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Requests from Companies and Requirements for Design Education in Brazil: where do they meet?

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In this paper, we study what companies request from applicants for graphic design positions in Brazil. Based on a document analysis of 371 job advertisements, we uncover 35 different types of requests which we structure in terms of (1) Design deliverables, (2) Knowledge and skills and (3) Personal traits. In addition, we explore how the content of job advertisements potentially can inform educational developments by reporting on a group interview with design educators. In the interview we explore the degree to which different requests in the advertisements are covered in a regulatory educational design policy document for higher education in Brazil. Our results show that requests for skills in 2D software, an ability to deliver print and digital design outcomes and knowledge of layout and photography are frequently occurring in the studied advertisements. We also describe how the educators could locate the majority of the requests in reviewing the educational policy document. We end the paper by discussing how job advertisements could be further studied and used by design educators and practitioners.

design education; design competencies; document analysis, Brazil

1 Introduction

Design graduates and students face multiple requests by companies in applying for positions. The professional requirements placed on designers also form an important topic for educators in ensuring the employability of their graduates. As the professional realm for designers evolve in industry (see e.g. Davis, 2006), the skill set required to operate as a designer is also changing. In doing so, an imbalance between the skills demanded by companies and those trained at higher educational institutions can surface an 'education gap' (Todd, McKeen, & Gallupe, 1995, p. 20), which can harm the employability of graduates and hinder companies in effectively recruiting qualified personal.

In this paper, we provide empirical support to explore the possibilities of such a gap. Specifically, we provide an overview of the skill set requested by Brazilian employers in advertising for graphic



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design positions. In replicating and extending our previous study from the United Kingdom (Dziobczenski & Person, 2017), we report on a document analysis of 371 job advertisements in terms of what employers articulate as requirements for applying to graphic design positions in Brazil. We classify the requests in the advertisements in terms of (1) design deliverables, (2) knowledge and skills and (3) personal traits. We also explore the possibilities of using the content found in advertisements for educational developments by having design educators compare our resulting classification with guidelines for graphic design education as outlined in an educational policy document from the Brazilian Ministry of Education. The document of study regulates and defines the requirements for institutions providing design education in Brazil.

Brazil is considered one of the 'emerging important players' in design, as noted in a benchmark report from Cambridge University (Moultrie & Livesey, 2009, p. 24). Design education in Brazil began formally in 1963 with the foundation of ESDI (*Escola Superior de Desenho Industrial*) in Rio de Janeiro and has since then spread to a range of educational institutions. Nowadays, there are more than 200 undergraduate bachelor courses in the country offering around 55.000 study places for new students every year (Moraes, 2014; Sebrae, 2014). In terms of exploring the labour market requirements facing design graduates, the skill set needed to operate as a designer in Brazil has been addressed in a number of studies. The design practice and education in the country was explored by Naveiro and Pereira (2008), who found that design graduates were seen to lack skills in areas such as negotiation, project management and production process. The authors also found that design graduates were seen to hold adequate skills in areas such as design and visual methodology, software and ergonomics. Similarly, in assessing how Brazilian academics (students and teachers) and companies value different design skills, Dziobczenski and Galeotti (2017) found that designers are highly valued for their tactical and operational skills (i.e. software and layout skills), while more strategic design skills, such as business and leadership skills, were less valued by companies. In analysing the requirements listed in the job advertisements, we add to past studies by providing a focused perspective on the early stages of recruitment in Brazil by inquiring into how employers articulate their interest in design when advertising for graphic design positions.

