2002; Gemser and Leenders 2001; Perks et al. 2005; Valencia, Person, and Snelders 2013) and the financial value of design and design management for companies in general (e.g. Chiva and Alegre

2009). However, empirical studies on the scope of graphic designers' work remain rare. While research in design has developed significantly over the last two decades, focused research in graphic design has not followed suit (Walker 2017). In particular, there is little research on the professional realm of graphic design (Logan 2006), and more research is needed to understand the nature of graphic design as a profession (Tan, Melles and Lee 2009). Our analysis responds to this gap in the literature by examining what companies articulate about the work of graphic designers in Finland.

What companies express about the work of designers often has a role to play in shaping educational activities in design (Lewis and Bonollo 2002), perhaps particularly in thinking through the career prospects of students upon graduation (Davis 2006). At the same time, in planning for what type of knowledge and skill development that ought to take place in courses and programmes, educators need to balance those interests with the lifelong learning and the broader prospects they envision for their students in society. For example, design educators often face the fact that graduates need to establish a career in fields outside design, which calls for new knowledge and skill development in design education (Kiernan and Ledwith 2014). An understanding of what is requested from designers in practice can here support more informed discussions about the content of (graphic) design education and what to prioritize in curricula development.

In monitoring developments in professional practice, job advertisements provide readily available statements about what employers value in applicants, composed to the needs of recruiters rather than researchers (Todd, McKeen and Gallupe 1995). Job advertisements have been used to study labour market conditions in a range of disciplines, including, among others, management (Gatewood et al. 1993) and library and information systems (Choi and Rasmussen 2009). What hiring managers write about the skills needed for a position are often 'carefully selected' to the position advertised (Bennett 2002, p. 471). The value of job advertisements for educational development – as a proxy for the immediate labour market requirements facing graduates – has also been explored in a number of educational disciplines (Bennett 2002; Kim and Angnakoon 2016; McArthur, Kubacki, Pang and Alcarazl 2017; Kureková, Beblavý, Haita and Thum 2016; Pitt and Mewburn 2016; Reeves and Hahn 2010; Roberts and Mancuso 2014; Welborn and Singer 2014).

In design, job advertisements have prior been used to understand what employers expect from industrial designers (Ramírez 2012; Yang, You, and Chen 2005). In our prior study (Dziobczenski and Person 2017), we used job advertisements to analyse what British employers expect from graphic designers and how the requirements compared at different stages of their career (i.e. junior, middle, and senior positions) and for internal and external positions. However, in taking a focused perspective on traditional 'graphic design' positions, our analysis did not account for career paths in the digital domain. In analysing job advertisements for different types of positions in Finland, we

address this omission. For educational development, we also outline the approach we followed in structuring the requests in the advertisements; thereby extending past discussions on how to practically approach different career paths for design professionals (e.g. Aston 1999; Kiernan and Ledwith 2014) and assessment of students' work (e.g. Giloi and du Toit 2012).

Expanding scope of graphic design practice and education

Graphic designers have long found work in a variety of areas, including communication, media, and branding (Bennett 2006). In short, in transforming ideas and concepts into visual design solutions (e.g. Ambrose and Harris 2011; Givechi et al. 2006; Tomes et al. 1998), graphic designers act as 'shapers of messages and images' (Meggs and Purvis 2012, 572). In taking on this communicative role between ideas and visual solutions, a balance between artistic and more practical design skills has long been a basic concern in graphic design education; graphic design requires not only artistic hands-on skills to produce aesthetic and visual expressions, but also skills and knowledge to listen to and interpret the needs of users and clients (e.g. Frascara 2004, Tan and Melles 2010). While the scope of this work has historically been framed in terms of print media, graphic designers are nowadays equally concerned with digital media such as screens and interfaces. As for designers in other fields (e.g. Valtonen 2016), it should also be noted that the tasks of graphic designers have also become increasingly complex, requiring a broader skill set than that required by a functional specialist within an organization. Graphic design literacy is nowadays concerned not only with formal aesthetics but also with broader notions of 'professionalism' regarding the knowledge and skills needed to operate as a graphic designer (Tan and Melles 2010, p. 461)*.*

The changing and expanding nature of designers' work is problematic for educators who need to decide upon the focus of graphic design education. As discussed by Frascara (2004) and Heller (2006), educators are challenged to prioritize between technical graphic design skills and more general skills in, for instance, business and technology in setting the curricula for courses and programmes. Also, design educators need to encourage students to be constantly reviewing and updating their skill sets; often learning skills that traditionally have been framed outside the scope of the design education. References to what is requested from practice often reveal such discussions both explicitly and implicitly. For example, the transition from traditional (print) graphic design work to digital graphic design work and the skills that follows is nowadays frequently discussed in design blogs and Internet forums[1]. Yet, only a limited number of research studies in academic journals have examined the scope of graphic designers' work (e.g. Dziobczenski and Person 2017). There is also limited guidance in the design literature on how to effectively monitor and analyse the requests from practice. Thus, we set out to address the following research questions:

(1) What skill set is requested by employers in advertising for job open-ings in graphic design in Finland?
(2) How does the requested skill set compare for different career paths in terms of the requests made for traditional versus digital graphic design positions?

