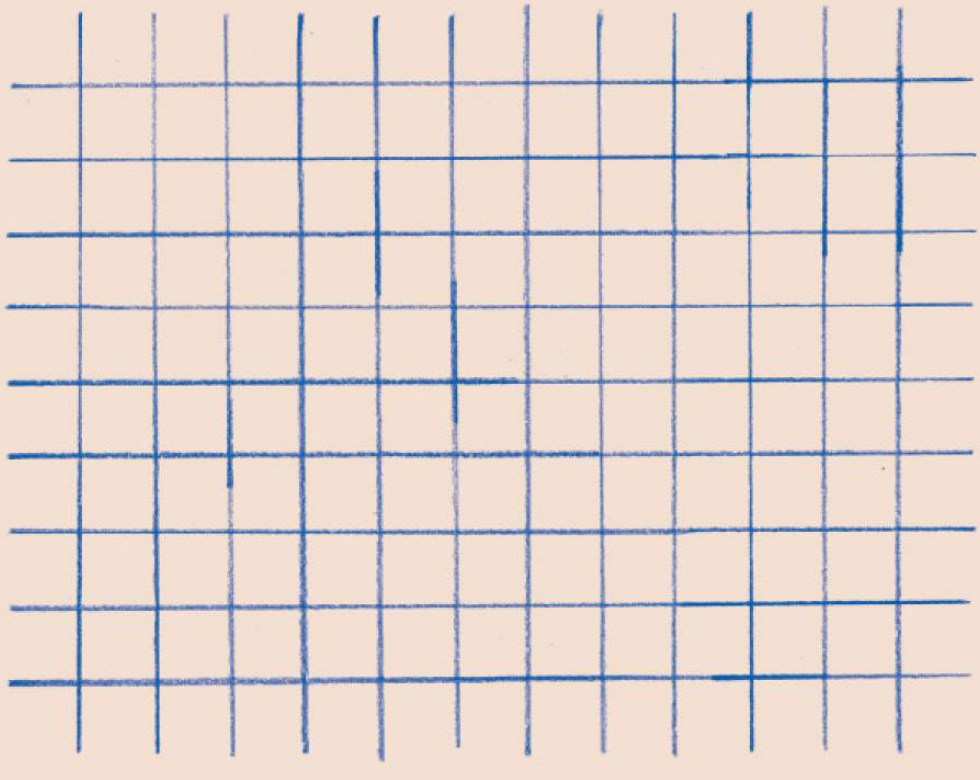
COMMUNICATION DESIGN
INTERDISCIPLINARY AND GRAPHIC DESIGN RESEARCH

V5|1+2 MAY–NOVEMBER 2017



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COMMUNICATION DESIGN
INTERDISCIPLINARY AND GRAPHIC DESIGN RESEARCH
Volume 5 Numbers 1–2 May–November 2017

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CONTENTS

Visual Essays

In the Archive

Reviews

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 5–20
https://doi.org/10.1080/20557132.2017.1398924

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Uncovering the importance of soft skills in user interface design-related fields

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ABSTRACT

In this article, the authors interrogate what core competencies are expected of designers as they enter into user interface design-related fields. Using contextual interviews and an online survey of design practitioners as a basis for our analysis, we argue that soft skills need to be viewed as a tool in and of themselves, one that is critically important to transitioning students from academic to industrial contexts. Before analysing the results of our research, we offer a definition of skills, apply those skills to user interface designers, and suggest using the term 'malleable skills' to understand the murky distinction between hard and soft skills. We then offer some suggestions for more research related to shaping academic design programs.

ARTICLE HISTORY
Received 27 February 2017
Accepted 14 October 2017

KEYWORDS
Design education; hard skills; soft skills; malleable skills; interaction design; user interface

Introduction

In post-industrial societies where 'design' has become central to functioning economies[1] the discussion about the relationship between academia and contemporary design practice is pervasive. This discourse unfolds in academic articles like Grant Elmer's 2015 investigation of project-based learning, which reveals the importance of fostering structured critical reflective practices, or Jacqualyn Blizzard et al.'s study of college students 'that correlated design thinking with higher achievement'.[2] Design education is also a persistent topic at various design conferences like American Institute of Graphic Arts' (AIGA's) Design Educator Conferences and Interaction Design Association's (IxDA) Education Summit. Finally, this discourse is found on industry professionals' websites, blogs, and message boards. For instance, design practitioners often discuss the 'specific skills' they will need to become user interface and user experience designers.[3]

Within contemporary design education, there are conversations about how to train students in a diverse set of areas: the importance of technical skills, preparing students for 'real world' contexts, and the need to prepare designers-in-training to be thoughtful, critical citizens and refined makers. As a way to engage with these conversations, we set out to investigate what core competencies are expected of designers as they enter contemporary design industries. For the purposes of this this article, we limited our approach to North

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America and fields concerned with user interface design (computers, kiosks, websites, mobile screens). This has traditionally included titles such as: Visual Designer, UI Designer, Interaction Designer, Web Designer, Information Designer/Architect, and User Experience Designer.

To do this we paired in-person contextual designer interviews and an online survey investigating contemporary design practices. In 2015, one of the authors, Aaron Ganci, conducted a series of contextual interviews with professional design teams from North America to investigate which competencies are critical within contemporary design practice.[4] Additionally, in 2016, both authors jointly created an online survey to better understand professional expectations in user interface design-related fields.[5]

In the review of our collected data, skills necessary for the development of user interface designers were revealed that fell along the traditional spectrum between hard and soft skills. For the purposes of this article, we define hard skills as domain-specific, measurable technical skills – learning specialized tools, methods, knowledge. We define soft skills as those relating to the less tangible aspects of the design profession such as interpersonal and attitude attributes. These definitions mean that soft skills skew toward human-centred skills and hard skills skew toward more technically-centred skills. However, the line between the two is often blurry at best. The need for competence with skills that do not fit neatly into categories of hard and soft stood out as being important for designers-in-training. To address this, we offer the phrase 'malleable skills' as a way to discuss skills that either seem to have both hard and soft qualities or require an integration of both.

If we ask what tools are required for academic curricula to be future-facing, it is our belief that more attention needs to be placed on the role softer skills play in the development of design students. While we believe that hard skills are important within the overall context of design education, the emphasis on soft skills comes from a review of our data. We argue that soft skills should be viewed as essential tools in and of themselves and this is important to the future of transitioning students from academic to industrial contexts.

We first explain our definition of soft skills as it relates to the Creative Industries before explaining the methodologies and findings of our studies. Finally, we will point to limitations of investigating design practice and offer some thoughts on expanding our tentative findings.

Design skills in the creative industries

There has been discussion about what skills are necessary for twenty-first century workers in post-industrial economies. Specifically, this relates to the rise in importance of 'creativity' in the workforce as a marker of distinction.[6] As noted by scholars like Terry Flew and John Hartley, Creative Industries are involved in the creation, production, and distribution of goods and services that are built on the innovative manipulation of materials and ideas. These industries are not just limited to the 'high arts' but, rather, to a general reworking of many aspects of post-industrial economies toward the design phase of goods and services.[7] Creativity is central to economic success in a range of industries, as products and services compete for scarce attention in economies ruled by the 'pretty good problem' – making something stand out as being remarkable in a crowded field of similar goods or services.[8] The concept of design is seen to be deeply involved with the application of 'creativity' to business contexts.[9] With all this in mind, the question then becomes: What skills are relevant to workers in Creative Industries?

Historically, skills in a business context have been broken down into categories of hard and soft.[10] Parsing out the distinctions between hard and soft skills is difficult, because, as Miriam Matteson et al. state, there is 'little agreement' on the strict categorizations for these terms.[11] In its broadest sense, a skill can be defined as the ability to access knowledge and use that knowledge to perform an action or carry out a task.[12] Hard skills generally refer to the ability to learn measurable technical processes. Hard skills often involve 'the understanding of, or proficiency in, specific activities that require the use of specialized tools, methods, processes, procedures, techniques, or knowledge'.[13] Soft skills are more difficult to measure but appear to be equally essential to the modern worker. Soft skills are often equated with human-centred skills, such as the ability to communicate effectively, to work cooperatively with others, and to be a team player. Skills that skew toward being unmeasurable by various metrics are, by definition, ill-defined. Thus, skills that skew soft tend to vary widely between industries.

However, 'creativity' doesn't seem to fit neatly into either category. A sociocultural definition of creativity defines it as the 'generation of a product that is judged to be novel' as well as 'appropriate, useful, or valuable by a suitably knowledgeable social group'.[14] Related to the design industry, creativity seems to include both measurable and unmeasurable aspects. In many ways, creativity can be assessed through methods like the Consensual Assessment Technique (CAT). This method uses the opinions of expert judges to evaluate creativity and has been used to assess the value of creativity in design evaluation.[15] However, these same methods of assessing creativity are not broadly applicable and based on negotiated notions of quality set by context and design participants from a range of socio-cultural backgrounds. To this point, Henri H.C.M. Christiaans says that it is helpful to rely on 'experts' to judge design but 'creativity remains dependent on subjective judgement'.[16] To us, this suggests that creativity can be measured within very specific instances but is largely unmeasurable in a global sense.

This would mean that creativity is not easily identifiable strictly as a hard or soft skill. To address this, we offer the phrase 'malleable skills' as a way to discuss skills that seem to have both hard and soft qualities. Building on this, it seems that many design skills such as presentation skills, aesthetic taste, and design thinking don't wholly fit under hard or soft skills. For example, presentation skills that designers use when pitching ideas to clients straddle the dividing line between hard (clear, teachable presentation paradigms) and soft (the ability to read a room, connect with people, and shift approach accordingly) skills. Aesthetic taste seems to be very similar to creativity in that it can be agreed upon but seems to have no universal value (all apologies to Immanuel Kant). Identifying design problems, like the use of design thinking methodologies, is a conceptual skill that is given measured structure but contains elusive moments of creativity. This means that many design-oriented skills live on a spectrum that exists between the neat and tidy categories of hard or soft.

The skill set for user interface design-based workers

Defining the skill set of a 'user interface design-based' worker is challenging due to the diverse nature of job titles, different working environments (from start-up to corporate), and the rapid pace of change in design fields. For instance, some suggest that the ideal skill sets of design workers has shifted from T-shaped design skills (expertise in one area and broad understanding in others) to M-shaped skills (deep expertise in a range of areas).[17] Put simply:

what one employer asks of a designer may be very different from another employer. And the same job title at two different employers in the same field may ask for different skills.

For this reason, there is a need to define what we mean by user interface design-based worker. To us, this worker lives on a spectrum that ranges from visual design to interaction design and is primarily concerned with the visual presentation and organization of screen interfaces. This worker could reasonably be responsible for: wireframing, branding, colour and font selection, prototyping, and user research. S/he also might have coding responsibilities or, more likely, might be on a team with others who do. This worker is required to be steeped in traditional graphic design, information design, and different approaches to understanding users. This means that this worker will potentially need to have both UI and UX skills. What is left out of this definition are people who identify first as coders (front-end developers) or researchers (UX researcher).

In user interface-related design, we tend to think of hard skills as those related to the act of making. Thus, the hard skills of this type of worker would include: the ability to manipulate an image, format typography, apply colour, develop grid systems, and use tools for prototyping. Malleable skills would most prominently be design thinking methodologies, presentation skills, and aesthetic taste. Finally, soft skills for designers can be rather diverse. For instance, the designer Andy Pratt, in a post on *Medium*, asks for advice from 'several top designers' on what soft skills they would recommend to new designers.[18] They list: fearlessness, keeping your design mind open, time management, humility, being gentle with yourself, love to learn, take charge, show respect, curiosity, learn to give and receive feedback, embrace other's ideas, empathy, resiliency, and listening. Thusly defined, let's now turn to our research to see what skills are valued by user interface design-based workers.

Contextual interviews

Methodology

In 2015, a series of in-person contextual interviews were conducted with designers and design teams (see Appendix 1). The purpose of these interviews was to understand the role of user interface design-based workers inside contemporary digital production environments, specifically in the interdisciplinary creation of websites and software. In total, 49 designers from 22 organizations were interviewed in three cities: San Francisco, New York City, and Chicago. Involved organizations include Google, Adobe, Evernote, Airbnb, Uber, Etsy, Codeacademy, frog, This Also, *The New York Times*, Quartz, Huge, and Big Human. While the sample size of designers is relatively small, we believe that the views from participants in these organizations are useful because of the prominence and successes of said organizations.

The designers fell into six general categories: (1) large, established software companies; (2) startups/small software companies; (3) large design consultancies; (4) exclusively digital agencies; (5) in-house media/publications teams; and (6) traditional creative agencies. The sessions ranged from one to two hours and, with a few exceptions, were conducted inside the designer's office or workplace. The interview questions were grouped into four areas: (1) company and team structure; (2) process; (3) tools for creation; and (4) design skills and competencies. These themes were established to acquire a well-rounded view of what it's like to be a contemporary designer.

A few questions were especially pertinent to the discussion at hand. The participants were asked 'What skills, other than an eye for good aesthetic, are critical for designers to have?' and 'Rank the top characteristics. Which are deal-breakers?' Participant responses to these questions were recorded by the authors and later analysed and coded for themes. The data was externalized – each singular 'skill' that was mentioned was written on a notecard – and an affinity map was generated to identify themes.

A second line of questioning, that was especially insightful, investigated process. All participants were asked to describe their team's processes in detail. From these discussions, the basis of which was the question 'Can you describe the process of how your designs go from idea to code?', the authors were able to identify broad themes around process that hinted at a shift in designer responsibility and competencies.

Findings

When participants were asked to define the skills necessary to be a successful designer, some insightful findings were revealed. In total, 122 skills were mentioned by participants. Table 1 illustrates the themes and frequency of skills that were mentioned by the participants. The responses were relatively evenly split between hard (37 mentions), malleable (39 mentions), and soft skills (46 mentions). Of the top five responses, totaling 69 mentions, 24 referred to two sets of hard skills (appropriate prototyping and systems thinking), 23 referred to malleable skills (ability to find 'real' problems and building rationale for solution), and 22 mentions were for a soft skill (good character). While this sample is too small to derive conclusive insights, it certainly seems evident that soft and malleable skills are an important part of the role of a designer today. Additionally, the top overall skill needed was 'good character'. When these findings are taken into consideration with data from our participants' discussion about process, the picture of the evolving state of design becomes even clearer.

Processes within software and website development are complex and differ widely depending on the organization and specific makeup of roles on the team. That said, as we discussed process with our participants, some clear themes emerged that describe contemporary design activity at a high level and hint at the importance of softer skills moving forward. At its most abstract, the traditional software development process can be broken down into four distinct phases (before deployment): Planning, Design, Building

Table 1. Skill cluster.

Skill	Number of Mentions	Hard	Malleable	Soft
Good character	22			*Soft*
Appropriate prototyping	13	*Hard*		
Ability to find 'real' problems	12		*Malleable*	
Building rationale for solution	11		*Malleable*	
Systems thinking	11	*Hard*		
Aesthetic taste	10		*Malleable*	
Teamwork	9			*Soft*
Deep knowledge of tech industry	9	*Hard*		
Understand users	7			*Soft*
Storytelling	6		*Malleable*	
Give and take good feedback	5			*Soft*
Speed	4	*Hard*		
Know how to write	3			*Soft*
Total	122	37	39	46

(Development), and Testing.[19] Exact implementations of this process model vary widely but it provides a baseline of activity to understand how design fits into this environment. Many years ago, this process was undertaken by distinct roles. The business leaders defined the scope of the product (based on what they could sell), designers worked through the communication and interaction details, developers actualized the design plans into code, and each party tested the viability of their respective areas. In recent years, there has been a push – or perhaps a perceived push – for designers to be more involved in the Building phase and take on more development responsibilities. We can call this the Hybrid Designer approach where the designer acts more like a designer-developer. It was assumed that the participants of this study would confirm this perceived shift: that there has been an expansion of technical skills that are required of designers. However, our interviews revealed a different reality.

Designers' involvement in the process does seem to be evolving, but according to our participants, it is much more likely that a designer would blend into the Planning phase, which tends to involve soft or malleable activities, rather than the Building phase, which typically involves hard, technical skills. It was common for our participants to be engaged in soft and malleable activities like problem identification, strategy, and concept pitching before they even began to apply technical skills. This change in activity and responsibility also correlated to title change. When working in these environments, designers adopted the title Product Designer, implying that they were focused on both the form and function of a product.

Figure 1 contrasts these different models and describes the roles associated with this new type of designer. The breakdown of process tasks illustrated below reflects what our participants told us about 'designerly' skills. In this diagram, we can see that this new way of working requires a distributed balance of soft, malleable, and hard skills. This distribution of skills mirrors our findings from the skill-based discussion and further identifies soft and malleable skills as a critical part of designer's skill set.