Job advertisements represents an emergent area for research on design. Past studies have addressed the requirements listed by employers in recruiting designers by studying job advertisements from the United Kingdom (Dziobczenski & Person, 2017), the United States (Ramírez, 2012) and Taiwan (Yang, You, & Chen, 2005). Job advertisements provide information about the requests made by multiple companies seeking for new professionals and has been used to study labour market requirements in a range of disciplines (for a review into research with job advertisements, see Harper, 2012). For example, job advertisements have long been used to study the requirements on management (e.g. Gatewood, Gowan, & Lautenschlager, 1993) and technology (e.g. Todd, McKeen, & Gallupe, 1995) professionals. Yet, to date, no study has used job advertisements to study how labour market requirements are formulated for designers in Brazil. Further, while the results of past studies on job advertisements in design often hold implications for design education, how to practically use the content of job advertisements in educational developments has to date not been addressed in great detail. Hence, in benefiting developments in both academia and practice, we set to address the following research questions: *(1) What is the skill set requested by Brazilian companies in advertising for graphic designers? (2) How are the requests made by companies in job advertisements covered in a design education policy document?*

Our study is relevant for design educators and practitioners in both Brazil and abroad. Davis (2008) notes that what is requested from industry is important for educators to consider in anticipating professional developments and preparing students. Studies suggest that new design graduates in Brazil struggle to find positions in industry (see e.g. Naveiro & Pereira, 2008). Our study provides a contemporary perspective on how the work of graphic designers is described by Brazilian employers. Design educators can use our resulting classification in reviewing the content of their educational practices; potentially, strengthening the immediate employability of students by considering the

requests of companies in preparing graphic design curricula. Design practitioners can use our results for self-improvement activities; using the requests to tailor their offerings to companies and their own professional developments.

2 Method

We replicated and extended the research approach followed in our prior study in the United Kingdom (Dziobczenski & Person, 2017) in analysing the requests made in job advertisements for graphic design positions in Brazil. We pursued a document analysis of job advertisements in which we combined thematic and content analysis. Document analysis is a systematic form of analysing printed and electronic texts created without the researchers' intervention (Bowen, 2009). Next, in exploring the possibilities of more systematically using the content of advertisements for educational development, we performed a group interview with design educators to understand how the requests in the studied advertisements potentially were covered in a design education policy document. Both job advertisements and the policy document provide natural occurring data (Ritchie, Lewis, Nicholls, & Ormston, 2013), written to the interest of recruiters/candidates and design educators/students.

2.1 Job advertisement analysis

We collected job advertisements publicly available online over a period of 5 weeks (8th of June to 8th of July, 2015). We selected 5 websites that cover both generic and design specific job boards to improve our coverage of job opportunities for graphic designers in Brazil. The generic job boards websites were LinkedIn (www.linkedin.com.br), Indeed (www.indeed.com.br) and Infojobs (www.infojobs.com.br). The specific job boards websites were Trampos (www.trampos.co) and Adonline (www.adonline.com.br).

We manually collected job advertisements posted on the websites once a week by doing keyword searches: (1) 'Graphic designer' (*designer gráfico* in Portuguese) in the job title and (2) 'Designer' in the job title and 'graphic design' (*design gráfico* in Portuguese) in the job description. We then performed two refinements of our dataset. First, as companies often publish the same job advertisement in different websites to attract more candidates, we removed duplicate job advertisements from the data set. Second, we only included the positions which had the word 'graphic' in the job title (e.g. graphic designer, web graphic designer, graphic design internship). Following these steps, our initial dataset was reduced to 371 unique job advertisements which we analysed further. The total number of words in the data set is 50,838, with an average of 135.8 (SD = 60.36) per advertisement.

We began by building a coding scheme to analyse the frequency of different types of requests in the advertisements. The coding scheme was created inductively in a process in which the first and fourth authors thematically analysed a subset of the job advertisements (40%). The advertisements were analysed in terms of what was requested from applicants following a first round of in-vivo coding. An initial set of reoccurring themes – depicting what was requested from applicants in the advertisements – was then established in meetings with the other two authors.