Method

We analysed job advertisements in seeking to understand what skill set Finnish employers request from applicants to graphic design posi-tions. Finland is recognized as a leading design nation (e.g. Moultrie and Livesey 2009; Design Task Force 2003). In comparison with many other countries where design education has expanded rapidly in the last decades, design education in Finland remains relatively small; only a few universities and universities of applied science offer degrees in graphic design.

Job advertisements for our study came from three online recruitment web sites. LinkedIn (www.linkedin.fi), the Ministry of Employment and Economy's job board (www.mol.fi), and the Oikotie job board (www.oikotie.fi). After discussions with Finnish graphic design educators and practitioners, we selected these web sites to cover the main online portals for designers seeking employment in Finland.

We collected job advertisements over a period of 18 months, includ-ing two stages of data collection and analysis. The first stage of data collection took place between June 2015 and May 2016, during which we established an initial coding scheme. In refining and assessing the robustness of our coding scheme, we acquired a second set of job advertisements between June 2016 and December 2016.

We located relevant job advertisements by performing weekly key-word searches. We performed broad searches, initially considering all positions with the word 'designer' or '*suunnittelija*' (designer in Finn-ish) in the job title. We excluded duplicate advertisements of the same position on different web sites as well as duplicate advertisements republished on the same web site. Next, we selected those positions for which we deemed graphic designers were eligible to apply. Either the selected job advertisements contain references to graphic design activities in the job title or graphic design activities form a major part of the job description. We excluded job advertisements for positions such as 'electrical designer' and 'construction designer' as well as established design professions such as 'industrial designer' from the analysis.

The first stage of data collection resulted in 136 advertisements, and the second stage resulted in an additional 94 advertisements. Our final data set contains 230 job advertisements: 112 in English and 118 in Finnish. The average number of words in each advertisement is 361 (SD = 168.4).

Skill set analysis

Similar to our earlier study (Dziobczenski and Person 2017), we pursued a combination of thematic and content analysis for our analysis. Following the first stage of data collection, we began by thematically analysing what was requested from applicants through *in vivo* coding (Lapadat 2010). For language reasons, the first round of coding was done by the third author. The resulting codes were discussed with the two other authors before being merged into descriptive themes (codes). We inductively searched for commonalities across the codes in terms of the requirements stated in the advertisements. Following Braun and Clarke (2006), we set out to capture relevant concepts (employers' statements about the required skill set of graphic design applicants) that were reoccurring in our data. Informed by past work on competence-based education (Voorhees 2001), we searched for patterns in the requirements and differentiated between requests in terms of their inter-relations. We characterized the requested competence areas in terms of the different outcomes graphic designers were expected to deliver, and analysed skills, knowledge, and personal characteristics in terms of how they potentially supported the delivery of these different outcomes. We contrasted the themes with the final set of themes from our prior study in doing a first assessment of similarities between the two studies and in clarifying terminology when possible. Our resulting coding scheme at this point covered 62 codes.

We establish the presence/absence of different codes in the advertisements to assess the importance of different requests by applying our initial coding scheme to all advertisements from the first stage of data collection. We excluded non-descriptive – such as 'knowledge of graphic design' – and optional – such as 'good to know' – requests in coding the advertisements. Following the recommendation of Harper (2012), the advertisements were independently coded by two people. For language reasons, the first author coded the advertisements in English ($n = 58$). The third author coded the advertisements in English and Finnish ($n = 136$).

The intercoder agreement for the coding of the advertisements in English from the first stage of data collection was assessed using Krippendorff's alpha. The intercoder reliability was 0.67, which is appropriate for 'drawing tentative conclusions' (Krippendorff 2013, p. 325). We reviewed and clarified the differences between the two coders before the third author proceeded to code the advertisements in Finnish independently.

Similarly, following our second stage of data collection, we establish the presence/absence of different types of requests by applying the coding scheme to all the new advertisements. Once again, two people performed the coding. For language reasons, the first author coded the advertisements in English ($n = 54$). A doctoral student with a degree and practical experience in graphic design coded the advertisements in English and Finnish ($n = 94$). The intercoder agreement of the advertisements in English was 0.68, using Krippendorff's Alpha. The differences in the coding of the advertisements in English were discussed

and verified before the doctoral student coded the job advertisements in Finnish.

We reviewed the frequency of the codes across the total data set, closely scrutinizing the content of the codes with lower frequencies and merging them with other codes to form more encompassing themes when appropriate. In the process, we also once again revisited the resulting themes from our previous study in the UK to establish similarities between the two studies and to clarify terminology when possible. Specifically, for the sake of comparison, we standardized the naming of themes and subthemes (codes) across the two studies when possible. However, in accounting for differences in how the requirements are articulated in Finland and the UK, we purposefully remained close to the themes and codes that had emerged from our initial analysis.