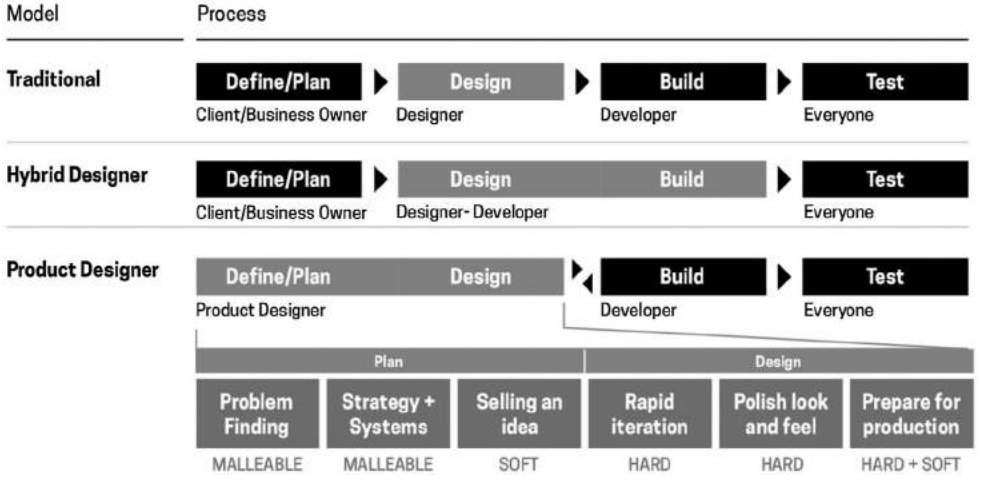

Figure 1. Comparison of process models representing traditional, perceived, and authentic design processes.

Online survey

Methodology

From June to December 2016, the authors asked participants to complete an online survey entitled 'Investigating Professional Expectation and Student Ability in Design-related Fields' (see Appendix 2). This survey was distributed via industry contacts, Twitter, Facebook, and design-related message boards. We asked for the perspectives from professionals on the necessary skills, competencies, and preparation of modern emerging designers. Of the 124 people who participated in the study, 53 met our parameters for inclusion. While we had participants from around the world, we decided to restrict our results to North America (50 from United States, three from Canada), with the large majority being from the Eastern Time Zone (65%). We ended up focusing on North America because, while we exist in an increasingly global world, the terminology used by participants around the globe was often different and thus it was difficult to code written results.

Of these 53 participants, 46% identified as Senior Designers, with a range of other responses including Management (20%), Freelance (16%), Junior Designer (9%), and Other (9%). Thirty-five per cent of respondents work at Agencies or Consultancies, 27% as part of Corporate in-house teams, 16% at Startups, 17% identified as Other and 5% as Software companies.[20]

Their self-reported job descriptions covered a range of areas: User Experience designer (33%), Web/Front-end/UI Designer (30%), Visual Designer (15%), Manager (9%), Interaction Designer (7%), Information Architect (4%) and a range at 2% each – Art Director, Brand Design Lead, Director of New Development, Creative Director.[21]

We asked a wide array of questions to identify the core skills needed for designers joining the workforce. To get a general view of our respondents, consider that 42% said they needed to be a 'jack of all trades', 36% said they needed to be both, and 22% said they needed an expertise in a certain field. Additionally, 34% of respondents were rarely remote (a few times/month), 19% were somewhat remote (approximately 1–2 days/week), 15% were never remote, 13% were totally remote, 11% were mostly remote (approximately three to four days a week), and 8% were almost always remote (some office check-ins per month). Finally, 74% of respondents said they depend on other people to do their job while 26% said they did not, whereas 82% of them said that someone else depended on them while 18% did not.

Findings

The findings from our online survey suggest a strong need for soft skills for designers-in-training. To show and explain this, we will focus on four questions from the online survey that are specifically related to skill:

Question 11: How important is it that you have the following skills/abilities to do your best work. Rate the following on a scale of 1–5, where 1 = 'not important at all' and 5 = 'very important'.

Question 12: What would you identify as the three most important hard skills for your job?

Question 13: What would you identify as the three most important soft skills for your job?

Question 16: In general, what do academic design programs need to focus on to prepare students to be successful on day one in the workforce?

Questions 12 and 13 ask respondents to rank their most important hard and soft skills. From the wording of these questions, it is clear that a participant would separate hard and soft

skills. We wanted to have questions that addressed each specifically to give respondents a space that would not allow the mixing of the two categories. From an analysis of the written answers, it should not be shocking that a participant who identifies as a visual designer saw design tools like Sketch as more important and someone who identifies as an interaction designer would see prototyping tools like Axure as more important. Each sub domain of user interface design found the tools they already use to be the most important to them.

On the topic of soft skills, out of 49 responses on Question 13, the most important ones listed were interpersonal skills (22 mentions), presentation skills (12 mentions), and empathy (six mentions). Note that while we consider presentation skills to be a malleable skill, our respondents felt more comfortable listing it as a soft skill when only given two options. This could be because of a 'common knowledge' that most communication skills are considered soft.

What distinguishes the relative importance of soft skills in this survey are answers to Question 16 (see Table 2). We collected all responses, analysed them, and then grouped them into similar categories. For instance, if a respondent was talking about the importance of communication skills but was not any more specific, we categorized it as 'Communication'. Additionally, we should note that many responses skewed across categories so the same respondent could talk about the importance of interpersonal skills (soft skill) as well as design fundamentals (hard skill).

Of the 49 respondents to this question, there were 89 mentions of specific skills that were broken down into hard, malleable, and soft skills. Although hard skills were broken down into a more diverse range of skills (nine), the top three answers all skewed overwhelmingly toward soft skills with the fourth skill being presentation skills, a malleable skill that most respondents recognize as soft. Even as a malleable skill, presentation still skews toward the notion that learning to effectively communicate with clients is more important than learning design tools related to the process of 'making'. Also, when answering a question that gave no option to distinguish between types of skills, 51% of respondents mention soft skills

Table 2. Coding categories of participant answers to Question 16 of the online survey.

Coded result	Mentions	Hard	Malleable	Soft
Communication skills	11			*Soft*
Explain design decisions	9			*Soft*
Collaboration/interpersonal	8			*Soft*
Presentation skills	7		*Malleable*	
Foundational design skills	6	*Hard*		
Perfecting your craft	4	*Hard*		
Adaptability to market shifts	4	*Hard*		
Business demand: creativity meets business	4		*Malleable*	
Design thinking	4		*Malleable*	
Empathy	4			*Soft*
Know enough coding to talk w/ developers	4	*Hard*		
Perfecting your craft	4	*Hard*		
Business demand: theory meets business	3		*Malleable*	
Business demand: 'real world' portfolio work	3	*Hard*		
User research skills	3		*Malleable*	
Business demand: professionalism	2			*Soft*
Business demand: meet deadlines	2			*Soft*
Market-relevant products	2	*Hard*		
Up-to-date on design tools	2	Hard		
Web development skills	2	Hard		
Business demand: multiple projects at once	1			*Soft*
Total	89	31	21	37

alone, 37% mention a range of skills, and only 12% mention hard skills alone. One response summed up well the views of many respondents:

> They honestly need to focus on soft skills – cooperation, patience, grace, teamwork, sharing. You can be the most amazing designer in the world, but if you don't have these qualities, life will be very hard for you and your team.

Perhaps the reason respondents want academic programs to incorporate a deeper focus on softer skills is, as one respondent said, 'soft skills are really hard for agencies to teach'. Note also, the importance of what we called 'business demands' in the feedback from participants. This has something to say about the importance of Internships and Service Learning opportunities in academic settings. If the 'business demands' of design education are this prominent, we should heed Lawrence Zeegen's call to bring practitioners' voice's more into the design education practice in 'What use is Design Education?'

Data from Question 11 reinforces responses to Question 16. In Question 11, respondents were asked to rank the importance of various randomly mixed skills (see Table 3). We see that soft skills **(**empathy, navigating work culture) and malleable skills (presentations skills, validation with real users, concept generation) were more likely to be categorized as 'very important' and/or 'important'. This does not mean that hard skills held no importance, as 'good craft' was also rated very well. The larger point here is that soft skills skew highly in the 'important' and 'very important' categories. This means that, when given an open-ended question or one that pairs softer skills and harder skills in the same question, softer skills tend to be valued more.

Interestingly, note that programming skills are devalued on this list. Why? Most likely because most respondents identified as some form of 'user interface design-based' worker. This means that they may not value hard coding skills as much as a developer. The question of the role of programming in design education also needs further study.

Limitations to our studies

It is important to acknowledge the limitations of our data. First, we point to the small number of participants in the contextual interviews (n = 49) and online survey (n = 53) as proof that there is more work to be done in this area. As noted above, we believe that the popularity

Table 3. Responses to Question 11 of the online survey.

Skill	Not important	Somewhat important	Important	Very important
Aesthetic sensibility	0	4	18	28
Good craft	0	4	16	28
Front-end coding (HTML, CSS)	10	22	9	9
Front-end programming (Javascript)	23	20	6	1
More complex programming (Arduino, PHP, Swift)	36	11	3	0
Presentation skills	0	5	17	28
The ability to quickly generate concepts	0	4	12	34
The ability to manage/delegate	0	10	22	18
The ability to navigate corporate culture	5	7	18	20
The ability to reveal and understand the needs of people (empathy)	0	1	6	43
The ability to validate with real users	0	6	11	33
Total	74	94	138	242

of design organizations in contextual interviews paired with the range of designers in the online survey means this is a ripe area for more investigation.

Second, as mentioned in the Introduction, the fractured nature of the design industries means that our results are mostly germane to user interface design and don't necessarily hold any larger value for other forms of design; more studies must be done to comment on generalizability.

Third, we are limited by the roles and perspectives of participants in our studies. Clearly visual designers value the core competencies of visual design more than developers and user experience designers will most likely value skills slightly differently from visual designers. While we tried to note above how different subject positions shape responses on what is and what is not important, it is worth noting again.

Fourth, the broadness of this study does not lend itself to making claims about cultural categories like race, ethnicity, class, gender, sex, age, and ability. This means that it is appropriate to say that our study's size and participant demographics do not capture a totalizing view of the industry but are a basis for further research and investigation. It would be interesting to see more specific studies addressing the potentially differing needs across categories.

Suggestions for more research

We are excited that IxDA recently completed a survey of industry and academic professionals in interaction design in 2016. This survey involved the comprehensive process of hiring from an industrial perspective – recruitment, interviewing, hiring challenges. While there is value in this study, we hope our work will more specifically help academics identify needs for teaching specific skills.

We believe that there is more work needed to expand on what skills – hard, soft, and malleable – are necessary for designers-in-training in user interface design-related fields and related design fields. While there is some research on the need for soft skills education in academic degrees like Advertising, Architecture, Business Engineering, Game Design, and Marketing, we hope to see more done in design-specific fields.[22] In this light, we would like to see more research on assessing what skills are being taught in design curricula around North America and the globe, how they are being taught, and how design departments in different Colleges and Schools approach the issue of teaching skills. For instance, do design programs in Fine Art programs overvalue visual design while design programs in Computer Science programs place more value on coding?

In addition to more in-depth discussions with design practitioners and design educators, we need to see a discursive analysis of the public ways designers talk about design education in places like, for instance, reddit's 'UI_Design', IxDA's 'Voices – Discussion', and Stack Exchange's 'User Experience'. A discursive analysis would be able to pinpoint more accurately the size and frequency of many of these conversations across the world. Additionally, while these public message boards are messy and mostly filled with people hawking their wares in digital spaces, they allow us to assess a range of voices that desire to know the appropriate skills to enter into these industries. For instance, Anthonystacy asks on reddit's UI_Design board, 'what degrees are out there that would let me have a job in Ui [*sic*] or UX design? Also, if you are a Ui [*sic*] or UX designer what education do you have?' It is not too shocking to see

that responses to this post are all over the map – Anthropology, Graphic Design, Human–Computer Interaction, Interaction Design, Psychology, Sociology, Studio Art.[23]

Thus, it may very well be that design curriculums need to find ways to more easily incorporate interdisciplinary approaches to design for students. This might mean incorporating Minors in, for instance, Anthropology, Computer Science, Marketing, and/or Psychology. This suggestion should also include a discussion of what might no longer be needed in design education. As is well understood in academia, the process of adding something to design education would also necessitate taking something away. Whatever the reason, we make the case that more interpersonal and attitude-related soft skills need to make their way into design education. This might mean incorporating practical public speaking and interpersonal communication components to studio-based classes. Or it may mean including a class on the social mores of the design world. Or perhaps more Service Learning opportunities are needed to address this issue. Consequently, more research would need to be done before more clearly understanding what changes should be made. Moreover, much work needs to be done to determine appropriate ways to assess the transfer of skills from the classroom.

Conclusion

From the results of our studies, we note that soft skills and malleable skills tend to be more highly rated than hard skills. The specific elevation of soft skills might be a result of interpersonal and attitude-related skills that are not being properly valued in design education. The desire for emphasis on malleable skills points to the need to teach more clearly what we can about tricky concepts. Or, perhaps our research simply points to the fact that designers overlook the importance of technical skills because they assume those to be a 'given'. Our tentative research suggests that softer skills are likely undervalued and more work needs to be done to assess this situation.

In addition, it also needs to be clearly stated that design education is not just about harder or softer design skills but a meaningful collaboration between the two. As one participant in the online survey said, 'Well, clearly they [students] need the hard skills. They need to be experts [in design tools]. They need to have a good eye. They need to know the basics: Design on a grid, line things up, etc.' However, this *same* participant also said, 'to understand that, while it is super important to develop their craft and have amazing visual to show, they also have to be a real person with a real handshake'.

To maximize student experience in academic contexts, it needs to be understood that contemporary user interface design and, to a certain extent all contemporary design practices, are informed by many different strands of knowledge that will necessarily enhance different skill sets. Lara Penin, Eduardo Staszowski, and Scott Brown go further to suggest that we need transdisciplinary educational approaches that integrate 'fields of knowledge reaching beyond the boundaries of design itself'.[24] The field of user interface design is still young and evolving quickly. As it matures, it is important that academia stay alert and adapt to changing expectations. Our study has uncovered some helpful findings which we hope will continue the discourse around design education.

Notes

1. Lash and Urry, *Economies of Signs & Space,* 6.
2. Blizzard et al., "Using Survey Questions to Identify," 92. Additionally, see Balsamo, "Design" and Christensen et al., "Towards a Formal Assessment of Design Literacy" for their studies of the importance of design thinking to design education. Also, see Fry, "Design: On the Question of 'The Imperative'" concerning the need for design education to not be insular and Yee et al.'s work on teaching interpersonal collaboration skills to designers in "Helping Design Educators Foster Collaborative Learning." Finally, see Vodeb, "Social Innovation and Design Education" on the need to skew design education toward community engagement.
3. "What Specific Skills Does a UX Designer Need to Have?," 1.
4. Title: *Understanding the Role of Visual Communication Design in Digital Design Environments*, IRB # 1401442096.
5. Title: *Investigating Professional Expectation and Student Ability in Design-related Fields*, IRB studies #1604684534 for IUPUI & #16-459 for Kennesaw State University.
6. See Florida, *The Rise of the Creative Class.*
7. Sawyer, *Explaining Creativity*, 5.
8. Sawyer, *Explaining Creativity*, 3. Also see Walker, *Buying In: What We Buy and Who We Are* for a discussion of the 'pretty good problem'.
9. Hartley, *Creative Industries*, 30.
10. Although the categorization of skills into hard and soft is not totalizing in the business world. For instance, see Peterson and Van Fleet, "The Ongoing Legacy," on R.L. Katz's organization of skills under the rubric of technical, human, and conceptual.
11. Matteson et al., "Soft Skills," 75.
12. Matteson et al., "Soft Skills," 73.
13. Peterson and Fleet, "The Ongoing Legacy," 1299.
14. Sawyer, *Explaining Creativity,* 8.
15. Plucker and Makel, "Assessment of Creativity," 59.
16. Christiaans, "Creativity as a Design Criterion," 53.
17. See Boyton, "Are You an 'I' or a 'T'?" for more information on T-shaped skills and Mercer, "Future Workforce: M-Shaped is the new T-Shaped" for more information on M-shaped skills.
18. Pratt, "Soft Skills Advice From Design Leaders," 1.
19. This model is an abstraction of the Waterfall model described in Hugh Duberly's *How Do You Design?*
20. The jobs listed for 'Other' ranged from 'in-government digital agency' to 'enterprise systems for Higher Ed' to 'Small e-commerce business'.
21. We based these categories on self-reporting as well as a more detailed explanation of their main job responsibilities. We did this if there was an issue categorizing their job.
22. See Advertising (Windels, Mallia and Broyles, "Soft Skills"), Architecture (Ling, Ofori and Low, "Importance of Design Consultant's Soft Skills"), Business (Mitchell, Pritchett and Skinner, "The Importance of Integration of Soft Skills"), Engineering (Schulz, "The Importance of Soft Skills"), Game Design (Brown, Lee and Alejandre, "Emphasizing Soft Skills"), and Marketing (Rosenberg, Heimler and Morote, "Basic Employability Skills").
23. Anthonystacy, "What College Degree," 1.
24. Penin, Staszowski and Brown, "Teaching the Next Generation," 448.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix 1.