Similar to our earlier study, we were inspired by the conceptual learning model presented by Voorhees (2001) in bringing structure to the different types of requests (themes) in the advertisements. In brief, Voorhees (2001) summarises how learning and evaluation takes place in education through a four-level pyramidal model in which, from the base, (1) personal traits and characteristics form the foundation for learning; (2) knowledge, skills and attitude are built through learning practices in education; (3) competencies are abilities that are produced from the learning and finally (4) an outcome is produced to be evaluated (by teachers and peers). Following a similar progression, we structured the different types of requests in the advertisements on three levels: (1) Design deliverables that cover the references to the outcomes produced by graphic designers (i.e. what designers are hired to deliver), (2) Knowledge and skills that cover the references to the

abilities needed to execute design work, and (3) Personal traits that cover the references to the individual characteristics which potentially form the foundation to work as a designer in Brazil. The three levels are similar with those used to structure the data from the United Kingdom.

After building an initial coding scheme, we deductively applied it to the whole data set. In extending the methodological procedure from our prior study (Dziobczenski & Person, 2017), we involved multiple coders and assessed the reliability - and understanding of the coding scheme - through intercoder agreement using Krippendorff's Alpha. In specific, we selected a sub-set of the data (20%), which was coded independently by the first and fourth authors. In order to reduce the mistakes in the coding process, each job advertisement was read and coded in terms of requests for (1) Design deliverables; (2) Knowledge and skills; and (3) Personal traits. In other words, each job advertisement was read at least three times when applying the coding scheme. The intercoder agreement across the two coders was 0.801, which is considered reliable according to Krippendorff (2013). After assessing the agreement, the authors discussed the differences in the coding process and made the necessary corrections. The remaining advertisements in the dataset (80%) were then divided equally and coded by the first and fourth authors. Following this process, we applied the coding scheme; comprising 55 different types of requests (themes) divided across three groups: (1) Design deliverables; (2) Knowledge and skills and (3) Personal traits. The requests for Knowledge and skills were further organised into five themes: (a) Conceptual design skills; (b) Content skills; (c) Process management skills; (d) Software skills and (e) Technical design skills. In unveiling the significance of different requests in the advertisements, we ranked the different types of requests according to their frequency within their respective group or theme. Given the educational interest of our inquiry, we also coded the presence/absence of requests for a degree in graphic design or related fields (such as web design and advertisement).

Next, we reviewed the frequency distribution of the coding scheme across our data set in assessing the significance of different types of requests and, when possible, reducing the amount of codes. When there was agreement among the authors, we decided to merge similar requests with lower frequencies. The goal was to make our coding scheme more accessible to others, including design educators and practitioners.

2.2 Interview with design educators

We carried out a group interview with two design educators (5+ and 20+ years of experience) to explore the broader educational relevance of our coding scheme. The educators currently have teaching management positions within a design department at a University in Southern Brazil.

The aim of the interview was to search for overlaps between the contents of the job advertisements with a document from the Brazilian Ministry of Education. We relied in the last version of the educational policy document 'Guidelines for undergraduate programmes in design' (*Diretrizes Curriculares Nacionais do Curso de Graduação em Design* in Portuguese) published in 2004. The studied document, written the Brazilian Ministry of Education, regulates and defines the requirements for institutions providing higher design education in Brazil. Both interviewees were familiar with the document prior to the interview. We selected sections of the document that describe the students' intended profile upon graduation and the knowledge and competencies that should be developed.

The interviews were conducted by the third and fourth authors, who briefed the design educators about the task and facilitated the discussion. Initially, cards with the different types of requests unveiled in the first part of the study were given to the interviewees. Each card had a short description of each type of request and examples of sentences from the advertisements. We also provided a blank card for the case where the content found in the policy document would not match the types of requests included in our coding scheme. Next, the interviewees were asked to assign the different types of requests to the selected sections of the document. In doing that, our goal was to understand to what degree the requests in the advertisements were covered in the policy

document. The interview lasted 1.5 hour. Several overlaps in content were identified, such as the same code being related to several parts of the document. Therefore, a second interview session was organized to solve doubts in the process; it lasted an hour. A third and senior design educator with more than ten years of experience evaluated the result of the group interview during a meeting with the third author, judging content adequacy within each one of them.