Career path analysis for traditional and digital graphic design positions

We classified the job advertisements as representing either traditional or digital graphic design positions (see Table 1). In terms of traditional graphic design positions ($n = 55$), we included the advertisements with the word 'graphic' or '*graafinen*' (graphic in Finnish) in the job title. In terms of the digital graphic design positions ($n = 102$), we included the advertisements with one or more of the following words in the job title: 'Digital', 'Interaction', 'UX', 'UI', and 'Web'. We did not classify 73 advertisements to either of the two groups: 67 advertisements contain references to graphic design activities in the job description but do not contain any of the selected words in the job titles (e.g. 'Designer' and 'Lead Designer'), and six advertisements refer to both groups in the title (e.g. 'UI graphic designer').

In analysing how the requested skill sets differ for traditional and digital graphic design positions, we studied the distribution of our coding scheme across the two types of advertisements. We also compared the frequency of each subtheme in relation to the mean frequency of the themes in the same area to unveil which ones were referenced more frequently. Specifically, we performed multiple logistic regression analyses to uncover significant differences in the presence/absence of subthemes in the advertisements for traditional and digital graphic design positions (see Appendix A in online supplemental material). In controlling for language effects, we included language (Finnish or English) as a covariate in the regression analysis for each subtheme[2]. Next, in highlighting particularities in the requested skill sets for traditional and digital graphic design positions, we summarized the results of the logistic analyses in terms of primary and secondary *foundational themes* and *specialization themes* as follows (see Table 2).

The themes with *non-significant* results from the regression analyses ($p > 0.05$) were classified as foundational. We distinguished between primary and secondary foundational themes according to their distribution. Primary foundational themes have a frequency *above* the mean in the same area or main theme. Secondary foundational themes have

Table 1. Job titles in the job advertisements (Finnish titles translated to English).

Job title	No.	Job title	No.	Job title	No.
Graphic Designer[a]	54	Marketing Designer	3	Design & Marketing Coordinator	1
UX Designer[b]	38	Digital Designer[b]	2	Design Director	1
Web Designer[b]	24	Lead Designer	2	Digital Graphic Designer	1
UI Designer[b]	21	Motion Graphic Designer	2	Graphic Maker[a]	1
Visual Designer	21	Graphic UI Designer	2	Head of Design	1
UI/UX Designer[b]	11	Brand Visual Designer	1	Lead Creative Strategist	1
Designer	10	Communication Coordinator	1	Marketing Artist	1
Service Designer	8	Content Designer	1	Marketing Content Designer	1
Interaction Designer[b]	6	Creative Design Manager	1	Marketing Manager	1
Art Director	6	Creative Director	1	Usability Expert	1
Packaging Designer	3	Creative Strategist	1	Web Graphic Designer	1

[a]Traditional graphic design positions.
[b]Digital graphic design positions.

Table 2. Criteria for classifying a theme as primary/secondary foundational or specialization theme.

	Frequency above the mean on the same level or category	Frequency below the mean on the same level or category
Non-significant differences across traditional and digital positions	Primary foundational themes	Secondary foundational themes
Significant differences across traditional and digital positions	Primary specialization themes	Secondary specialization themes

frequencies *below* the mean in the same area or main theme. In other words, primary foundational themes represent those requests in which we did not find any significant differences between the two groups but which were particularly salient in the advertisements, as they were more

frequently referenced than the subthemes in the same main theme. In the same vein, secondary foundational subthemes are less frequently referenced than those in the same main theme.

The themes with *significant* differences across the two groups ($p < 0.05$) were classified as specialization. We classified the themes as specialization themes for traditional graphic design positions in case they were more frequently referenced in the advertisements for such positions and vice versa for the themes more frequently referenced in the advertisements for digital graphic design positions. We distinguished between primary and secondary specialization themes according to their relative distribution across the advertisements. Primary specialization subthemes have frequencies *above* the mean in the same main theme. Secondary specialization themes have frequencies *below* the mean in the same main theme.

Results

Our final coding scheme describes the requests made by employers in the advertisements in six main themes encompassing a total of 40 subthemes (codes). Similar to our earlier study, we structure themes in terms of competence areas, knowledge and skills, and personal characteristics, and study the frequency distribution of each subtheme within each main theme in assessing the relative importance of different requests. We present the mean distribution of the subthemes within each main theme and use it as a benchmark in establishing what is more and less frequently requested from applicants in the advertisements. An overview of the themes and subthemes is presented in Figure 1. A more detailed description of the content of each theme is found in Appendix B online supplemental material.

In terms of what applicants should deliver through their work (i.e. competence areas), we distinguish seven reoccurring subthemes in the advertisements, with more than half of the advertisements including references in which applicants should work with *mobile/app design* and/or deliver *digital design work* in terms of producing webpages and content for social media and newsletters. In terms of what applicants were requested to know (i.e. knowledge and skills), we distinguished 29 subthemes in the advertisements. Similar to our study in the UK, we structure the subthemes across four main themes: *process management skills*, *conceptual design skills*, *technical design skills*, and *software skills*. In terms of process management skills, references to *interpersonal* skills to work as a member of a team are particularly salient, being requested in more than 80 per cent of the advertisements. In terms of conceptual design skills, references to applicants being able to do *user-centric design* work and/or have *business orientation* are found in well over half of the advertisements. In terms of technical design skills, references to skills and knowledge in *coding front-end* are most prominent, being referenced in more than one-third of the advertisements. In terms of software skills, references to *2D software* such as Adobe Illustrator, Photoshop, and InDesign are present in almost