Included is a list of questions asked during 'Understanding the Role of visual communication design in digital design environments':

Overview
Briefly describe the products/artefacts you design.
How many designers are on your team?
How long have you been designing?

Process
Can you describe the process of how your designs go from idea to code?
How much time do you spend designing statically vs in code?
What is your personal design process like?
How do you get started? Where do you look for inspiration/comparison?
How does your iteration/critique process work? Does it mostly happen with designers, developers, directors, etc?
What is the work that is done prior to the visual design? What other information or people are you dependent on to do your work?
Is anyone else dependent on the Visual Designers work?

Tools
What applications/tools do you use?
Do you test your designs and how? With whom?

Skills
What skills, other than an eye for good aesthetic, are critical for designers to have?
Rank the top characteristics. Which are deal-breakers?

Preparation
Based on your experiences with design education, what's missing? If you think anything is broken, how would you fix it?
What would your ideal design course to prepare UI designers look like? Where do you see the visual design industry going? How are you preparing?

Appendix 2.

Included is a list of questions asked during the online survey, 'Investigating Professional Expectation and Student Ability in Design-related Fields':

1. In what city, state, and country do you live?
2. What is your official job title?

3a. How would you describe your role (separate from your title)?

   a. Junior designer
   b. Senior designer
   c. Management/Director
   d. Freelancer/Contractor
   e. Other

3b. If 'Other', please explain.

4a. How would you label your work environment?

   a. Agency/Consultancy
   b. Corporate in-house team
   c. Software company (you make a specific app/site/service as stand-alone products)
   d. Start up
   e. Other

4b. If 'Other', please explain.

5. Each job is different, explain your main responsibilities.

6a. In your current role, would you say that you are expected to be a 'jack of all trades', an expert in a specific area of design, or both?

   a. Jack of all trades
   b. Expert in a specific are of design
   c. Both

6b. You chose 'jack of all trades'. In your opinion, is it positive or negative that designers are asked to be 'jack of all trades'?

6c. You chose 'Expert in a specific area of design'. In your opinion, is it positive or negative that designers are asked to be 'experts in a specific area of design'?

6d. You chose 'Both'. In your opinion, is it positive or negative that designers are asked to be both a 'jack of all trades' and an 'expert in a specific area of design'?

7a. How often do you work remotely?

   a. All the time (aprx. 5 days/week)
   b. Most of the time (aprx. 3–4 days/week)
   c. Some of the time (aprx. 1–2 days/week)
   d. Infrequently (aprx. 0–1 days/week)
   e. Never (I'm always in the office)

7b. Complete this statement: 'Designers who work remotely are …'

8. What primary tools do you use in the creation of deliverables (please specify each tool used to create)?

9a. Are you dependent on any other person or role to do your job (does anyone provide deliverables that inform your work)?
   a. Yes
   b. No

9b. If 'Yes', please explain the deliverables and describe nature of your relationship.

10a. Is anyone else dependent on deliverables you create to do their job?
   a. Yes
   b. No

10b. If 'Yes', please explain the deliverables and describe nature of your relationship.

11. How important is it that you have the following skills/abilities to do your best work. Rate the following on a scale of 1–5, where 1 means 'not important at all' and 5 means 'very important'.
   a. Front-end coding skills (HTML, CSS)
   b. Front-end programming skills (Javascript)
   c. More complex programming skills (PHP, Arduino, Swift)
   d. Aesthetic sensibility
   e. Good craft
   f. The ability to reveal and understand of the needs of people (having empathy)
   g. The ability to validate designs with real users
   h. The ability to navigate corporate culture
   i. The ability to manage or delegate
   j. Presentation skills
   k. The ability to generate concepts/solutions very quickly

12. What would you identify as the three most important hard skills for your job?

13. What would you identify as the three most important soft skills for your job?

14. What skills do you need to do to successfully navigate your work culture?

15. What is your educational background? Check any that apply
   a. Undergraduate degree in design (or related field) from traditional university or college
   b. Graduate degree in design (or related field) from traditional university or college
   c. Undergraduate degree in a non-design field from traditional university or college
   d. Graduate degree in a non-design field from traditional university or college
   e. Some experience (in any field) at a traditional university or college
   f. Program completion from for-profit institution (e.g. General Assembly)
   g. Self-taught (e.g. lynda.com, YouTube)

16. In general, what do academic design programs need to focus on to prepare students to be successful on day one in the workforce?

17. A student entering college today will graduate in 2020. Do you think your job will be the same in 2020? What will stay the same? What is sure to change?

18a. Do you also teach design in any capacity?
   a. Yes
   b. No

18b. If 'Yes', At what kind of institution?
   a. For-profit institution (General Assembly, Iron Yard, etc.)
   b. Traditional public college or university
   c. Traditional private college or university
   d. Community college

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 21–34
https://doi.org/10.1080/20557132.2017.1398951

Routledge
Taylor & Francis Group

Data as medium: designing and coding interactive visualizations for the web

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ABSTRACT

This article proposes a pair of projects offered in a single studio course that challenges design students to design and develop interactive data visualizations for the web through prototyping and coding through JavaScript. Through prototyping, the studio class can be engaged in a series of visual inquiries in which they identify and challenge some of the assumptions and issues surrounding visualization and offer new modes of representation and interaction. On the other hand, the coding components expose students to the specialized mechanics of data visualization through the lens of computer science. And the technical restrictions around coding can help direct students to move beyond the singular focus of graphical aesthetics and towards approaching data visualization as a larger exercise that draws from lessons in colour and typography, in order to shape the overall user experience of disseminating and interacting with data. While being positioned and framed as two seemingly different data visualization assignments, the said projects are meant to serve as a meaningful extension from conventional interactive design and infographic assignments and help renegotiate the boundaries between the specializations within the graphic design curriculum.

ARTICLE HISTORY
Received 28 August 2017
Accepted 14 October 2017

KEYWORDS
Graphic design; data Visualization; interaction design; web design; design education

Introduction

Designing interactive visualizations for the web are interdisciplinary challenges that require competency in data visualization, web design, and web programming, the combination of which can be a daunting task for design students who are relatively new to these areas. But realizing the need for more designers to be trained in this important specialization, not for the sake of forcing interactions into data, but to examine how design thinking and craft can meaningfully contribute to our daily experiences with data. This article explores the pedagogical opportunities and challenges in the creation of interactive data visualizations for the web.

For design educators, projects involving data as content aren't entirely new opportunities. Mostly grounded in the print medium, there are numerous studio assignments that can effectively train students on how to present graphs and charts through books, brochures, and posters. Interactive visualizations, on the other hand, come with a set of challenges that

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combine lessons from multiple disciplines and specialties to construct an engaging experience driven by data. The key deliverable in such projects is creating an intuitive interface that would allow the user to easily navigate through the layers of data. Thus, a successful design must be able to reconcile the "system language" of traditional Window, Icon, Menu, Pointer (WIMP) controls with the visual language of the visualization at hand, which can be done through implementing appropriate visual signifiers (shape, colour, and texture) that exist as share vocabularies between the two systems.[1] Another challenge for the designer is being able to communicate proficiently with conventional graphs and charts, while also taking up the opportunity to experiment with new forms of visualizations whenever appropriate. Finally, it is important to avoid implementing interactions just for the sake of interactions. The primary purpose of any data-driven graphics must be able to clarify messages behind the trends and patterns.[2] And when extended into the web medium, interactions should be able to aid and enhance these functions rather than impeding them. This implies that the designer's job is to establish and reconcile the signifiers and affordances from two different sources: one from the visualization itself and the other from the interface that controls it.

Recognizing the range of possibilities and creative potential on interactive graphics, this article will describe the process and outcomes of two projects, offered in our interactive data visualization class, that rely on different approaches to teaching interactive visualizations for a design studio course. One approach focuses on static prototypes that can convey the idea of the visualization while the other approach embraces coding in JavaScript to construct the graphic(s) in full functionality. Despite their contrasting methods, both projects can be used as teaching mechanisms that cover a broad range of issues in data visualization, from current industry expectations to envisioning novel data-driven experiences. The specific tools used in each project are different, but both assignments provide critical engagement in the parsing, analysis, framing, and designing with data.

The graphic design curriculum at our institution recognizes both coding and prototyping as important skillsets to impart to our students engaged in user experience and interaction design coursework. By the end of their second year of study, all undergraduates have gained proficiency in wireframing, rapid prototyping, and user experience principles while being able to code static web pages with HTML and CSS. Students who wish to explore deeper into how computer programming can be a useful addition to a designer's toolset can take an elective course in interactive data visualization to learn how to use JavaScript to expand what they can construct in the web medium. Our program offers this class not to dictate that all designers must gain mastery in programming, but to provide an opportunity to explore how code and design can renegotiate their boundaries. Another learning outcome would be an exposure of a shared vocabulary with computer scientists and programmers that can be useful in future interdisciplinary collaborations. Finally, both the coding-intensive and prototype-only projects in the data visualization course are meant to operate as complementary units, with each of them serving as useful lessons on what data visualization is and what it can be.

Visual narratives with Google trends: a coding-intensive project

The interactive data visualization course's first project was a web based visualization that introduced students to the fundamentals of effective data presentations supported by

JavaScript coding. Unlike HTML/CSS, codes that articulate the basic structure and presentation of a website, JavaScript is a programming language that can enable additional functionalities, from parallax scrolling to randomized events. In our class, students were required to use d3.js, a JavaScript library for developing web-based data visualizations. Tutorials on d3.js were given to students through four separate lectures, the sequence of which began with scalable vector graphics (svg) on the first day, basic d3 syntax to manipulate svg objects on the second, and the last two days were spent on learning how to construct basic bar charts, line graphs, and scatter plots, using svg objects.

It is important to note that all students enrolled in the class already came with a solid foundation in HTML/CSS in their previous web design courses and were already well acquainted with the challenges and expectations that come with coding. By the end of the semester, the class possessed a foundational working knowledge of using d3.js that enabled them to create conventional line graphs, bar charts, scatter plots and area graphs. Unlike most JavaScript libraries, d3.js can only display its csv/json-driven graphs when the web page containing the visualization is uploaded online. To work around this, students were taught how to use MAMP, a software that allows for quick preview of d3.js visualizations without publishing their files to the world wide web. To submit their final sites, students had to host their files through Github, an online code repository that allows for easy sharing to their code and web assets.

Along with the programming components, students were also trained in the different approaches in tailoring their graphics to their audiences. The first step of which was making sure that the intention of the visualization is made clear to its audiences. Is the graphic meant to explain something specific in the data or help the user explore the data? According to Cole Nussbaumer Knaflic, most visualizations can either be exploratory or explanatory. The former is a category of visualizations concerned with figuring out what the data could mean based on expert analysis, while the latter is dedicated to presenting specific insights from the data to a broader audience.[3] This does not mean that explanatory projects end up simplifying data or "dumbing down" the message in order to reach the layperson. One is concerned with explaining an idea to novice users while the other functions as a tool for expert users. With these in mind, students were finally briefed on the Google Trends project, a storytelling exercise through explanatory visualizations.

The deliverable for the project was to design and code a single serving site that can convey a narrative through visualizing web search trends and provide interactive tooltips that can provide further insights to users. Students were instructed to explore the data sets available at google.com/trends, where they were allowed to search for any keywords or phrases dating back to as far as 2004. Google's site already displayed the data through a line graph (Figure 1), but a graph alone cannot convey a clear story without additional components. These elements can include visual indicators that help direct users what to focus on as well as providing useful context behind the points of interest. The designer must decide what exactly needs to be communicated through the data and determine which of these visual cues can help the audience to clearly see the intended message expressed in explanatory graphics. *The New York Times*, in 2016 published an interactive visualization that showed a dramatic increase of David Bowie songs played on Spotify shortly after the singer's death was announced.[4] It may appear as a simple line graph, but the dramatic surge for Bowie songs can also be seen as a visual representation, through quantifiable metrics, of the shock and sorrow behind the musician's death. David McCandless from *Information is Beautiful* was

able to convey a similar narrative by showing how the web search trend for "video game violence" surges around the anniversary of the Columbine shootings as well as the holiday season when many popular video games are released.[5] What these examples demonstrate is the potential of conventional graphics to convey a narrative simply by displaying point(s) of interest that can evoke an emotional response.

A data set can contain multiple narratives, and students were responsible for choosing which stories to tell based on how the data behaved over time. They were advised to look for data sets that exhibit repetitive and predictable trends or a surge phenomenon. Doing so meant taking on the roles of both statistician and designer by framing the data at hand through carefully placed visual cues. Figure 2 shows a student's initial progress in taking the same Google trends data set, imported as a csv file and plotted through d3.js, from Figure 1 and recreating the same line graph through d3, but with red markers placed on the four peaks seen on the graph. By doing so, the student was able to establish some level of visual hierarchy and help direct the focus of the user to select parts on the visualization.

As the class moved beyond the static representation of their graphs, they were acquainted with some of the basic approaches to bring interactivity to their visualizations. A common vehicle of interaction is tool tips, which are hover states that reveal additional information when a mouse cursor is placed over a specific interactive element. In Figure 3, hovering over

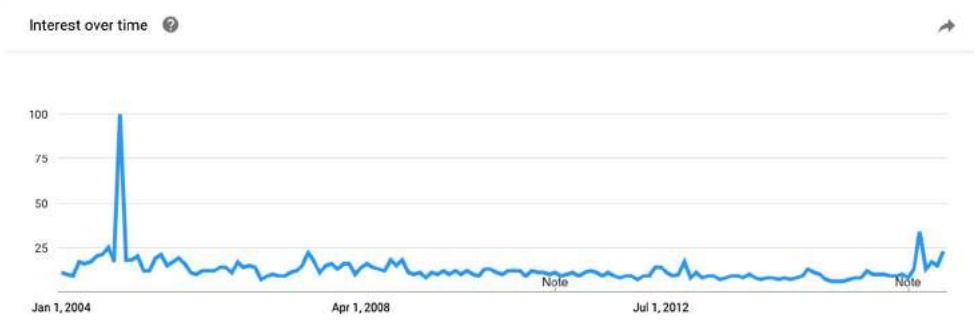

Figure 1. Search trend data of the phrase 'moving to Canada' shown in Google's trends website.

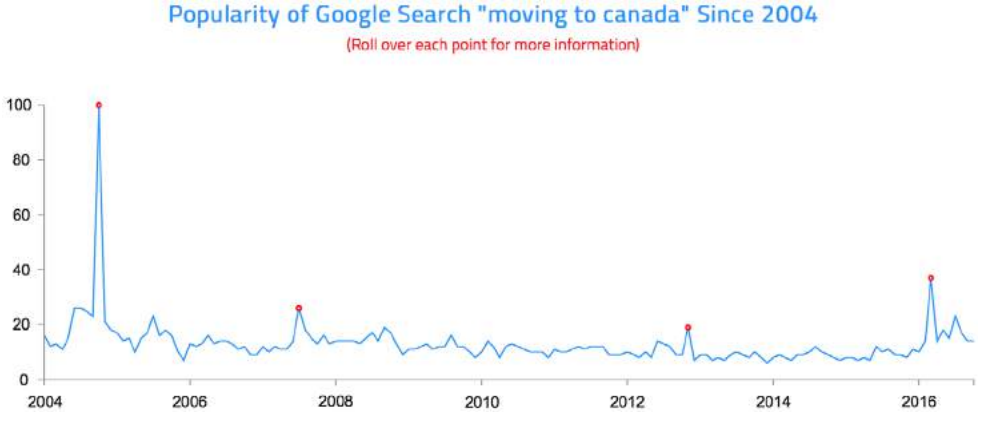

Figure 2. A simple line graph coded with d3 for the web search trend 'moving to Canada'.