3 Results

Our analysis resulted in a coding scheme which outlines the requested skill set of graphic designers in 35 codes. We structure the requests in terms of (1) Design deliverables; (2) Knowledge and skills and (3) Personal traits (for a detailed description of the different types of requests covered in each sub-theme see Appendix). We found requests for a degree in design or a related field in 203 (54.71%) job advertisements.

The Design deliverables (see Table 1) provide an overview of the main outcomes that are expected from graphic designers in the advertisements. Our analysis resulted in eight types of request (themes) that cover both physical and digital end-results produced by graphic designers. In relation to physical outcomes, our themes cover requests for an ability to deliver (1) 'Print design' in general, such as flyers, advertisings, posters; (2) 'Editorial design', (3) 'Packaging design' and (4) 'Signage and Point-of-sale (POS)' materials. In relation to digital outcomes, the types of requests cover an ability to deliver (5) 'Digital design' in general, such as websites, newsletter, digital interfaces and (6) 'Video and animation design'. In addition to physical and digital outcomes, two types of requests cover more holistic design outcomes in terms of holding an ability to deliver (7) 'Brand design' outcomes, such as visual identity and logos, and (8) 'Service design'.

Table 1: Distribution of each code across the dataset in the 'Design deliverables' theme

Design deliverables	%
D.1 Print design	56.87
D.2 Digital design	45.01
D.3 Brand design	21.83
D.4 Editorial design	16.71
D.5 Packaging design	9.43
D.6 Video and animation design	7.28
D.7 Signage and POS design	5.39
D.8 Service design	0.27

In terms of Knowledge and skills (see Table 2) that support the delivery of different design outcomes, our analysis resulted in five different themes: (1) Conceptual design skills; (2) Process management skills (3) Content skills; (4) Technical design skills and (5) Software Skills. In total, we distinguish 23 different types of requests across the five themes in our data set of job advertisements. The requests for Conceptual design skills cover references to 'Business', 'Concept design', 'Design thinking', 'Problem solving', 'Research' and 'User experience (UX)'. Process management skills covers references to an ability to lead and manage the design process in terms of 'Client relationship', 'Project management' and 'Teamwork'. Content skills cover requests for graphic designers in developing and reviewing text in both native and foreign languages. Technical design skills hold the requests for operational skills in terms of 'Coding', 'Design for web', 'Illustration', 'Layout', 'Photography' and 'Production and materials'. Lastly, in capturing skills in digital tools for design work, Software skills cover the references to skills and knowledge in '2D', '3D', 'Animation', 'Office' and 'Web' software.

Table 2: Distribution of each code across the dataset in the 'Knowledge and skills' themes

Conceptual design skills	%
K.1 Concept design	6.74
K.2 Business	2.70
K.3 Problem solving	2.70
K.4 User Experience (UX)	2.16
K.5 Research	1.62
K.6 Design thinking	0.54
Content skills	%
K.7 Foreign language	11.32
K.8 Native language	7.55
K.9 Content creation	6.20
Software skills	%
K.10 2D software	68.19
K.11 Office software	23.45
K.12 Animation/video software	11.32
K.13 Web software	7.28
K.14 3D software	2.70
Process management skills	%
K.15 Teamwork	13.75
K.16 Project management	7.28
K.17 Client relationship	1.62
Technical design skills	%
K.18 Layout	39.08
K.19 Photography	23.99
K.20 Production and materials	20.49
K.21 Coding	10.78
K.22 Illustration	7.28
K.23 Design for web	5.12

Request for Personal traits (see Table 3) - which potentially support learning and professional practice - were found in a smaller sub-set of the advertisements. We identified four reoccurring types of requests in the advertisements in terms of that suitable applicants should hold 'Acumen', 'Aesthetic sense', 'Creativity' and being 'Self-driven'.