Figure 1.
Distribution of each
subtheme in relation to the
mean of each main theme
in (%).
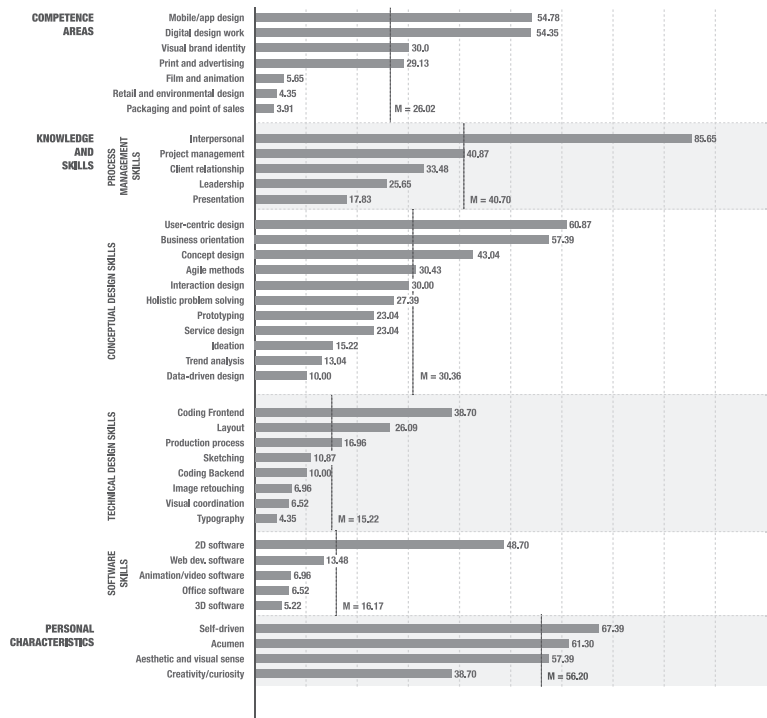
half of the advertisements. In terms of the personal characteristics ref-
erenced in the advertisements, i.e. what traits a graphic designer is
required to have, we distinguish four frequently reoccurring themes. In
order of frequency, being *self-driven*, having professional *acumen*, and
an *aesthetic and visual sense* are each referenced in well over half of
the advertisements. *Creativity/Curiosity* is also frequently referenced,
occurring in close to 40 per cent of the advertisements.

Requests for traditional and digital graphic design positions

Our comparison of the requests made for traditional and digital graphic
design positions suggests a number of similarities and differences in
the requirements set for applicants in pursuing different career paths
in design (see Figure 2). Following the procedure described earlier, we
provide a structured overview of our findings in Figure 3 in terms of (a)
the *foundational themes* that are equally requested in the advertise-
ments for both types of positions and (b) the *specialization themes*
that are significantly more or less common in the advertisements for
traditional versus digital graphic design positions. We also make a dis-
tinction between *primary* and *secondary* foundational and specializa-
tion subthemes based on their frequency in relation to the mean of
the associated main theme. For the sake of brevity, we only discuss
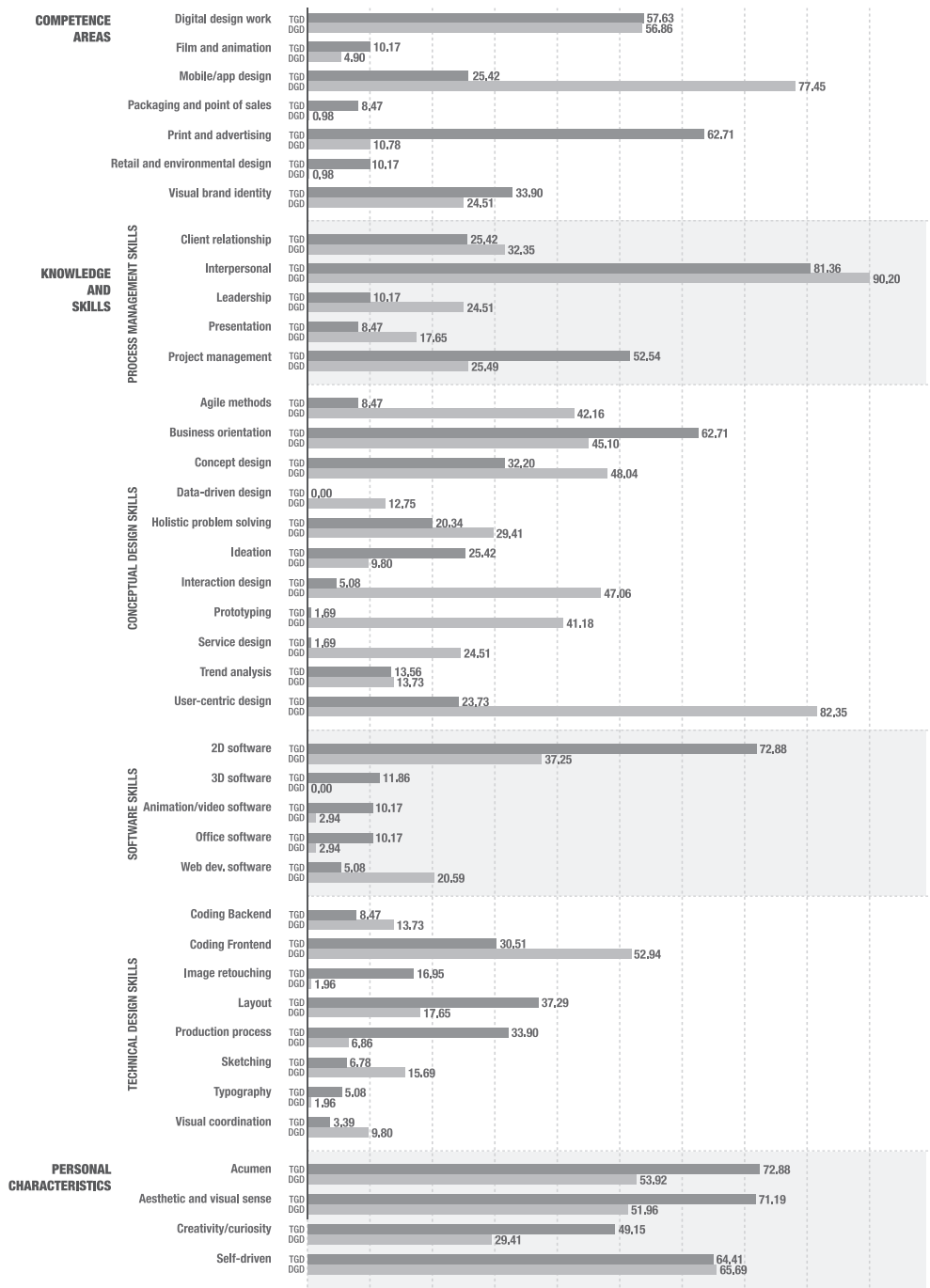the results in relation to the *primary* themes in introducing the results