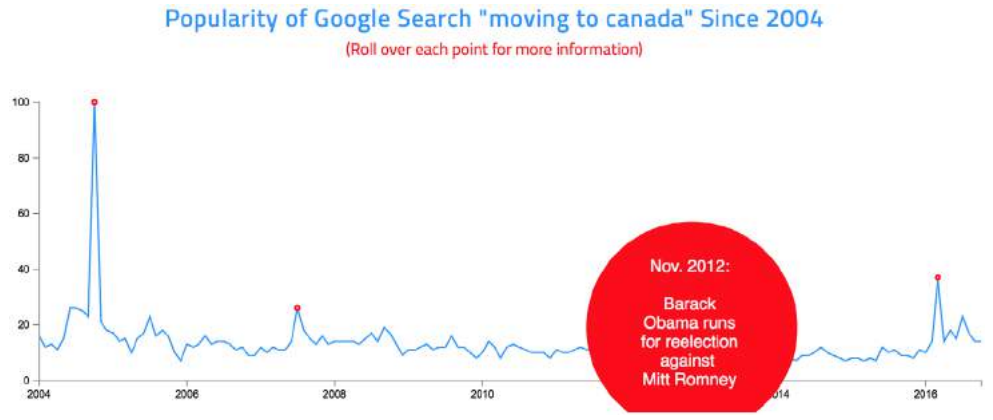

Figure 3. Visual markers were placed at select peaks, and each of them have a tool tip (hover effect) that reveals relevant information that can help the user understand the data behavior.

each red dot enlarges its size and reveals relevant information behind the data, and the user is able to learn that the web search term "moving to Canada" peaks just after every US presidential election. Figure 4 shows a completed project site by a student who visualized search trends on gun violence, and users can hover over a specific bar on the graph to reveal the context behind the surge of a search trend. In practice, tool tips give designers the affordance to embed certain kinds of content, such as metadata, raw values, and/or relevant contextual information, only to reveal them upon the user's request.

In advanced applications, tool tips can be used to accommodate multiple user expectations. In a series of visualizations by *The Wall Street Journal* article that showed the effectiveness of vaccines over time, users can place their mouse cursor over each tile to see the numerical value behind the data's graphical representation.[6] The primary message that vaccines are useful have already been conveyed through the static graphics, making the interactivity as an optional experience for users, but it can be valuable to those who wish to know more beyond what the graphs are presenting. According to Gregor Aisch, a graphics editor at *The New York Times*, tool tips can also provide transparent access to the raw data, allowing users to build trust with the visualization.[7] From this, it becomes apparent that interactive visualizations can engage audiences at two levels: the static visualization that can convey the primary narrative behind the data for all levels of users while the interactive tool tips allow expert users to be engaged further into the content.

As students designed and constructed their sites, it was not enough to simply recreate the line graph through d3.js along with implementing useful tooltips, and they were required to treat their sites as a web design project by incorporating typography and colour in meaningful ways. And all sites were required to include a title and an introductory paragraph that will help establish the context behind the data set – both of which also provides additional layers of typographic hierarchy. All text elements were created and styled with basic HTML/CSS syntax, a skill that all students have learned previously in their basic web design course.

The class was encouraged to explore how juxtaposing/superimposing relevant data sets with similar/contrasting behaviors can further enhance a narrative. The inclusion of these complementary graphics, through their differences in scale/magnitude, can highlight certain

Figure 4. Student work that visualizes Google search trends on gun violence over time. All of the red circles on the line graph act as tool tips, which can be clicked order to see which tragic shooting (Sandy Hook) coincided with the surge in web searches at that time.

differences and changes over time.[8] Applying this concept, a student displayed the trends of three popular dating apps to show a compelling data-driven story (Figure 5). The traditional and mainstream services (Match and eHarmony), showed similar behaviors of peaks that occur around Valentines and New Year's days (signified by the icons above the graph), but Tinder, being the unconventional dating app that it is, did not show these recurring peaks and even appeared to be increasing in its trajectory, while the trends of others have been dipping over the years. From this, students learned that curation, knowing which data sets to show/hide, is a useful strategy in storytelling, because they can provide an additional layer of context and/or contrast that can help reinforce the message at hand.

Despite the technical requirements and the visual constraints that were imposed on the students, this project was useful in its introduction to some of the critical ingredients in storytelling with data: establishing hierarchy through visual markers; providing useful context behind the data, specifically the points of interests; and juxtaposing/superimposing different but related data sets together. And while the technical limitations of d3.js that were covered in class only allowed for using familiar graphics such as bar/line graphs and scatterplots, this restriction was an intentional decision to make sure that students do not begin the semester with wild experimentations with no consideration to the conventional expectations in the field that values structural integrity from the data. And it later became apparent to the class, as they iterate in their designs, that the graph/chart is only one part of the web experience. Even in a course loaded with the technical nomenclatures from statistics and computer programming, the formal qualities of graphic design (colour, grid, typography, and others) played an important role in the visual articulation of data and the overall

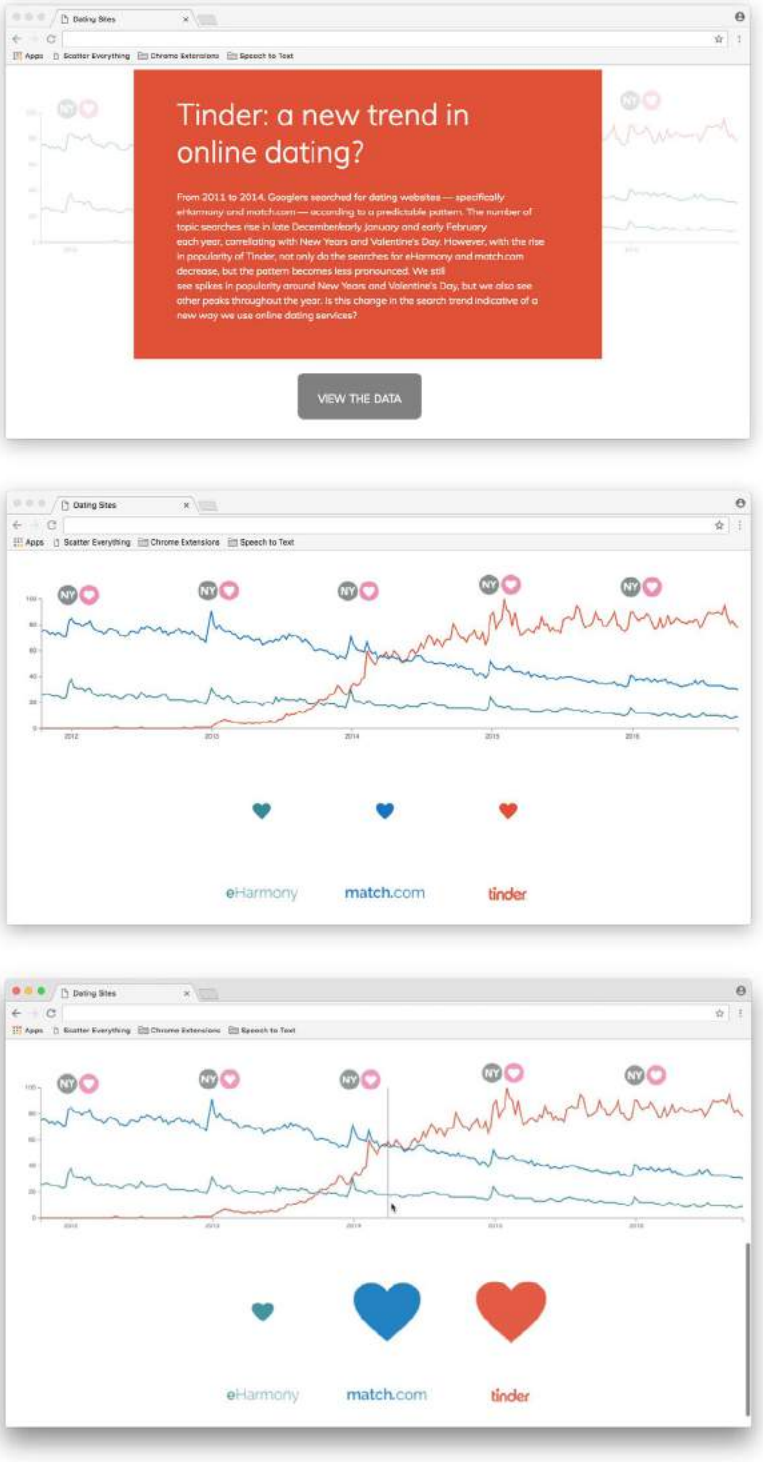

Figure 5. Student work that superimposes multiple search trends of various dating apps. The sizes of the heart icons below are linked to the data on the line graph and will either shrink/grow depending on where the mouse cursor is located on the timeline (x-axis).

experience of the website. And the familiarity with working with easily recognizable graphics would become useful in the next project, where students get a chance to actively question and modify them.

Linear/nonlinear interactivity with open data: a prototyping approach

In the next assignment, students were tasked with designing an interactive web visualization, but the final outcomes would exist as static prototypes delivered through Invision, a browser-based prototyping tool for websites and mobile apps, with assets created through InDesign/Illustrator. They were also required to experiment with visual forms since there was no coding to be done. As for the content of their visualizations, any open data set found in government and credible non-profit websites were allowed, as long as advanced technical knowledge wasn't required to understand them. Whether the data set was about the last census, economic reports, crime, health, or the environment, students had to convert the data into some form of web-based interactive experience. Similar to the Google Trends project, the procedures of plotting the raw data, analysing it, and formulating an experience around it were brought back to the design process. But instead of predetermining a specific narrative around the data, which is the purpose and function behind explanatory visualizations, the final student outcome had to be an exploratory one with which users can interact and extract their own readings in the data.

Students began their visual experimentations by questioning their assumptions about the conventional graphics and what they represented. Such questions included: does a bar graph need to be set in Cartesian coordinates? What happens when I transform the space into polar coordinates? What is the general shape of the overall structure? Can it be circular or semicircular instead of rectangular? And as students delve these lines of questioning, they began to discover for themselves that data didn't have to be represented in any standardized procedures, but can assume new forms to articulate their trends and patterns. Nathan Yau's book, *Data Points*, offered a useful reference for visual cues where the fundamental strategies of data visualizations, as it pertains to categorical data, were laid out in a way that can used as a starting point in in students' experimentations.[9]

The class spent most of their time with the Adobe programs (Illustrator/InDesign) to construct their visualizations and interfaces for this project. And the online service, Invision, was used to create an interactive prototype. Due to time constraints, none of the online platform's advanced features were implemented, so the resulting student outcomes were static experiences that communicated the idea behind the proposed websites.

As noted earlier, visualizations for exploratory means are generally defined for expert users for scientific and statistical analysis. Depending on the data set, however, it is possible to extend this category to serve a broader audience as a means of allowing them to interact with the data that suits their personal interests and curiosity. One student's outcome was a visualization of civil rights protections for LGBT groups for every state in the US (Figure 6). Users could interact with the circular structure by clicking on an individual state to see the which category of laws (marriage equality, anti-discrimination laws, transgender rights, etc.), each represented by a distinct colour, that it has passed or didn't pass. Filters on the bottom left of the website allowed users to see only specific groups of states from a particular geographic region (Northwest, Midwest, Northeast, etc.) as well as displaying certain types of laws. These modes of interaction allowed users to explore deeper into the data by allowing

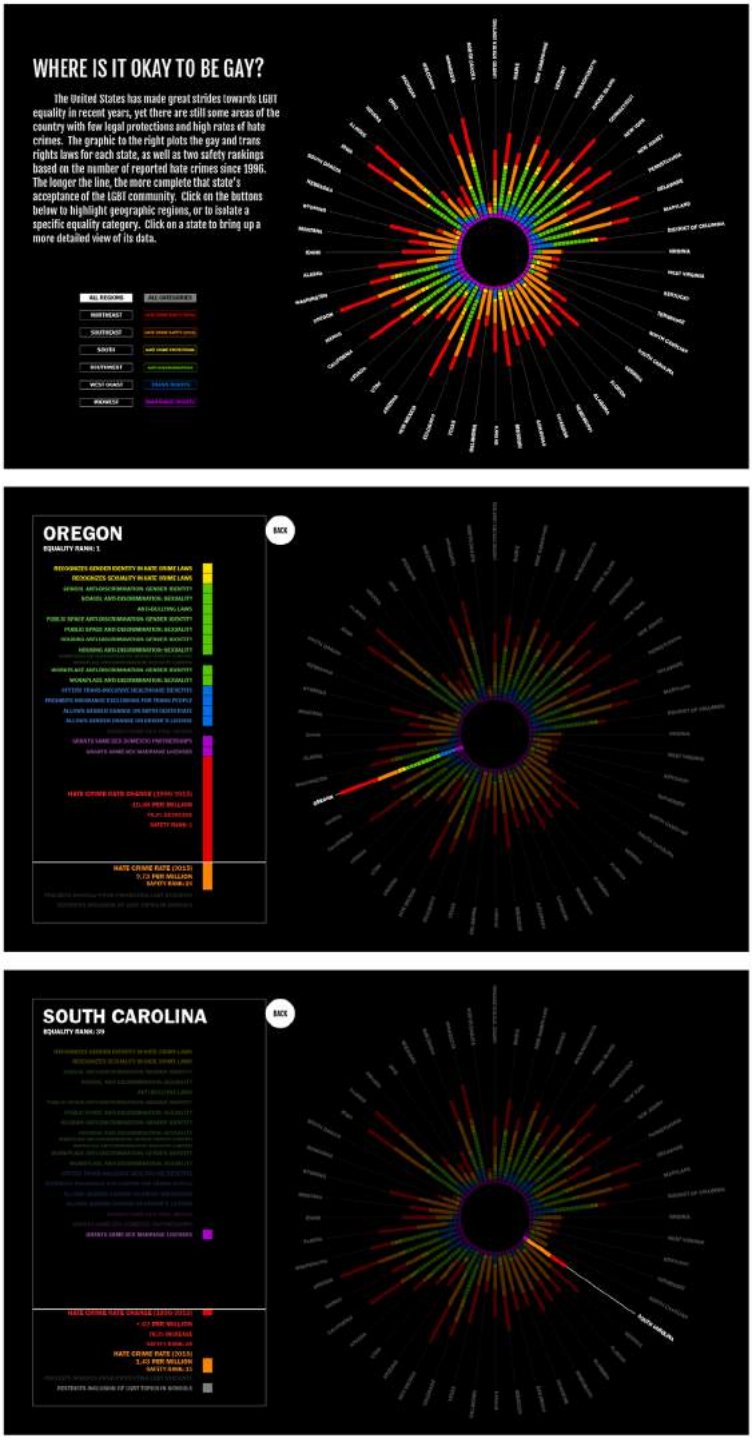

Figure 6. Prototype of a single serving site that visualizes the multiple layers of civil rights protections for LGBT groups in every state. Each colour represents a type of law (marriage rights, anti-discrimination, transgender rights, etc.). Clicking on a single state on the circular structure reveals more information on the specific laws that the state passed or didn't pass.

them to compare and contrast different states and regions. The graphic was structured around a circular structure which departs from the conventional approach/expectation of visualizing data across all states on a US map, which are commonly seen to display national election results. The student's circular structure was advantageous because gave all states equal amount of presence on the web page, whereas a traditional map would have place larger states like California and Texas higher in the visual hierarchy than the smaller states.

Formal qualities aside, experimental solutions in data visualization can also be about rethinking the website's overall user experience. For example, one student prototyped a survey-based site that began with the user answering a series of questions related to his/her work commute, specifically on the total miles travelled and the mode of transportation taken (Figure 7). After collecting all of the necessary information, the website simulated a calculation of the amount of carbon dioxide that was produced during the user's commute, based on a data set published by *The Guardian* newspaper that contains figures of estimates of carbon emissions for the said activities.[10] This linear sequencing of web pages didn't reveal the visualization until the very end, but it served as a demonstration that designing and visualizing with data doesn't have to involve complex graphics but can be seamlessly integrated into a user experience that engages the user page after page. And the exploratory nature of this experience is fulfilled when the user goes back to the start and adjusts the responses to see how s/he can further reduce his/her carbon footprint. And since students were not constrained to the technical limitations of coding, they were able to freely brainstorm and propose solutions that go beyond the typical visualization outcomes that we see.

What these interactive projects demonstrate is that the task of creating exploratory visualizations often involves the decision to set the interactions as linear or nonlinear experiences. In the website about LGBT rights protections, which had a nonlinear approach, the goal is to create a set of filter(s) that allows users to navigate through the data on their own terms. Such filters can be, but not limited to, reordering and/or narrowing the data set displayed by alphabet, chronology, geography, hierarchy, category, and magnitude. In more complex data sets, advanced controls can give the affordance of zooming into a particular section of the data, transforming it into different scales and coordinate spaces, and applying hover-states that can bring up metadata or related information of a specific data point. In contrast, the carbon footprint site was a linear experience that was delivered through a "slideshow" format, where users had to click through a sequence inputs that have been carefully curated to ultimately convey a message at the end. Each slide, filter, or transformation offered only a partial view, which made it important that all of these points of view be integrated into the overall user experience.