Table 3: Distribution of each code across the dataset in the 'Personal traits' theme

Personal traits	%
P.1 Acumen	12.40
P.2 Self-driven	10.24
P.3 Creativity	9.70
P.4 Aesthetic sense	1.35

3.1 What is most frequently expected from graphic designers?

The most frequently referenced Design deliverables across the advertisements is 'Print design' (D.1) in terms of designers being expected to produce print outcomes such as such as flyers, advertisings and posters. Regarding the Knowledge and skills, the most frequent requests are 'Concept design' (K.1), 'Foreign language' (K.7), '2D Software' (K.10), 'Teamwork' (K.15) and 'Layout' (K.18). The most frequently referenced Personal trait is 'Acumen' (P.1).

3.2 How the requests in the advertisements are covered in the educational policy document?

During the interview with the design educators, the interviewees merged the content of our original coding scheme into nine new groups in considering their similarities and in allowing for a more consistent connection with the content of the governmental document. The grouping of requests emerged unprompted. For the remainder of this paper, we treat the groups created by the interviewees as representing Graphic design competencies (see Table 4) in the sense that they seemed to have emerged to comprise '(...) a combination of skills, abilities, and knowledge needed to perform a specific task in a given context' (Jones & Voorhees, 2002, p. 1). The grouping of the 'Design deliverables' does not directly adhere to this definition in combining the different types of design outcomes from our initial analysis but was treated similar to the other groups by the interviewees in comparing the requests with the content of the policy document.

Table 4: Distribution of groups and codes following the 'Graphic design competencies' grouping

Graphic design competencies	Formed by the following codes	% across the dataset
C.1 Representation	2D Software (K.10), 3D Software (K.14), Aesthetic Sense (P.4), Animation Software (K.12), Illustration (K.22), Layout (K.18), Office Software (K.11), Photography (K.19), Web Software (K.13)	84.10
C.2 Design deliverables	Brand design (D.3), Digital design (D.2), Editorial design (D.4), Packaging design (D.5), Print design (D.1), Service design (D.8), Signage and POS design (D.7), Video and animation design (D.6)	78.71
C.3 Production and management	Production and Materials (K.20), Project Management (K.16)	24.80
C.4 Relationship	Business (K.2), Client Relationship (K.17), Teamwork (K.15)	17.52
C.5 Concept generation	Concept Design (K.1), Creativity (P.3), Problem Solving (K.3)	17.25
C.6 Language	Foreign Language (K.7), Native Language (K.8)	15.09
C.7 Digital/web	Content Creation (K.9), Design for Web (K.23), User Experience (K.4)	12.40
C.8 Research	Research (K.5)	1.62
C.9 Design thinking	Design Thinking (K.6)	0.54

In short, the resulting competencies are as follows: 'Concept generation' covers the types of requests that revolve around tasks of conceptualising and solving design problems. 'Design deliverables' groups all the outcomes that graphic designers are expected to produce. 'Design thinking' captures the methodological references in the advertisements. 'Digital/web' describes tasks related to building digital material. 'Language' refers to fluency in native and foreign languages. 'Production and management' merges themes in relation to technical aspects of the design work. 'Relationship' groups references to collaboration with other professionals in the advertisements. 'Representation' groups requests about skills and knowledge needed to execute graphic design work. 'Research' refers to the task of investigating clients, competitors and trends.

In reviewing the educational policy document, the interviewees connected all the new groups – i.e. graphic design competencies – to at least one section of the document (see Table 5). The different types of requests and competencies were assigned to specific sentences of the document. For the sake of brevity, we only report how the competencies as formed by the educators were seen to be covered in the policy document.