COMPETENCE AREAS

	TGD	DGD
Digital design work	57.63	56.86
Film and animation	10.17	4.90
Mobile/app design	25.42	77.45
Packaging and point of sales	8.47	0.98
Print and advertising	62.71	10.78
Retail and environmental design	10.17	0.98
Visual brand identity	33.90	24.51

KNOWLEDGE AND SKILLS

PROCESS MANAGEMENT SKILLS

	TGD	DGD
Client relationship	25.42	32.35
Interpersonal	81.36	90.20
Leadership	10.17	24.51
Presentation	8.47	17.65
Project management	52.54	25.49

CONCEPTUAL DESIGN SKILLS

	TGD	DGD
Agile methods	8.47	42.16
Business orientation	62.71	45.10
Concept design	32.20	48.04
Data-driven design	0.00	12.75
Holistic problem solving	20.34	29.41
Ideation	25.42	9.80
Interaction design	5.08	47.06
Prototyping	1.69	41.18
Service design	1.69	24.51
Trend analysis	13.56	13.73
User-centric design	23.73	82.35

SOFTWARE SKILLS

	TGD	DGD
2D software	72.88	37.25
3D software	11.86	0.00
Animation/video software	10.17	2.94
Office software	10.17	2.94
Web dev. software	5.08	20.59

TECHNICAL DESIGN SKILLS

	TGD	DGD
Coding Backend	8.47	13.73
Coding Frontend	30.51	52.94
Image retouching	16.95	1.96
Layout	37.29	17.65
Production process	33.90	6.86
Sketching	6.78	15.69
Typography	5.08	1.96
Visual coordination	3.39	9.80

PERSONAL CHARACTERISTICS

	TGD	DGD
Acumen	72.88	53.92
Aesthetic and visual sense	71.19	51.96
Creativity/curiosity	49.15	29.41
Self-driven	64.41	65.69

Figure 2.
Distribution of each theme in relation to traditional (TGD) and digital (DGD) graphic design positions in (%).

Traditional and Digital GD

CA - Visual brand identity
PMS - Interpersonal
CDS - Business orientation
CDS - Concept design
TDS - Coding Frontend
TDS - Production process
PC - Aesthetic and visual sense
PC - Self-driven

Primary foundation themes

Secondary foundation themes

CA - Packaging and point of sales
PMS - Client relationship
PMS - Leadership
PMS - Presentation
CDS - Data-driven design
CDS - Holistic problem solving
CDS - Ideation
CDS - Service design
TDS - Coding Backend

TDS - Image retouching
TDS - Sketching
TDS - Typography
TDS - Visual coordination
SS - 3D software
SS - Animation software
SS - Office software
SS - Web software

Traditional GD

CA - Digital design work
CA - Print and advertising
TDS - Layout
SS - 2D software
PC - Acumen

Digital GD

CA - Mobile/app design
CDS - Agile methods
CDS - User-centric design

Primary specialization themes

Secondary specialization themes

CA - Film and animation
CA - Retail and environmental design
PMS - Project management
CDS - Trend analysis
PC - Creativity/curiosity