Discussion

The two projects were assigned to our graphic design students in a single semester as an exploration on the issues and opportunities for design educators to teach data visualization and information design at the undergraduate level. After reviewing the course outcomes, it was clear that each approach comes with its own strengths and weaknesses. For the coding-intensive project, students have been exposed to the overall production process, from ideation to production, of putting an interactive visualization on a single web page. In the end, they had a working website along with an appreciation of the complexities and intricacies of data visualization that demand careful attention to parsing the data set through code. The

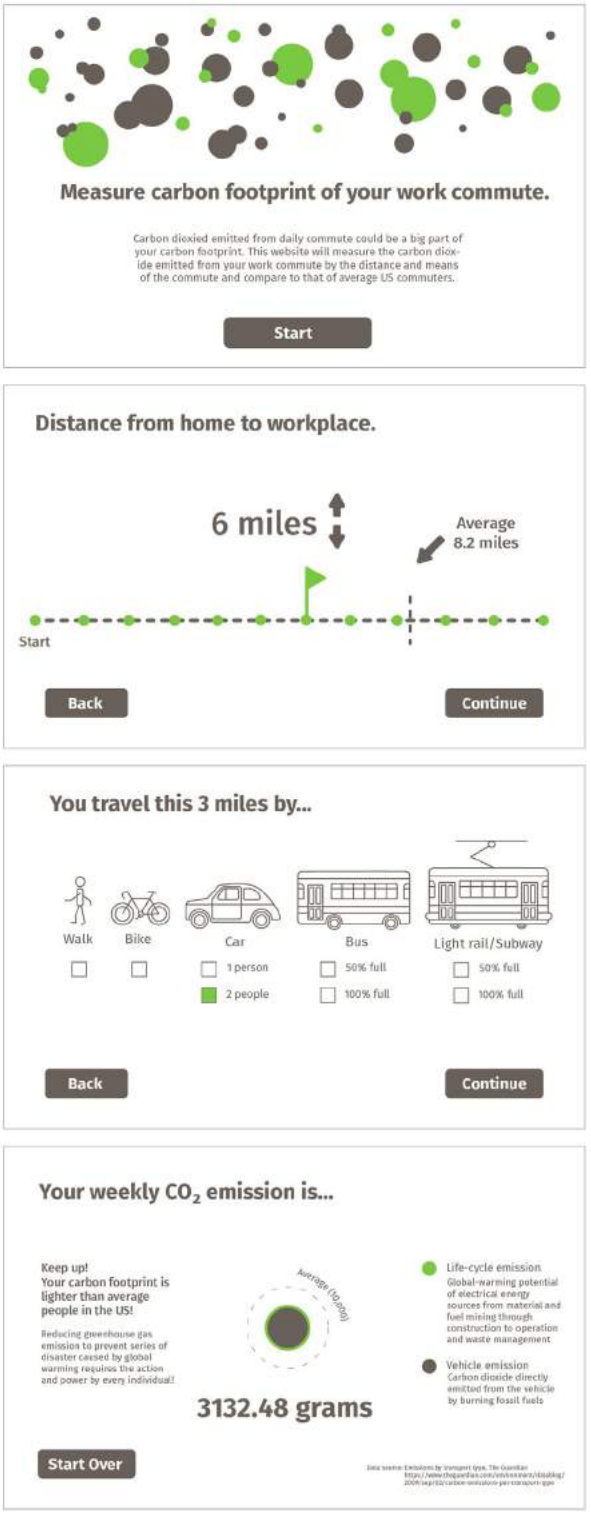

Figure 7. Prototype of a survey-based web experience that results in the calculation of the user's carbon footprint emitted from his/her daily commute.

restriction of only using conventional graphics simulated the process and expectations for many the of the professional visualization projects, particularly for the journalism industry (i.e. web graphics for *The New York Times* and *Washington Post*) where deadlines may be very short. Finally, students were reminded that when it comes to data visualization and information design projects, the graph/chart is only one of the many characters in the design. So even if they are restricted to using a simple line graph or scatter plot, a masterful application of colour and typography can dramatically improve the user experience and engagement of the data.

One of the biggest difficulties in implementing the coding-intensive project has been effectively introducing the students to d3.js and setting aside a reasonable amount of time for troubleshooting student's code. But as long as students only work with simple bar/line graphs, and scatter plots, it was possible to cover all of the coding material in 2 weeks (approximately 8.5 meeting hours total). It is also certainly possible to assign the Google Trends project without the JavaScript component, allowing both projects to result in high-fidelity interactive prototypes. By replacing the programming lessons, it could be possible to include usability testing or other lessons from user experience applied to data visualization.

In contrast, the prototype-only approach gave students ample amount of time to focus on the design process and experiment with visual forms and experiences. And since students were no longer exposed to the technical aspects of coding, they were challenged to think what data visualization can be, rather than accepting what it already is. This involved risk-taking and asking questions on the assumptions of how we viewed and interfaced with data. And with using widely available open data sets from government portals, the content material for students to use were plentiful. Instructors, however, must be careful in making sure that students do not pick a data set that requires expert knowledge on the context and methodologies behind a data set (i.e. economic reports or environment data from satellite technologies) that is beyond the immediate understanding of a layperson. And there is certainly the potential of expanding this project into a collaborative approach of designers, scientists, journalists, and community organizers for interdisciplinary endeavours. Before any of this can happen, however, it is important that design curriculums expose students to data visualization and information design as early as possible so they can be comfortable and proficient with designing with data in both print and digital mediums.

Finally, students must be made aware that interactive data visualization is a maturing design practice that has been the subject of debates by its practitioners. One notable instance was during the 2016 Information+Conference, where a presenter from *The New York Times* revealed that less than 15% of visitors to their sites interacted with the visualizations embedded in their article pages.[11] This low participation rate is not entirely surprising considering the fact that the user expectation for *The New York Times'* website has always been a reading experience; therefore, any graphical and interactive components, which are deviating experiences, are likely to have lower user engagement. Nevertheless, this observation led other practitioners, like Dominikus Baur, to voice their critiques that the value in investing in the work of developing interactive visualizations still remains, but designers would need to become more thoughtful about the audience.[12] It is also worth noting that there are relatively few proficient practitioners who are dedicated to the craft of interactive visualizations, making them still a novelty. And as more industries, from government to marketing, are becoming more data driven in their practices, it is becoming more urgent for designers to participate in the collective endeavour to further integrate data visualization into their craft, and more importantly help expand its critical terrain.

Conclusion

The field of data visualization as a design specialty is a relatively new field, and many, if not most, of class projects in graphic design in this area consist of printed outcomes. Extending these data-driven assignments into digital mediums can open students into new challenges that combine visualization with topics from interaction design, user experience, and web coding/design. The coding-intensive projects can get students to gain a greater appreciation of the overall production process and prepare them for current visualization projects in the field, especially for journalism. The prototyping-approach can help students to be more forward-thinking and challenge them to question the current trends in data visualization, without the learning anxieties and the time demands from teaching and troubleshooting code. Regardless of their differences, these two projects stand as a demonstration of the possibility that data can be embraced as a designer's medium.

Notes

1. Shen et al., "Sketch-based Interactive Visualization," 276.
2. Cairo, *The Functional Art*, 79.
3. Knaflic, "Storytelling With Data," 19.
4. Bui, Katz and Lee, "The David Bowie Song That Fans are Listening to Most."
5. McCandless, "The Beauty of Data Visualization."
6. DeBold, "Battling Infectious Diseases in the 20th Century."
7. Aisch, "In Defense of Interactive Graphics."
8. "NAPA Cards: Narrative Patterns for Data Stories."
9. Yau, "Data Points," 143.
10. Chopplin, "Emissions by Transport Type."
11. Aisch, "Data Visualizations and the News."
12. Baur, "The Death of Interactive Graphics?"

Disclosure statement

No potential conflict of interest was reported by the author.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 35–60
https://doi.org/10.1080/20557132.2017.1385256

Routledge
Taylor & Francis Group

Grid systems and universality in Indian graphic design: a study of Jain manuscripts

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ABSTRACT

Think of any aspect of the modern life aesthetic – the floor plan of your house, the newspaper you read this morning or Facebook, graphic design is probably instrumental in defining and distinguishing its content. Look more carefully and you will see basic grids providing the framework to organize space and manage the flow of information. Currently, the Western aesthetic dictates grids, but the fact is that Ancient Indian art abounds in their innovative use. From the organic-spiritual connect of temple plans to the fluidity of design in auspicious symbology, endless examples of the creative uses of the grid shine through. Unfortunately, we suffer from inadequate knowledge of this rich legacy, owing largely to the accent on Western pedagogy, so strongly laid in design education. With an aim to garner sensitivity to the fact that grids can also be dynamic and free flowing as illustrated by our ancestors, one also hopes to bridge the gap between modern design and traditional art to explore the possibility of creating an Indian design language. The aim of the article is to underline a substantial link between Graphic Design and Indian Design definition, to highlight the possibility of evolving a design vocabulary unique to India, keeping ancient grid structures as the focal point of construction. This research is an analytical study of the grid system and its philosophy in the cultural and historical context. The focus is on Jain manuscripts of Rajasthan and Gujarat origin, and on an in-depth study of their various types to analyze whether there is a clear pattern that can be co-opted into a cohesive design philosophy.

ARTICLE HISTORY
Received 30 April 2017
Accepted 17 September 2017

KEYWORDS
Graphic design; grids; grids in India; transdisciplinary study of Indian grids

Introduction

Grids are an integral part of visual communication.[1] Grids can be defined as a compositional design matrix for controlling the placement of typography and imagery. They provide a framework to organize space and manage the flow of information.[2] At the center of the graphic design field, the grid gives the design cohesion and allows for hierarchy in information according to the purpose of communication.[3]

Neither "graphic design" nor "grids" were terms that existed till the mid-twentieth century. Once the terms were coined and gained currency, complex grid structures comprising

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multiple columns, fields, baseline grids, and so on proliferated. This, however, does not negate the fact that the thought processes of designers or their predecessors – commercial artists, printers, and scribes – did not take into account content, proportion, space, and form before the coining of these specific terms. In fact, even before the advent of typesetting Religious texts laid out with liberal use of calligraphy by the intellectuals of the day also exhibited a pattern of organization of information, ranging from the use of columns to the alignment of lettering. Experts in the history of art have classified illuminated manuscripts on the basis of their existence during particular eras of history, and the types they were divided into. These include the Insular script, Carolingian manuscripts, Ottonian manuscripts, Romanesque manuscripts and the Gothic manuscripts. This classification employs the writing style termed the uncial or half uncial scripts, and provides the first examples of the introduction of spaces between words to facilitate their reading. They also displayed decoration with abstract linear patterns adapted from Anglo-Saxon and Celtic metalwork. Zoomorphic forms were also stylized and used. These were either copied from earlier works of art or relied on human imagination for their form.

Decoration took three forms in insular manuscripts:

- Ornamented borders enclosing full page illustrations.
- Ornate initials used for the initiation of gospels and important passages.
- Carpet pages: essentially complete pages of decorative designs.

The intervening period was clothed in the term Incunabula, which is now usually employed as an umbrella term for printed books dating from the late seventeenth century till the time of Gutenberg's bible. With Gutenberg and the printing press gaining primary importance in printing, the book became the primary output, art progressively became more minimalistic, and layouts became more conventional and uniform.[4]

It was in 1917 that Dutch architect, designer and painter Theo Van Doesburg founded the de Stijl. Its importance to the grid lay in the fact that it dealt deeply with form and championed the cause of minimalism. Rectilinear forms were widely used and simplicity of form strove to become accessible and democratic.[5]

The de Stijl and Bauhaus schools of thought believed that the WWI was fought due to individualism. Therefore, their philosophy was to create an international impulse, which transcended national styles and differences. This led to the development of the grid as an anti-individualistic invisible matrix, expressing itself with an entire spectrum of innovations, which accompanied the use of the Cartesian grid in European graphic design in the late 1920s. El Lissitzky, Herbert Bayer, and Laszlo Moholy-Nagy were the innovators whose leads culminated in the formulaic expression of the philosophy and method of this approach by Jan Tschishold who, in the late 1920s and 1930s, set out his typographic principles in two seminal books: *The New Typography* (1928), and *Asymmetric Typography* (1935). He equated designers with engineers, arguing for asymmetry as a logical way to lay out text, producing natural rather than formalist solutions to new designs. He also explored subtle horizontal and vertical alignments.[6] During WWII, and in the decades that followed, these ideas coalesced into a coherent design manifesto with a new design device at its core – the grid. The subsequent generation of Swiss graphic designers expanded the applications of the mathematically drawn grid and brought it to a level of perfection and elegance without altering its basic use as a tool for rationally structuring and delivering factual information.[7]

Until then, India was only peripherally involved, if at all, in these innovations and developments. However, Ancient Indian art abounded in the innovative use of grids. The variations of these, used by our ancestors, were flexible and multidisciplinary in their use.[8] However, there is a lack of knowledge among Indian designers about the rich legacy of the creative use of these grids, simply because it is not taught as a part of our design curriculum and because our knowledge and research about the use of grids in ancient India is still inadequate.[9]

The renaissance, the industrial revolutions and advances in technology had left an indelible impression on the Western world, and no sphere – including the arts and design – were untouched by the changes.[10] The British rule in India affected the holistic approach to art and craft creativity in India. The unified concept of *Kala* – design devoid of the more Western cleavage into art and craft (a concept that has been defined in more detail later in the article) – was separated into *Charukala* and *Karukala* (fine arts and applied arts) a precursor to the sharper divides in the holistic thinking that were to come.[11]

The teaching of graphic design has consistently followed the Western grid as its benchmark.[12] The universality of the Western grid structure gives design cohesion and uniformity.[13] However, this also tends to ignore the indigenous or individual aspects of the grid structure. Because of the preponderance of the Western grid structure in graphic design education, contextualization of indigenous grids becomes a problem as, with the accent firmly of the usage of the universal grid structure, the study of individual grids with regard to a specific region might not be as comprehensive. This lack of data, context and study would probably deprive a student of a perspective to graphic design that would make his/her future repertoire that is much more individualistic and rooted in the design heritage of his/her own region.[14]

The study provides a framework for the layout and its usage for specific functions within the social sphere, which can play an important part in decoding the purpose and layout of the grid. This would also perhaps provide in-depth perspective on the way the grid was utilized, its place in the design and socio-cultural hierarchy and its various nuances.

The endeavour is to place the information gathered in context with the Western grid structure, and attempt at finding similarities-or lack thereof-between the Western and Indian grid structures. The ensuing result would hopefully show a way to combine the education of both contexts, or whether they can individually be looked upon as legitimate ways of enhancing the grid layout in graphic design, and giving the universal concept an individual vocabulary.

The aim is also to examine in depth the role of symbolism in the grids associated with Indian manuscripts, in particular and Indian design thought in general, and to delve into the possibility of this knowledge as a medium to impact Indian design education, to make its personality more holistic and inclusive with the use of design tools that have existed in our own country for centuries altogether.

Evolution of grids in the Indian culture

If one were to look at the design philosophy of Indian culture, grids are in evidence almost universally. Be it the symbolism of the *Swastik*; or the *Janampatri* that is believed to map the

progress of our lives through the alignment and movement of planets; or the *Yagna* with its *Yagnakund* and the attendant markings associated with this particular form of prayer, grids play an important part in the construction and meaning of these various subsets of the vast Indian heritage.[15] Architecture has also shown us abundent examples of the use of the grid in constructions and the underlying meanings behind them.[16]

To understand the placement, meaning and importance of the grid structure in Indian culture, it therefore becomes imperative to study and absorb in detail the design philosophy that guides their making.

Indian design philosophy – an overview

Indian design through the ages, with all its attendant nuances and symbolic representations, has displayed an abiding sense of universal appropriateness, which comes closest to describing the very Indian concept of *Auchitya*. Each object, image, system or microenvironment seems to have been created to perform a specific human function, whether physical or psychological, literal or symbolic. The three major concepts of Indian design are:

The unified concept of Kala – the Indian perception of design

The surprising aspect of Indian art is that the contemporary interpretation of the concept is a transplanted one. In fact, the term itself is of foreign origin. Its provenance can be traced to a group of learned English and German scholars who, owing to their inclination towards the study of Indian culture, began to be referred to as Indologists. These scholars were responsible for the insistence on the bifurcation of art and craft in India.[17]

Indian design thought had, for long, been characterized by the close linkage – to the point of their definition being blurred – of the two concepts of art and craft under the unifying umbrella term *Kala*. It was after the advent of the European influence that *Kala* was segregated into Charukala-fine arts and *Karukala* – applied arts.

Indian design philosophy traditionally treats design as a way of life to be adopted in all spheres of society.[18] Art and craft were companions that went hand-in-hand through our history, being taught together, being practiced together.[19]

Artisans and craftsmen weren't just celebrated personalities – though there were those in abundance at the courts of the kings and courtiers. The housewives decorating their houses with *Madhubani* (traditional folk) paintings in Bihar, or grandmothers embroidering *Kanthas* – a technique involving the recycling of the new from the old with a running stitch to bind together layers of old saris, creating bedspreads. These were an integral part of our cultural heritage. One did not necessarily have to know the nuances of the fine arts; one practiced them as a way of life.[20]

Indian design philosophy lays stress on the seamlessness of thought, where everything merges without break into the next logical concept.[21] There is a thread that binds and interconnects all concepts into a cohesive whole. However, to truly incorporate this concept into the study of the design layout of manuscripts, it would be critical to study various aesthetic principles used across the larger umbrella of *Kala*.