Table 5: Assignment of graphic design competencies in the design policy document. Translated by the authors. The original document in Portuguese is available at the Ministry of Education website: http://portal.mec.gov.br/cne/arquivos/pdf/rces05_04.pdf

Section from 'Graduate profile'	Competencies assigned
[Graduates must have] the training to allow their appropriation of reflexive thinking and artistic sensibility, to prepare the designer to be able to produce projects that involve visual, artistic, aesthetic, cultural and technological information systems, observing historical fit, cultural traces and communities' development, and users' characteristics and their socio-economic and cultural context.	Concept generation (C.5), Design deliverables (C.2), Digital/web (C.7), Production and management (C.3), Representation (C.1), Research (C.8)
Sections from 'Competencies and knowledge'	Competencies assigned
Creative ability to propose innovative solutions, using creation techniques and processes.	Concept generation (C.5), Design deliverables (C.2), Representation (C.1)
Capability to master their own language, expression concepts and solutions in their projects, according to diverse expression and visual reproduction techniques.	Design deliverables (C.2), Digital/web (C.7), Representation (C.1),
Ability to Interact with professionals from other fields to be able to use different knowledge and act in interdisciplinary teams to elaborate and develop research and projects.	Production and management (C.3), Research (C.8)
Project systemic view, showing the ability to conceptualize it from the combination of diverse tangible and intangible components; production processes; and economical, psychological and sociological aspects of the product.	Concept generation (C.5), Design thinking (C.9), Relationship (C.4)
Knowledge of different steps of a project: setting objectives, data collection and analysis techniques, idea generation and evaluation, solution configuration and communication of results.	Digital/web (C.7), Language (C.6) Representation (C.1)
Knowledge of the productive sector, revealing solid market sectorial view, materials, productive processes and technologies, including furniture, garments, shoes, jewellery, ceramics, packaging, artefacts of any nature, society's cultural traits, software and other regional aspects.	Design deliverables (C.2), Production and management (C.3), Representation (C.1),
Knowledge about production management, including quality, productivity, factory layout, inventory, costs, investments, as well as human resources administration for production.	Production and management (C.3),
Historical and prospective mind-set centred on socio-economic and cultural aspects, revealing awareness of economic, social, anthropological, environmental, aesthetical, and ethical implications of their activities.	-
Sections from 'Educational contents'	Competencies assigned
Basic contents: Art and design history in its sociological, anthropological, psychological and artistic contexts, including design methods and techniques, (visual) representation methods, communication and information, studies of the relationship between user/object/environment, studies of materials, processes, administration, and other relationships with production and market.	Concept generation (C.5), Design deliverables (C.2), Digital/web (C.7), Language (C.6), Production and management (C.3), Representation (C.1), Research (C.8)
Specific contents: Studies that involve artistic and industrial production, visual communication, interface, fashion, garments, interior design, landscaping, design, and other artistic outcomes that reveal adequate use of spaces and personal satisfaction.	Design deliverables (C.2), Digital/web (C.7), Production and management (C.3)
Theoretical-practical contents: Integration between theory and professional practice, as well as peculiar performance in a supervised internship, including complimentary activities that fit the desired graduate profile.	All competencies

Three types of requests from our initial analysis were not connected to any part of the document – ‘Coding’, ‘Acumen’ and ‘Self-driven’. One section of the document was not covered by the resulting competencies of the interviewees: ‘Historical and prospective mind-set centred on socio-economic and cultural aspects, revealing awareness of economic, social, anthropological, environmental, aesthetical, and ethical implications of their activities.’ Even though it was not explicitly observed in the job advertisements, our interviewees pointed out that all contents in the section represent important knowledge to be acquired by students to deliver high quality design work which holds broader societal implications.

4 Discussion

The results of our study describe what is requested by Brazilian employers in advertising for graphic design positions. Through an analysis of 371 advertisements, we unveiled different types of requests and themes, which we structured across (1) Design deliverables, (2) Knowledge and skills and (3) Personal traits. The structure of our resulting coding scheme overlaps with the one we built in our prior study in the United Kingdom. The specific requests associated with each group were then re-grouped to form broader Graphic design competencies during an interview when design educators were asked to compare the requests in the advertisements with the requirements stated in a design education policy document. Through our analysis of the job advertisements and the educational policy document, we discuss the scope of graphic design in Brazil. We also explore a new path in potentially bridging the gap between academia and practice empirically.