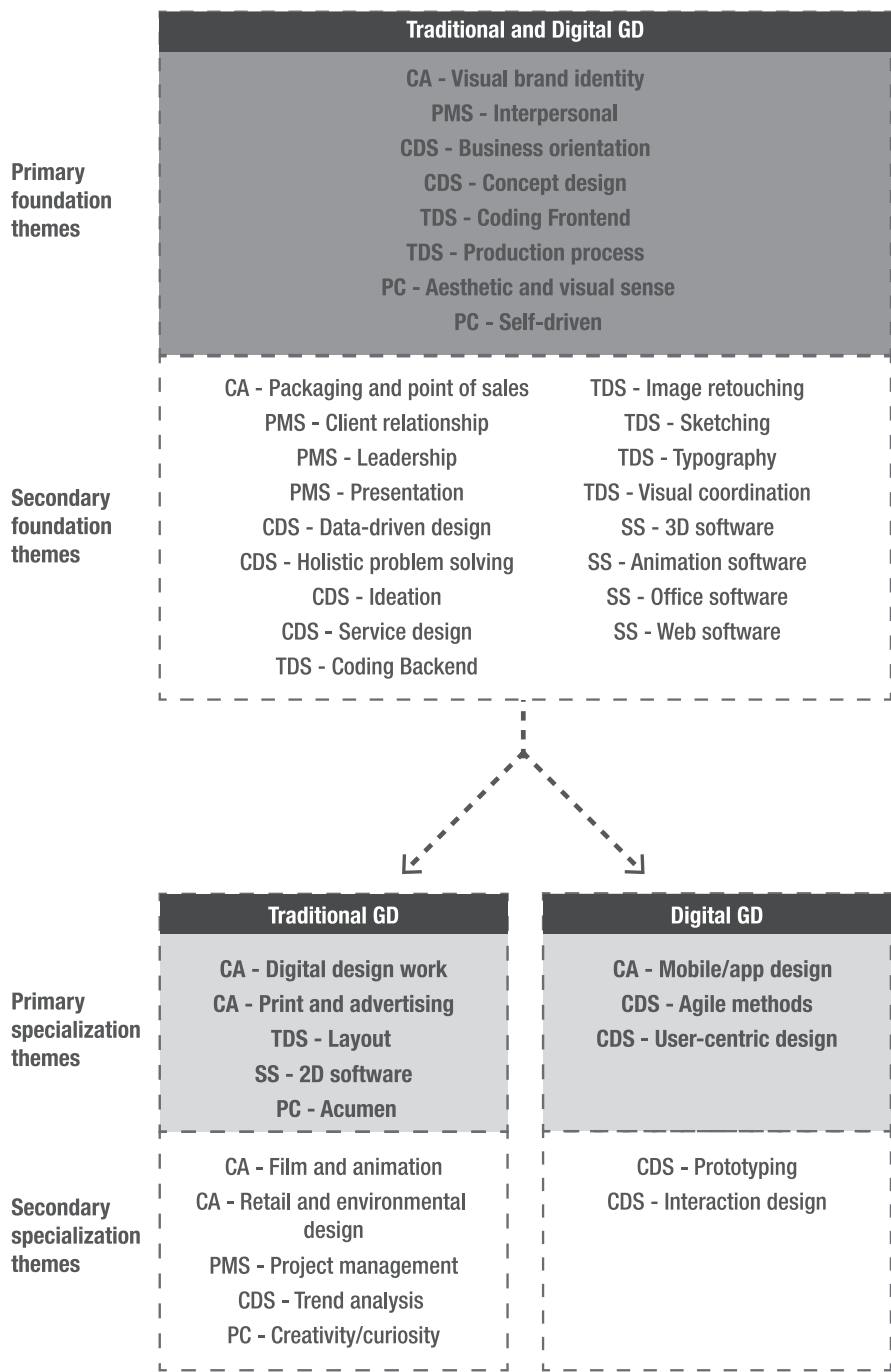CDS - Prototyping
CDS - Interaction design

Figure 3.
Foundation and specialization themes for traditional and digital graphic design positions. CA = Competence area; PMS = Process management skills; CDS = Conceptual design skills; TDS = Technical design skills; SS = Software skills; PC = Personal characteristics.

below. A complete overview of our analysis is presented in Appendix C in online supplemental material.

In terms of the *primary foundational themes* emerging for both traditional and digital graphic design positions, our findings suggest that a graphic designer (applicant) should be able to work in the area of *visual brand identity*. They should also have conceptual design skills in terms of being *business-oriented* and possessing knowledge and skills in *concept design*, along with process management skills in terms of *interpersonal skills* to work with professionals from different fields. In terms of technical design skills, our analysis reveals that knowledge and skills in the *coding front-end* and *production processes* are equally sought for traditional and digital graphic design positions. Further, in terms of *personal characteristics*, being s*elf-driven*, and having an *aesthetic and visual sense* emerge as primary foundational themes across the advertisements.