Transdisciplinary theory of the artistic form of the grid

The first step to addressing this lack of information was to find examples within our cultural context and attempt to find cohesion in the existing information. Our heritage is a veritable treasure trove of manuscripts and design that is perhaps in need of cohesive and focused documentation. Finding examples that define and collate the various nuances of our visual design and its meaning would be an appropriate starting point from which to attempt at making a design curriculum that embraces not just the universal concepts, but also gives due importance to the cultural and historical context in which the student is geographically placed.

The areas for study and analysis were chosen from the vast examples of grids present in our culture. For facility of understanding, they have been classified as:

Symbolism and cultural totems

Though there is a panoply of examples of grids in the Indian textual heritage, perhaps the best illustrations would also be the most popular ones. These include the *Swastik (a religious symbol used for a variety of auspicious occasions)*, the *Kolam (traditional floor decoaration using rice flour)*, and the *Sriyantra (an auspicious symbol)* (Figure 1).[22]

First mentioned in the *Vedas*, the *Swastik* symbolizes *Brahma* the creator, *Surya* the sun, and *Shubh Labh* or good luck. It is seen as a power symbol and is also the emblem of *Ganesha*, the god of good luck.

However, the mysteries of arguably one of the best-known symbols of Indian scriptures go far deeper. It is also said to represent God (the *Brahman*) in his universal manifestation, and energy (*Shakti*).[23] It represents the four directions of the world (the four faces of *Brahma*). It also represents the *Purushartha*: *Dharma* (natural order), *Artha* (wealth), *Kama* (desire), and *Moksha* (liberation). The rotation of the *Swastik* is also said to be associated with the movement of time.[24]

The *Kolam* is a geometrical line drawing conceived with curved loops, and is drawn around a grid pattern of dots. The patterns range between geometric line drawings around a matrix of dots to free form patterns and closed shapes with completed lines so as to symbolically prevent invasion by evil spirits.[25]

The *Sriyantra* was drawn as a series of overlapping triangles – four pointing upward and five downward – placed sequentially within two petalled enclosures, three circular enclosures, and three squares with the characteristic shivered (*Sisirita*) profile. It also features a group of deities arranged in rings around a dominant center with a radial hierarchy, with the entire arrangement being enclosed within a square.[26] Enclosed within this square outline, the diagram functions more or less like a mnemonic device, allowing the worshipper to progressively focus concentration and achieve, in a stepwise manner, the meditational trance that is the ultimate goal of the practice of meditation.[27]

Some other examples of the utilization of the grid in symbology, astrology and astral calculations include the *Janampatri* – the Hindu birth chart that traces the positioning of the planets and their corresponding influence on an individual's life. Divided into 12 houses, each house accommodates a heavenly body and also corresponds to specific areas of life.

The *Yagnakund* or the fire altar denotes a meticulous system of corresponding physicality and abstract metaphysics that fulfills the ritual of *Yagna*, an activity involving ritual fire and attendant textual references meant to establish a communication between the finite and the

infinite – the microcosm and the macrocosm or the *Arupa* and *Pararupa*. The *Yagna* was performed in the belief that the cosmic time could be restored to cosmic order. The theory of the *Yugas* and the synchronization of annual time with solar time was a manifestation of Man's capacity to establish a relationship with the cosmos through the performance of a ritual.[28]

A variation of the *Yagnakund*, The *Agnicayana* (building up of the fire altar) or *Athiratham* is a category of rituals in which the *Mahavedi* (fire altar) is made in the shape of a falcon. The making of the *Mahavedi* and the fire altars uses brick as the basic unit. These bricks must conform to exact measurements and specified shapes, the rectangular (*Adhyardha*), the triangular (*Adhyardhardha*), or the square (*Pancami*) (Figure 1).[29]

Each brick represents a unit of time, thus denoting 360 bricks equaling 360 days. The connection between 360° and cyclic time is also said to be established by this grid. Through the finite measure, links are established with annual time and cosmic time. *Satapatha Brahmana* is the treatise that details the correct method of construction of the fire altar and the utilization of the 360 bricks. The five layers of bricks that are prescribed denote the five

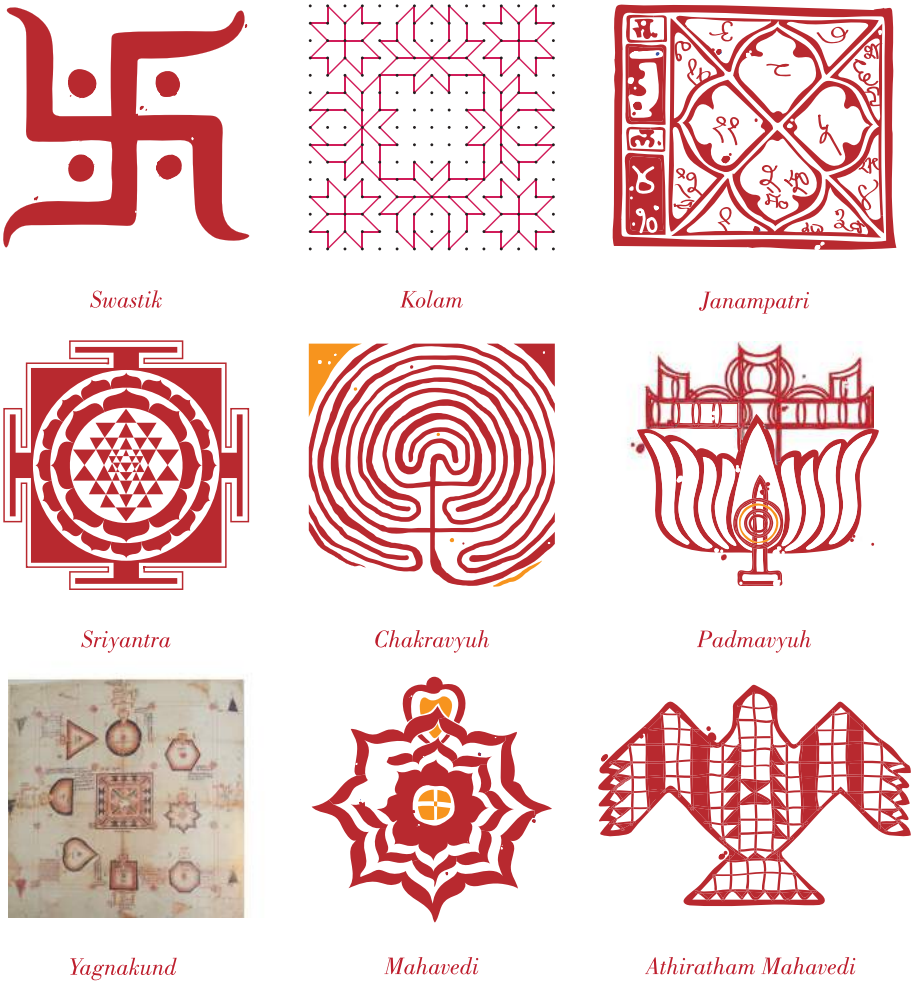


Figure 1. Examples of Grid in Symbolism and Cultural Totems of India.

seasons and each is consecrated on a different day. The building of the fire altar signifies this concern for space and time, and the importance of the temporal and the eternal.

Grids were used not just in the spiritual aspects of life, but in the more martial aspects of societal affairs as well.[30] Perhaps the best examples of the use of grids in warfare are the famous *Chakravyuh* and the *Padmavyuh* (Figure 1), which find prominent mention in the Indian epic Mahabharata, and are detailed assiduously in that text. The *Chakravyuh* was centred around a virtually impenetrable grid, based on the use of concentric circles and their attendant nuance, that only a few knew how to escape.[31] The *Padmavyuh* or the 'lotus formation' was a lesser-known grid used for martial purposes, which was formed in the shape of a lotus. It would close in on the (one to be trapped), petal by petal till it caught its victim in the centre, which would be virtually impossible to break out of. This strategy was also used for protection, and was graphically illustrated in the Mahabharat, during the Jayadrath episode, when he needed to be protected from Arjuna and his oath of killing him by sunset. It was a no getaway situation, for the one trapped, and the strongest fort for the one being protected. The description of the *Padmavyuh* is given in *Srimadh Bagavatha (Hindu religious text*).

Architecture and human form

The human form itself was used as a reference grid for temple architecture. The analogy of the human body is constantly followed in the structural plan of the temple and its importance to the holistic viewpoint of design was quite high (Figure 2).[32]

These conceptions of establishing a correspondence between different aspects of the temple's structural features with the figure of man are further nuanced with aspects of the structural organism to the macrocosm.[33] Scholars analyzing the ground plans and the elevations and the several decorative motifs have been concerned with the specifics of particular traditions both in respect of the texts and the actual temples, but a perusal of all this material bears ample testimony to the temple being constructed after a metaphoric 'image of man.' The builders were constantly trying to raise an edifice which would be an aggregate of the multiplicity of life and form.[34]

The *Vastupurusha* – or the *Vastupurushamandala* (*the divine figure of Man*) – is usually referred to as the guideline that the *Vastushastras* (*religious texts*) set for the building of Hindu temples. However, this diagram serves more as a ritual formula, and not the actual temple plan.[35]

The *Agnipurana* (*religious text*) describes the story of an evil demigod born during Lord *Shiva's* fight with the *demon Andhaka*. This demigod – *Bhuta* – is described as having a countenance fit to strike terror in every heart, and an insatiable hunger. The legend states that after performing a great penance, the *Bhuta* was granted a boon by Lord *Shiva* giving him the power to swallow the three worlds that constitute the Hindu cosmos. As *Andhaka* began to expand and occupy the heavens, he fell flat on the earth. The various gods and demigods seized this opportunity and pinned various parts of his body to the ground, rendering him helpless. *Andhaka* came to be recognized with the appellation *Vastu* (or *Vastupurusha*), and legends also elaborate that the deities, in pinning him down, occupied different parts of his body and continued to reside there.

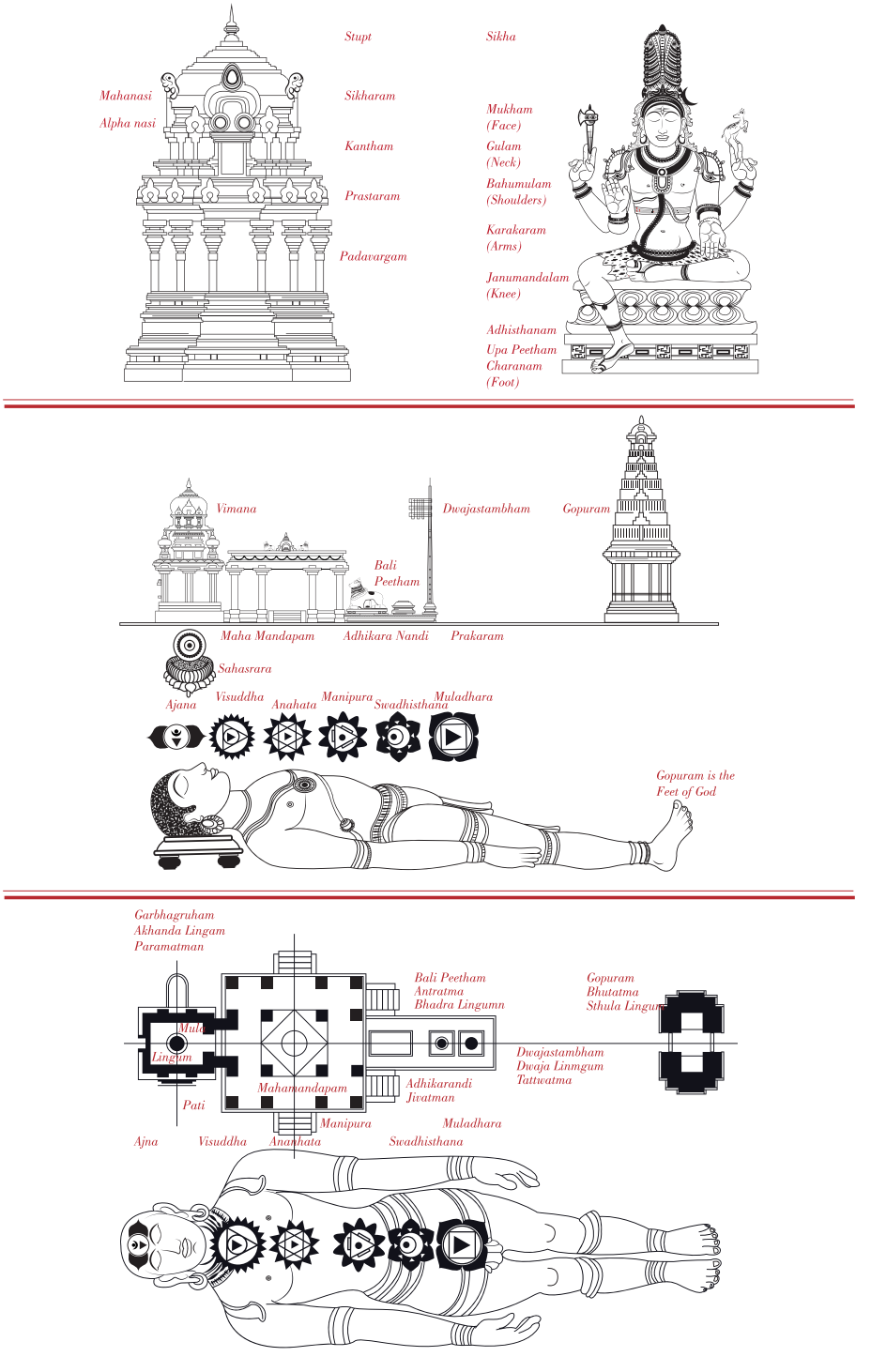


Figure 2. The Human Form used as a Grid for Temple Architecture in India.

Indian manuscripts

As per the Indian Antiques and Art Treasure Act, 1972, 'any manuscript is a handwritten composition, which has significant scientific, historical or aesthetic value and which has been in existence for not less than seventy-five years old.'[36]

Manuscripts are found in many languages and in various scripts. Indian scriptures are divided on the following broad lines:

Shruti, the oral tradition of Indian scriptures, where information is passed on hearing – *Shruti*. The initial literature is traditionally believed to be a direct revelation of the ,cosmic sound of truth' heard by ancient sages who then translated what was heard into something understandable by humans. In the Indian scriptural tradition, *Shruti* refers exclusively to the four *Vedas* (*religious texts*).

Smriti, the memory based classification, where memorization – *Smriti* – is the basis of information. *Smriti* is broadly classified as secondary scriptures of human composition within the Indian scriptural tradition. Good examples of this kind of scriptures are the four *Upavedas*.

Research approach

This study uses a codicological, observational, art based research design. Codicology is the study of the materiality of the manuscript. Manuscripts, as artifacts of material culture, are physical objects embedded in a complex web of cultural networks, physically shaped by human agency. Through close analysis of the materials, this research explores the physical side of the manuscript. Areas such as binding, layout, and collation are considered in order to study the physicality of the Indian Jain manuscripts.