In response to our first research question - *What is the skill set requested by Brazilian companies in advertising for graphic designers?* - our results indicate that employers in Brazil predominantly seek graphic designers for operational activities; ‘Representation’ as a competency comprising the skills and knowledge needed to execute graphic design work was present in the majority (84.1%) of the advertisements. Concurrently, the five most frequent types of requests across the advertisements were for skills and knowledge in ‘2D Software’ (68.19%); ‘Print design’ (56.87%); ‘Digital design’ (45.01%); ‘Layout’ (39.08%) and ‘Photography’ (23.99%). We also found that requests for more strategic and/or managerial skills and knowledge were only to a very limited extent referenced in the advertisements. For example, references to knowledge in ‘Business’, ‘Problem solving’ and ‘User Experience’ were present in less than five percent of the advertisements in our data set. The results of our study are similar to the outcome of the survey by Dziobczenski and Galeotti (2017) in which Brazilian companies reported to value the tactical and operational skills of designers (i.e. software and layout skills), while more strategic design skills such as business and leadership were found less valued.

The interest of Brazilian employers in the operational skills of designers is similar as the interest of employers in other countries. Three of the five most frequent request we found in this study were also among the five most frequently requested in our study of graphic design advertisements in the United Kingdom (Dziobczenski & Person, 2017): ‘2D Software’, ‘Print design’ and ‘Digital design’. Similarly, when studying the requirements posted for industrial design professionals, Yang, You, and Chen (2005) noted that ‘2D Software’ and ‘3D Software’ were among the most frequent requests listed by companies in Taiwan. Overall, these findings from studies on job advertisements also align with the result of the survey conducted by Bohemia (2002) in which companies were found to often seek for operational (product-related) contributions from designers. At the same time, there is a growing body of research in design that suggests that designers can occupy a more strategic role in companies (e.g. Perks, Cooper, & Jones, 2005; Valtonen, 2016), which suggest that further studies are needed to better understand the origin of current perceptions about graphic designers in Brazilian companies.

In response to our second research question - *How are the requests made by companies in job advertisements covered in a design education policy?* – the interviewees could relate most of the request in the advertisements with the sections we had selected from the document by the Brazilian

Ministry of Education. Exceptions were 'Coding' (K.21), 'Acumen' (P.1) and 'Self-driven' (P.2) which were not assigned to any specific section. The lack of references to 'Coding' in the policy document might be explained by the fact that the educators described it as non-central to design and, from that perspective, 'Coding' might be perceived to not be part of the scope of design education in Brazil. The lack of references to 'Acumen' and 'Self-driven' might derive from the fact that they refer to personal characteristics that might be hard to regulate. Besides these exceptions, all the Graphic design competencies were assigned to at least one part of the document. Based on that, we can assume that the document which regulates the design education in Brazilian tends to mention the vast majority of the requests found in the job advertisements. Given this, graphic design programmes in the country could also be seem to, at large, be instructed to prepare their graduates in a similar way to how companies voice their requirements on future employees in job advertisements.

4.1 Limitations and future research

In this study, we reencountered a number of the methodological challenges and opportunities for future research from our document analysis of job advertisements from the United Kingdom (Dziobczenski & Person, 2017). However, we also surface a number of new opportunities in terms of how to compare the content of different types of documents. As a result, we summarize our suggestions for future research in two main areas below.

First, the limitations that follow our sampling of job advertisements surface questions about what the studied documents reveals about the professional requirements placed on graphic designers in Brazil. Most visible perhaps, we limited our data collection and analysis following two criteria; the studied job advertisements should have been published online and contain the word 'graphic' in their job titles. We found a large share of open positions for designers published online on both the design specific and generic job boards. Yet, similar to the limitations of our earlier study, we recognise that a portion of the job openings available for graphic designers in Brazil might not be published online and/or under titles containing the word 'graphic'. Future research could therefore be directed towards understanding the channels for written recruitments in Brazil and elsewhere to better understand how requirements on graphic designers are articulated in job advertisements. In terms of analysis, we also acknowledge that job advertisements are documents that are built to attract qualified candidates to apply for open positions. For example, companies use 'appropriate' words in order to convince and attract candidates (Backhaus, 2004). Yet, with no practical possibilities to access all the companies and people behind the documents for our study, we could not make an informed judgement about the intentions behind different requests. To this end, we suggest that future studies could evaluate our results (and the frequencies we uncovered) as well as device their own studies together with recruiters of design professionals to better account for the different language practices that are present in job advertisements.