Our analysis of the *foundational specialization themes* reveals a number of differences in the requests made from applicants for traditional and digital graphic design positions. Following the results above, reference to expertise in *print and advertising* as well as *digital design* are significantly more common for traditional graphic design positions than for digital graphic design positions, where references to *mobile/ app design* are more prominent. In terms of conceptual design skills, expertise in *agile methods* and *user-centric design* are more common for digital graphic design positions. Technical and software skills in *layout* and *2D software* are more common for traditional graphic design positions. Requests to display professional *acumen* are also more common in the traditional graphic design positions.

Discussion

Our analysis suggests that graphic designers in Finland are expected to have a varied skill set: employers of graphic designers are looking for professionals that can deliver both branded print and digital material and who have specific skills and knowledge in areas ranging from conceptual design skills to management skills to technical and software skills. The most frequently cited competence area is found in the digital domain and describe work in mobile and app development and digital content production in general. In more than half of the advertisements, we also find requests for applicants needing interpersonal skills, user-centric design skills, and having business orientation. Further, we find that employers are looking for personal characteristics in advertising for graphic design expertise, with references to being self-driven, displaying professional acumen, and having an aesthetic and visual sense being present in more than half of the advertisements.

The results both replicate and extend the results of our prior study of job advertisements from the UK (Dziobczenski and Person 2017). The requests in the advertisements span multiple themes that overlap the majority of the themes we distinguished in the UK. However, the frequency distribution of different requests varies across the two

studies. In short, while the results of our study in the UK highlighted the operational aspects of graphic designers' work in terms of producing content, the frequency distributions of different requests in the Finnish advertisements are in general higher, suggesting a broader work domain for graphic designers in Finland.

We also find new types of requests in the Finnish advertisements. Given our broader sample of advertisements, requests to deliver digital work emerge more prominently from our analysis, including a distinction between general requests and specific requests for competence in mobile/app design. Such requests are particularly prominent in the advertisements for digital graphic design positions (77%) but are also present in the advertisements for traditional graphic design positions (25%). Following this, we also found requests for knowledge and skills in agile methods, interaction design, service design, and data-driven design, with all these skills being more commonly (but not exclusively) requested for digital graphic design positions. Given the importance placed on digital work in the advertisements, we made a distinction between requests for front-end and back-end coding with the aim of more closely representing how the work was described in the advertisements. Once again, the requests for coding skills are more prevalent in the advertisements for digital graphic design positions than for the traditional graphic design positions: 52% versus 30% for coding front-end and 13% versus 8% for coding back-end.

Differences in the sampling between the two studies as well as the types of requests made in the advertisements also resulted in a number of other differences between the Finnish and British advertisements. Most prominently, requests for knowledge and skills in research emerged more prominently in the Finnish advertisements than in the British advertisements. Requests for expertise in user-centric design and trend analysis are present in 60% and 13% of the Finnish advertisements, whereas we only distinguished requests for (design) research skills in 17% of the British advertisements. The references to research skills in the UK were frequently formulated in terms of an ability to monitor trends, whereas references to user-centric design skills were almost non-existent. In the Finnish advertisements, requests for skills in user-centric design were particularly common for digital graphic design positions where 82% included a reference to applicants needing skills in this area, in comparison with 23% for traditional graphic design positions. Following our analysis of the Finnish advertisements, we also made a distinction between requests for knowledge and skills in ideation (15%) and requests for knowledge and skills in concept design (43%), which we earlier had grouped under the same theme in analysing the requests in the UK (27%). Requests for skills in concept design are more prevalent for digital (48%) than for traditional positions (32%) supports this conclusion. Interestingly, we find that requests for ideation skills are more prevalent for traditional graphic design positions (25%) than for digital graphic design positions (9%), suggesting that traditional and digital graphic designers fulfil different roles in content production.

A couple of (smaller) themes from our study in the UK emerged as more encompassing themes in our Finnish data. Requests for process understanding and problem-solving, which were treated separately in our study in the UK, were treated together (under requests for holistic problem-solving skills) in depicting the structure/content of the Finnish advertisements. Similarly, requests for skills in layout and visual composition were grouped under a common heading regardless of whether they concerned the treatment of 2D, 3D, or motion content. Finally, some types of requests from our study in the UK did not re-emerge in analysing the content of the Finnish advertisements. In particular, we did not find any requests for knowledge and skills in briefing or statements that the applicant should display (design) passion for their work, suggesting that such requests may be less relevant in advertising for graphic design expertise and/or that such concepts may not be seen as relevant in discussing graphic design in Finland.

Implications for graphic design education and practice

Job advertisements – and the results of our study – can further educational developments in a number of areas by supporting more informed dialogue on the requests made by multiple employers. Educators may, for instance, use the results of our study in analysing their current educational practices and their fit with what employers articulate about their needs in graphic design. Also, adding to past discussions on the practices involved in assessing design projects (Giloi and du Toit 2012), educators may find it useful to consider how their current practices for assessing students' work address the requirements stated in advertisements for open positions.