Research methodology

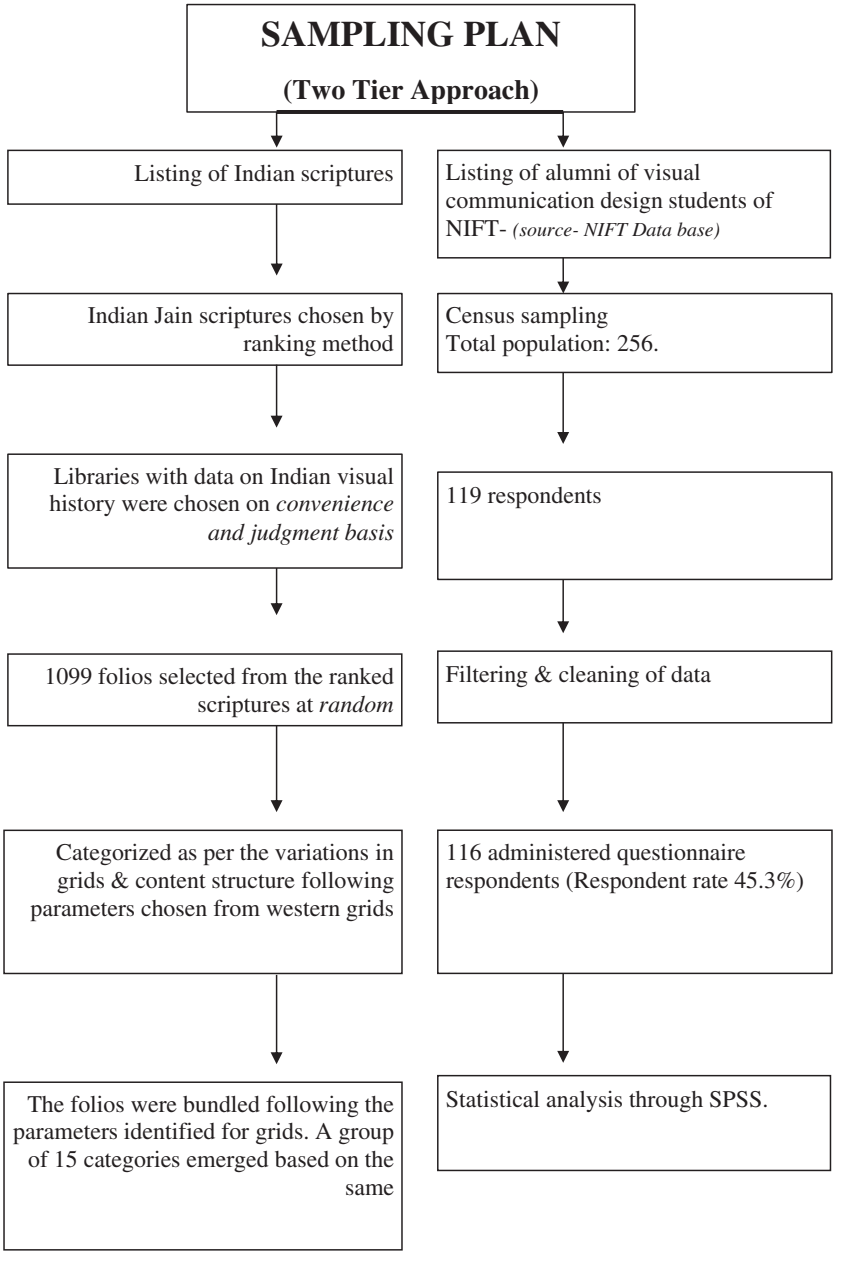
For greater insight, literature was reviewed from Jain manuscripts and various writings were explored. The listing of the manuscripts was done from secondary sources. This list was sent to Jain manuscript experts to rank the important manuscripts.

To understand the parameters of grids in graphic design, the listing of the parameters of evaluating grids in graphic design from secondary data was done and the list was sent to select graphic designers for the ranking of parameters appropriate for an in-depth analysis of the role of grids in the Jain manuscripts.

The manuscripts to be looked upon were finalized. A conclusive study followed to make structures from the manuscripts and categorize them.

Sampling Plan: Since the manuscripts originating from Rajasthan and Gujarat are scattered all over the world, four data units were selected on convenience basis, through the formal listing available at the National Manuscript Mission (NMM) stating the exact number of manuscripts. Jainpedia has a listing of 90 manuscripts, Indira Gandhi National Centre for the Arts (IGNCA), National Museum and BL Institute of Indology. However, IGNCA and the National Museum did not allow the visual documentation of the manuscripts.

Based on the ranking of Jain manuscripts given by Jain experts and manuscriptologists, a total of 50 manuscripts were examined, from which 1099 folios were catalogued. Each folio was studied for the presence of grids and they were categorized as per grid styles. The parameters of Western grid systems in graphic design formed the base of the study.



For stage 1– codicological/observational sampling

1. 50 manuscripts comprising of 1099 folios were selected through ranking method and were studied in detail for the presence and role of grids.
2. Photographing and cataloguing.
3. Categorization of the manuscript folios based on parameters finalized from Western grids.

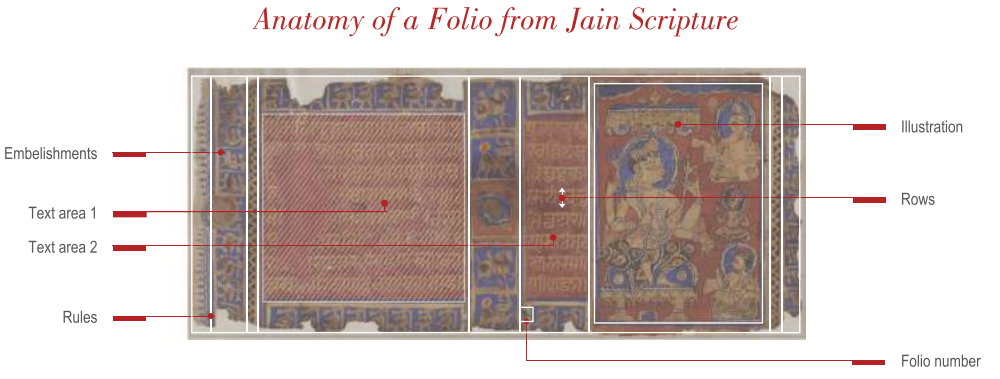


Figure 3. Anatomy of a Folio from Jain Manuscript.

For stage 2

Census Sampling: A listing of graphic design alumni from National Institute of Fashion Technology was procured. A census sampling was done in the population frame of 256 alumni, to which 119 replied. Finally, 116 professionals were shortlisted after filtration and cleaning of data.

Size of sample

Stage 1 – Fifty manuscripts were looked upon after the Jain manuscript listing, and its writings were analyzed in the form of grids. A total number of 1099 folios were taken from the data. The folios were categorized as per the grid styles. These grid styles were studied according to the parameters of Western grid systems.

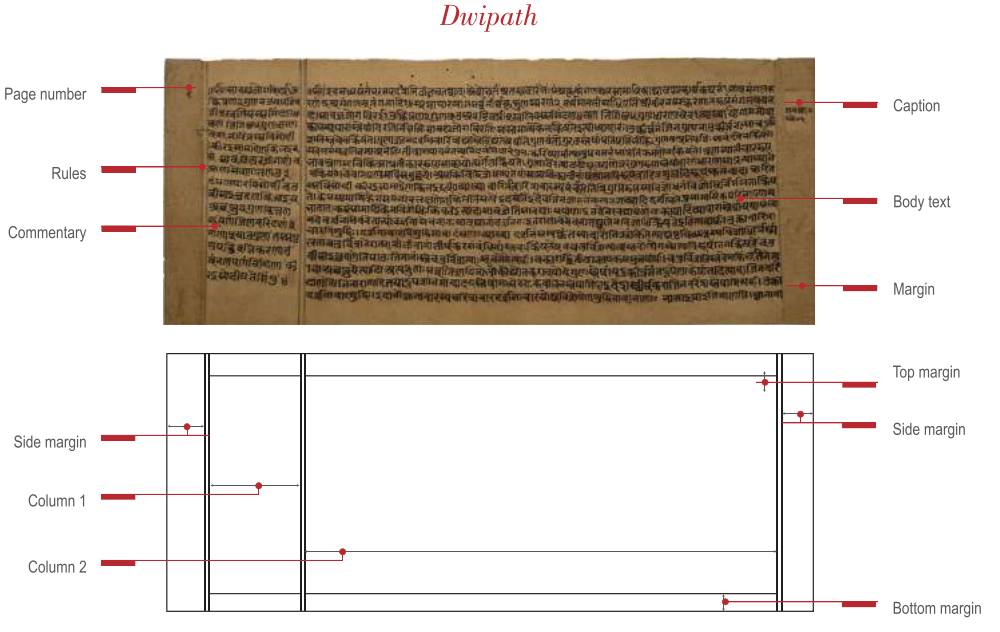


Figure 4. Dwipath Layout of Jain Manuscript.

Stage 2 – The analyzed folios were substantiated with an administered questionnaire to alumni of the Communication Design Department from National Institute of Fashion Technology (NIFT).

Sampling selection criteria

1. The manuscript should be a Jain manuscript of Gujarat and Rajasthan region.
2. The manuscript must have division of data.
3. The larger formats of manuscripts were chosen which used paper or cloth as base.
4. The respondent should be a visual communication designer.

Data collection tools

The following tools were used in data collection:

Secondary Data: This was searched to gain insights into the Jain manuscripts, which show the existence of grids. Some of the key sources derived from the listing at National Mission for Manuscripts were:

1. IGNCA
2. National Museum
3. BL Institute of Indology
4. Jainpedia

Primary Data: This was collected through visual documentation and cataloguing of folios of Jain manuscripts, then administering a questionnaire. Collection was through one of the following means:

i. Individual in-depth personal interviews.
ii. Structured telephonic interview.
iii. E-mail.
iv. Photographing and cataloguing.
v. Field visits.
vi. Interactions.

The Questionnaire: The key areas covered in the final questionnaire were:

i. Importance of grids in the systematic arrangement of various elements of a page.
ii. Visual criteria for evaluation of grids.
iii. To understand if the same criteria could be established in the Jain manuscripts.

Response Mechanism: Responses were sought on questionnaire in three different ways: in-depth personal interviews, structured telephonic interviews and emails.

The grids analyzed in the Jain manuscripts display all parameters that can be used to define the role of grids and thus can be used as appropriate Indian examples to study grids in graphic design. Following conclusions were drawn from the research:

Data analysis and interpretation

Aesthetic parameters of the visual framework: the basis of page architecture of a folio from Jain manuscript

Typographer and journal publisher Blackwell (2004) defines the arrangement of matter on a page as 'an arcane corner of interest,' yet the increased interest in research into visual grammar shows that layout is becoming an important aspect of communication, which informs language. Kress and Van Leeuwen (1996, 2002) provided a methodology for analyzing layout, which complemented the language structure, and Van Leeuwen (2006) provided a discourse on the semiotics of typography, which alludes to the semiotics of layout.

This research looks at the shape of elements and their placement in a layout, relative to other elements, and how they form a rhetoric based on their characteristics, which determines a design style. More importantly the development of style in communication design can be regarded as complementary to the complex communication derived from the visual grammar. As described by Scott (1994) they are 'not merely analogues to visual perception but symbolic artifacts constructed from the conventions of a particular culture.' These conventions of a particular culture influence the outcomes of design specifications. It therefore follows that temporal based design specifications can be reconstructed using rules, which govern this visual language. Style can be interpreted as specific combinations of relationships between elements in a particular visual language.[37] The application of this relationship is explored in the Indian Jain scriptures to find if there is an existing coherent layout system, which was the basis of the aesthetic parameters of their visual framework (Figure 3).

The intrinsic nature of the shapes, which represents the layout elements, their placement and interrelationship, construct a context, which relates to a visual framework.[38] A study of this framework-the basic anatomy of a folio in Indian Jain Manuscript was done to create a visual vocabulary of these layout elements. In the context of page anatomy, the elements

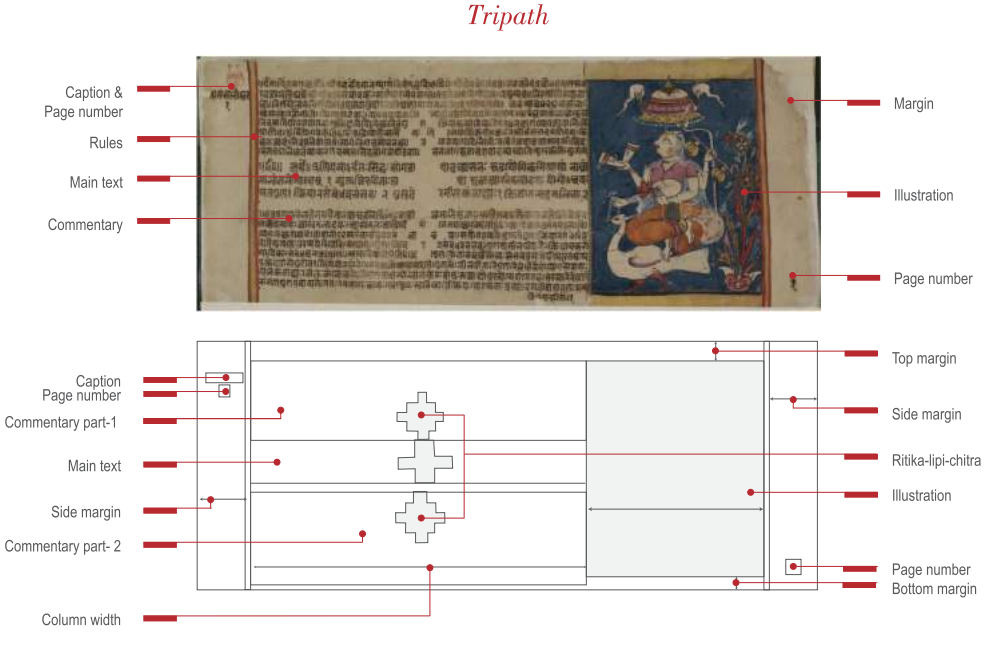


Figure 5. Tripath Layout of Jain Manuscript.

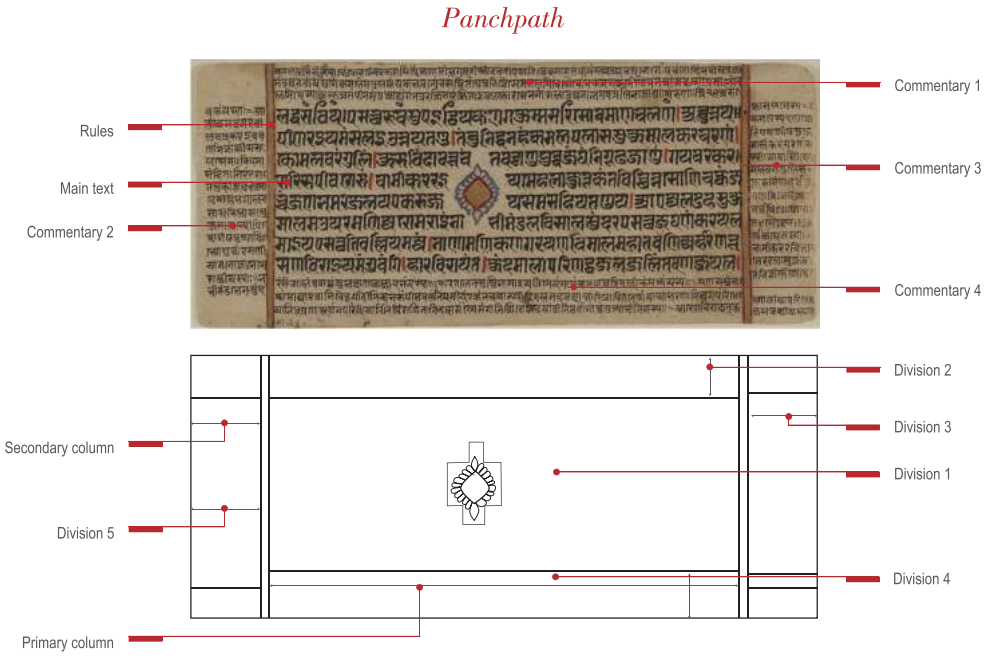


Figure 6. Panchpath Layout of Jain Manuscript.

used in the construction of Jain scriptures that emerged from an analysis of the 1099 folios were as follows:

Margins: These were used to define the extremities of a particular page, till which point the text and illustrations could be fed in. It also provided the 'whitespace,' a very important element for both visual impact and readability.

Columns: The scriptures followed the single column structure, two-column structure. At times the page was divided into multiple columns for better accommodation of text and illustration. The grid system provided a rigid framework within which many variations can be seen.

Rows: Text in a typical set of Jain manuscripts would be neatly arranged in rows and would follow the left to right axis with a tool – the *Phantiya* (a board with holes on both vertical edges through which threads passed). Paper was pressed on these threads to get marks of straight lines, which would create rows for text to then be placed, somewhat adhering to the same principles followed in the ruled paper of contemporary times.

Page numbering: Pages of the manuscripts were chronologically numbered, providing a better understanding of hierarchy of information.

Image and non-image areas: The spaces on the folios were clearly divided into areas dedicated to text/illustration, and those that had to remain free of text.

Illustrations: The contents of a particular page were illustrated in various creative styles to provide non-textual yet cohesive information.

Decorative and symbolic elements: Most pages also prominently displayed borders, motifs and symbols to embellish gutter spaces between columns and margins. There were instances of decorative elements being used around the page number.