Second, the different ways requirements are written up in job advertisements and policy documents surface questions about how to compare the content of the documents. The two documents gave us the advantage of working with data in its natural form and context. The diversity of the requests present in the advertisements resulted in a coding scheme comprising 35 different types of requests (codes). Applying a coding scheme with a higher number of codes proved to be a complex task. In accounting for this complexity, we pursued multiple rounds of coding and had multiple coders. We also asked experienced design educators to assist us in comparing the different types of requests in the advertisements with what was stated in the policy document. The comparison produced the re-grouping of our initial results in broader competence areas. The re-grouping holds research opportunities about how to effectively organize and present different types of requests in more open-ended studies on job advertisements. Further, in needing to re-group different types of requests, we also note that the high amount of codes initially posed a challenge for the educators in comparing the fit between what was written in the two types of documents. In short, the documents have different purposes and audiences which are not immediately comparable. While job

advertisements provide details about the skills and activities needed to apply for a position, the content of the policy document is formulated in such a way that it can be meaningfully translated into different undergraduate programmes and courses by design educators across the country over time. To this end, in recognizing the complexity that surfaced in comparing the documents, future studies could further explore how requests and requirements are formulated in different types of documents to acquire a richer understanding about (a) how educators are instructed to prepare their students (in e.g. programme and curricula descriptions) in relation to what is requested in job advertisements and (b) how to facilitate this comparison.

4.2 Job advertisements as a source of knowledge for design education and practice

Design educators in Brazil are in many ways tasked to shape how Brazilian society and industry perceive the role and responsibilities of designers. As for educators in other countries, the task is problematized by the fact that the scope of graphic designers' work is changing, making the specific skill set needed to work as a graphic designer a topic of debate among both educators and practitioners. The results of our study - and the process we followed - provides here an empirical reference point in potentially refining current perceptions about design in Brazil. In the short-term, design educators may for instance see our resulting coding scheme - and the frequency associated with different codes - as an overview in planning courses and programmes that better respond to the immediate needs of industry. Design graduates and students need to possess a large share of competencies, knowledge and skills and personal traits when applying for positions in industry, and our analysis of the advertisements could here provide guidance in considering about what to cater to in design education.

In thinking about the scope of design in Brazil and abroad, it is important to note that design education cannot only cover what is being requested by industry in the present. Design education need also to engage with the vision and perceptions of designers in the future. In specific, the requests made by companies in their job advertisements provide a short-term view on the profession, as the recruitment typically occurs in a few weeks/months after the position is advertised. However, with only a smaller subset of the advertisements referencing more strategic and managerial skills, design educators need also to consider the long-term skill development of both the individual and the profession in planning curricula. To this end, we reiterate the short-hand nature of the requested uncovered and encourage educators to strategically monitor, challenge and change such requests. Similarly, we hope that design practitioners may consider our results as a reference in both self-development and -promotion. The evolving nature of the design profession makes it a necessity for practitioners to continuously review and update their skill set and offerings to clients and, in doing so, our results provide an evidence on how the work of designers is described in Brazilian recruitments and how such discussions can be followed through job advertisements.

That said, to conclude, it is important for policy-makers, design educators and practitioners to remember that the labour market for designers is in many ways global and that designers seek for positions and clients not only in their home country but also abroad. To this end, we conclude that monitoring the interest of industry should not only take place on a local level but also in comparison to developments in other countries. Job advertisements provides here an accessible and efficient way for professionals, educators and policy-makers to engage with developments in different countries in terms of what skills and knowledge companies articulate for designers.

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