The richness of our findings suggests that educators need to cater to a varied skill set in addressing all the requests articulated in the advertisements. We recognize that trying to cater to all the requests meaningfully might be challenging as well as problematic for educators in tending to the needs of their students, which also goes beyond the immediate needs of companies. In exploring how to prioritize different labour market interests, our solution was to classify the sub-themes as either foundational or specialization themes based on their relative distribution across the advertisements. From the perspective of education, the foundational themes are particularly interesting in thinking about what is seen as the core of graphic design, as they are requested similarly in advertisements for traditional and digital graphic design positions. To this end, the primary foundational themes may be particularly relevant for the scope of bachelor education. In contrast, the specialization themes might be more relevant for the scope of master education, where the goal often is to help students establish and/or refine a professional identity in a particular area. Our distinction between themes may also be relevant for practising designers as a guide for self-development in setting out to better align their skills with those requested by employers in Finland.

The value of formal education in providing students access to professional careers in design has been addressed by scholars in the past (e.g. Heller 2006; Littlejohn 2017; Tovey 2015). Such studies emphasize the significance of a degree for employment. However, less than one-third of the job advertisements (31.7%) in our study requested that applicants carry a degree in graphic design. More frequently, companies asked for candidates with years of practical experience (61.3%). In responding to this phenomenon, educators may need to reconsider how they articulate the broader value of education for practice. Students following formal education not only receive training in the immediate skills needed for design practice but also are prepared for the ongoing learning needed to operate as a designer over time. The challenge facing educators and educational institutions – in strengthening the value of a degree in design – sits here in part in how to educate employers about the value of having design employees who know how to learn.

Limitations and suggestions for future research

To date, job advertisements have only to a limited extent been used for studies on design. Advancements in how to approach job advertisements in research are also of interest to scholars in a multitude of fields (e.g. Harper 2012; Todd et al. 1995). In pushing for more research using job advertisements in design, we recognize two research directions in the methodological challenges we faced in collecting and analysing our data.

First, sample selection and how to frame the boundaries for data collection represent basic concerns in using job advertisements for research and educational development purposes. In expanding on the scope of our previous study, we pursued a more inclusive mode for data collection by analysing all designer positions for which we deemed graphic designers were eligible to apply. Our broader sample of advertisements enabled us to acquire a more holistic view of the varied requirements facing graphic designers in applying for design work in Finland in comparison with our prior study in the UK. It also enabled us to compare the specific requirements articulated for traditional and digital graphic design positions. Still, our sample covers a portion of the labour market available to graphic design professionals in Finland: There are open positions for graphic designers not publicly advertised. For instance, companies might fill their positions through internal networks. Similarly, the market for freelance (temporary) work in Finland is seldom communicated through job advertisements. Designers might also seek work opportunities outside design. As a result, an important step in expanding on our study would be to explore new modes for data collection to cover new areas of design work not covered by job advertisements published on online recruitment portals as well as how to effectively survey the broader labour market for designers.

Second, the process(es) involved in formulating job advertisements and what information such documents can provide about the work of

(graphic) designers represent another basic concern in advancing the use of job advertisements for research purposes. Studies in fields such as psychology and management suggest that employers are incentivized to provide accurate descriptions of the advertised work in reaching relevant professionals (e.g. García et al. 2010; Gatewood et al. 1993). Yet, studies also suggest that job advertisements are written not only to inform but also to attract candidates (e.g. Backhaus 2004). As job advertisements represent naturally occurring statements about what employers seek in applicants, their content should be seen to provide reflections of not only the advertised work but also the language used to discuss design. In analysing the frequency of different requests across traditional and digital graphic design positions, we for instance noted significant differences in the types of requests stated in the Finnish and English advertisements, and, given the scope of our study, we accordingly controlled for the effect of language in performing the regression analyses. During data analysis, we also noted that graphic design positions are also posted in Swedish, one of the two official main languages in Finland. However, in retrospectively searching for such openings, we only found a very small sample of advertisements in Swedish and decided, therefore, to focus our study on advertisements in Finnish and English to be able to make relevant comparisons. To this end, we acknowledge that more research is needed on how language shapes the content of job advertisements, and, given the main and interaction effects we encountered (see Endnote 2), we expect that future studies could address how language impacts the way the work of designers is understood and discussed in different national contexts.

Notes

1. Guides for how to transition from traditional to digital graphic design are for instance published online by the software producer Adobe: Print Design to Web Design: How to Transition and What Skills Translate Directly (https://blogs.adobe.com/creativecloud/print-design-to-web-design-how-to-transition-and-what-skills-translate-directly/), the Interaction Design Foundation: How to Change Your Career from Graphic Design to UX Design (https://www.interaction-design.org/literature/article/how-to-change-your-career-from-graphic-design-to-ux-design), and the online graphic design marketplace 99designs: 5 tips to move from graphic design to UX design (https://99designs.com/blog/tips/5-tips-to-move-from-graphic-design-to-ux-design/), to name a few.
2. We uncovered significant interaction effects between language and type of position in the regression analyses for five themes: 'Concept design', 'Trend analysis', 'Project management', 'Digital design work', and 'Self-driven'. We also uncovered a significant main effect of language in the regression analyses for nine themes: 'Retail and environmental design', 'Visual brand identity', 'Agile methods', 'Holistic problem-solving', 'Interaction design', 'Prototyping', 'Layout', '2D software', and 'Web software'.

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