Sastabak

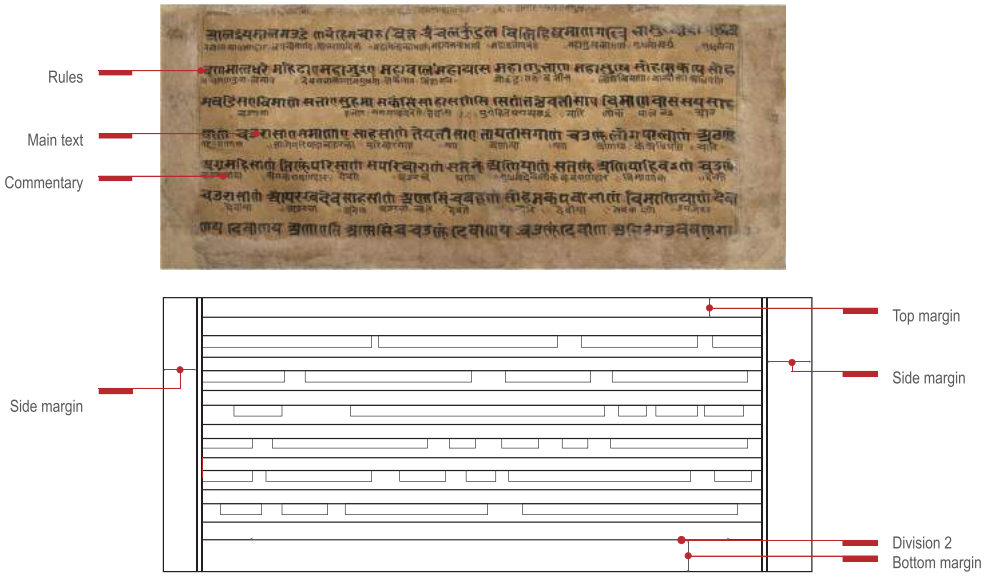


Figure 7. Sastabak Layout of Jain Manuscript.

Shud

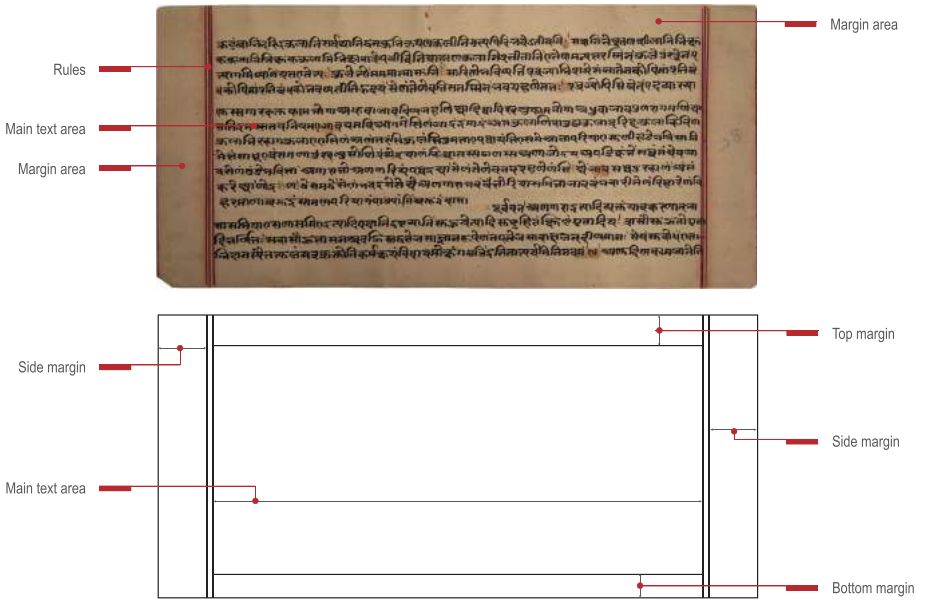


Figure 8. Shud Layout of Jain Manuscript.

Main text and commentary notes: In the *Dwipath*, *Tripath*, *Panchpath* and *Sastabak* (styles of Jain manuscripts), the text areas of the main text and commentary were segregated into horizontal and vertical divisions. However, it was observed that in the *Sastabak* style of

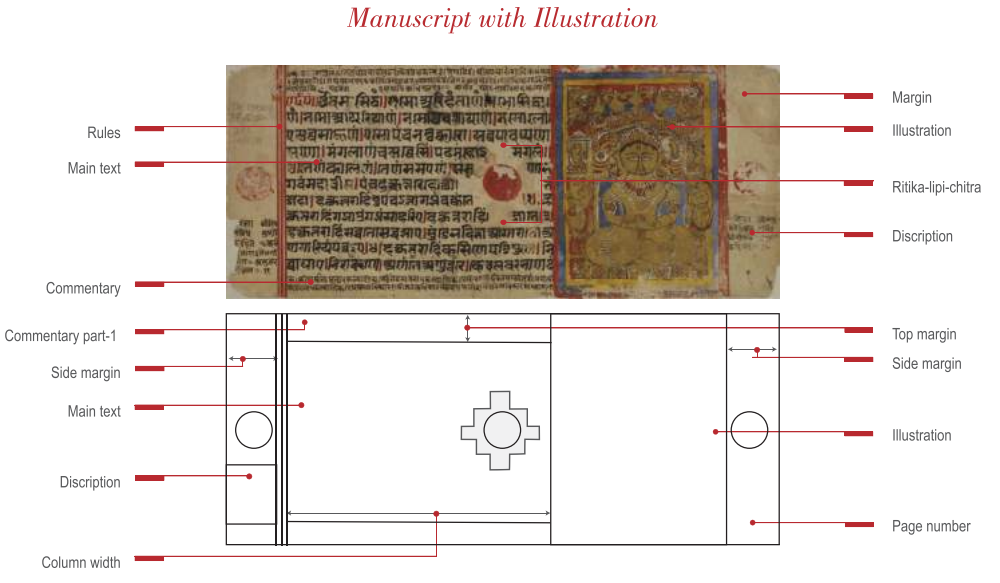


Figure 9. Jain Manuscript with Illustration.

Figure 10. Decorative Elements.

manuscript the main text was written in a larger type and the commentary appeared right under each line in order to better explain the primary text of the particular page.

The lines of the text were sparsely written to provide the meaning/commentary of each textual word in Gujarati or Hindi.

Development of a grid

The placement of elements follows an aesthetic function, which determines the order and complexity of the designs.[39] Jain manuscripts show a marked presence of certain coherent structures pertaining to the placement of elements in the folio.[40] This structure was repeatedly used as the guiding principle of composition to create perfect logic and harmony of design in the layout.[41]

Listing of different styles of layouts of folios in Jain manuscripts

Based on the feature annotation relevant to division of space, text hierarchy, management of data, different layouts styles of folios were listed out. There were six main styles in which the text was segregated into main text and commentary. Following were the findings:

The pages were divided into sections and the naming was done as per the number of sections. Currently in graphic design there are vertical divisions of columns and horizontal called rows.

Dwipath

In this grid structure, the page is divided into two distinct areas. One is used to write the main text, while the second is utilized to write additional information (commentary), akin

Figure 11. Decorative Elements.

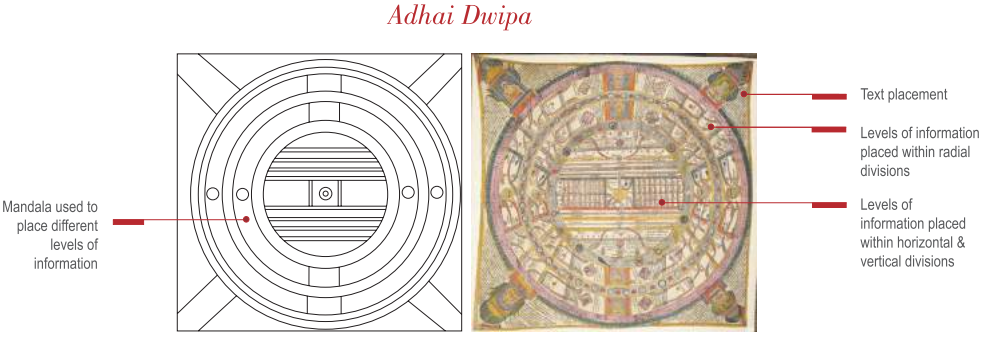


Figure 12. Adhai Dwipa Manuscript.

to the way research papers are published, with a two-column layout, one used for the main text and the other for citations, notes and such, following the example of Western grids structures. There was presence of page margins on all four sides. This demarcated the image and non-image areas clearly.

While interviewing the manuscriptologists and Jain experts, the researcher was informed that this type of grid structure was named *Dwipath* – 'two readings' and that the division of sections was similar to the Western grid style (Figure 4).

Tripath

In *Tripath* the page was divided into three horizontal divisions, the main text being written in the middle of the page, and the comments appearing on the top and bottom.

This, according to the manuscriptologists and Jain experts, was known as *Tripath* 'three readings (Figure 5).'

Panchpath

In this style of page layout, the folio is divided into five areas. One central section has the main text, surrounded by a margin on all four sides. The commentary is placed within the margin areas. The manuscriptologists and Jain experts used the term *Panchpath* 'five readings' for this style (Figure 6).

Sastabak

Jain texts are frequently accompanied by an explanatory commentary in the same language as the main text, or in a different one such as Sanskrit, Gujarati or Prakrit. Each line is followed by blank spaces in which the commentary appears in a smaller script. This layout is often used when the text is in Prakrit or Sanskrit and the commentary is in a vernacular language, such as Gujarati. Here, the commentary is more or less a word-for-word translation. This layout style was known as *Sastabak* (Figure 7).

Shud

It was observed that in certain folios of the Jain manuscripts the text and commentary were written in a continuous line. This style was called *Shud* as per manuscriptologists and Jain experts. In this system it was difficult to distinguish between the text and the commentary (Figure 8).

Manuscripts with illustration

The standard place for a painting was either on the right or the left of the text. Lines forming a rectangle often marked out this space. In some cases this space was empty, suggesting that the scribe perhaps reserved it for an illustration the painter overlooked making (Figure 9).

It was also observed that illustrations were placed within the text. There are many examples of small vignettes within the text, of full folios devoted to an illustration and of a large horizontal space for painting.

Listing of different layout styles based on decorative elements

Apart from the horizontal and vertical division of space to create layout styles, one could see decorative elements such as *Madhya Phullika* and *Madhya Chatuskika* (Figure 10). In Jain manuscripts, sometimes a blank space was observed in the centre of a page, which was shaped like a square, rectangle or lozenge. It could be empty, filled with a red disc or a more ornate, colourful pattern. There could be letters from the text itself, sometimes artistically expressed. This space is a reminder of the hole found in earlier palm-leaf manuscripts, where a cord inserted through the hole would string together all the folios into one manuscript. Though the invention of paper put paid to the tradition of stringing the folios together, the symbolic representation of the void endured. Another decorative element, *Ritika Lipi Chitra* (Figure 11) was characterized by lines written with gaps to form a decorative figure.

The analyses of these decorative styles are resonant with the analysis of Coomaraswamy and Boner, wherein the character and implications of the geometrical diagrams on which we presume the outlay of these scriptures have been based.[42] While discussing the surface division of the sculptures they point out that – a given space or surface may be divided and subdivided indefinitely by straight lines without ever becoming an organic whole. But as soon as a point is placed in the centre of a given space or surface, the amorphous extension becomes transformed into an organized structure. The centre is a point of reference towards which all parts converge, and therefore the whole structure becomes 'con-centrated.' The existence of a centre creates a hierarchy of values, in which the parts cease to be equivalent and assume different weight and importance. The importance of any part diminishes in direct proportion to its distance from the centre. Between the centre and the outer parts, the undimentional and the omnipresent there is a polarity that creates tension as well as organic coalescence. The centre is the source and fountainhead of this organic whole, and the position of all outer parts is determined with reference to the centre.[43]

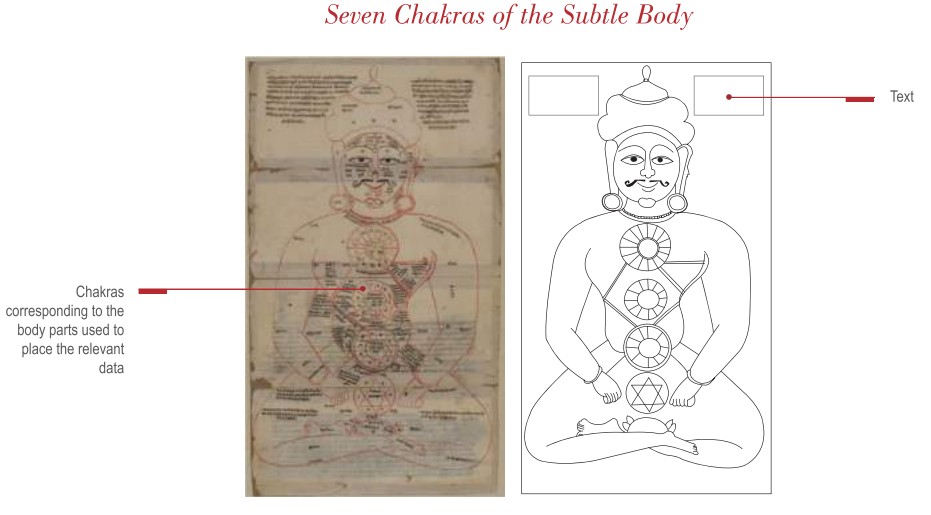


Figure 13. Seven Chakras of the Subtle Body Manuscript.

Listing of new layout styles

Apart from the horizontal and vertical division of space there were more examples of grids seen in the Jain manuscripts with other unique layout styles.

Adhai Dwipa

Adhai Dwipa (Figure 12), (the text is placed as per the radial hierarchy to explain the traditional representation of the world inhabited by human beings in Jain cosmology). Made up of alternate concentric rings of continents, mountains and oceans, each of the four angles of the picture represents a Jain temple with worshippers. This is intended to show that the teachings of the Jinas (spiritual teachers) exist worldwide.

On each side of these temples, lines of text are written in small script, providing additional detail about the Jain universe, describing each component, giving dimensions and occasional quotations from scriptures.[44]

The human form

The human form was used as a grid to divide the folio in the scriptures – Medicine and *Karma*, personification of a planet and seven *Chakras* of the subtle body. The content was placed in order of relevance (Figure 13).[45]

Quantitative research

The results of the researcher's analysis of grids and data collected were substantiated statistically with the help of software application packages, Statistical Package for Social Sciences (SPSS), version 17.0. Data was analyzed in three sections:

a) Hypothesis testing
b) Correlation analysis
c) Cross tabulation

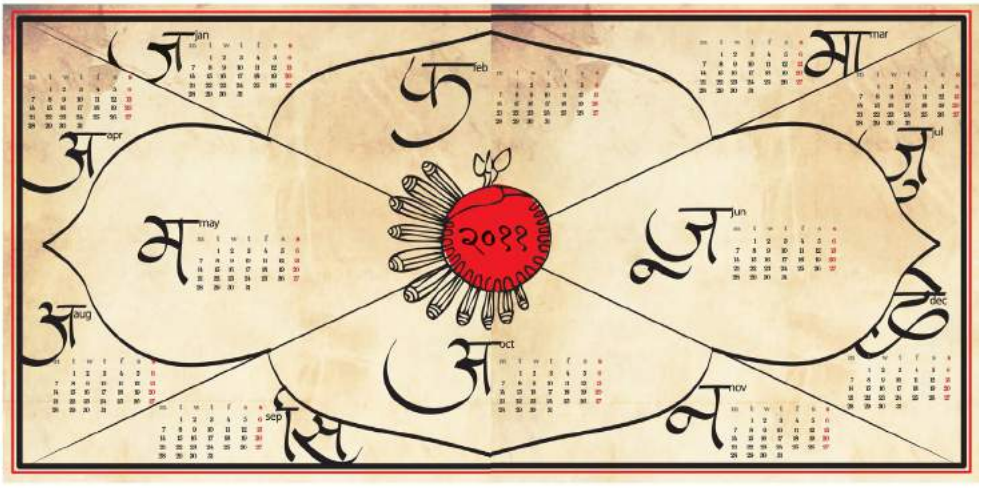


Figure 14. Use of Janampatri Grid to Design a Year at a Glance for NIFT Promotional Collatral.

Figure 15. Invite Design for Scripting the Past for the Future, An Exhibition on Ancient Grid Structures inspired by the Jain Manuscript Layout.

a) Hypothesis Testing: The following parameters – that help us understand the role of a grid in the Western vocabulary of graphic design were shortlisted after deliberation with graphic designers using the ranking method:

- Division of Space in Jain Manuscripts
- Sequence and Flow of Information in Jain Manuscripts
- Hierarchy of Data in Jain Manuscripts
- Use of Grids in Jain Manuscripts Facilitate Management of Content
- The Use of Grid in Jain Manuscripts Helps in Guiding the Eye Movement
- Uniformity of Design in Jain Manuscripts
- Balance of Elements on the Page in Jain Manuscripts
- The Layout in the Jain Manuscripts Pays Due Attention to Proportion

These factors were included in the questionnaire. Two hundred and fifty-six visual communication designers, who responded in the research, gave their views on the importance of these parameters in defining the role that the grids played in the Jain manuscripts.

The above eight hypotheses were formulated and t-test was chosen to determine the statistical significance between the sample distribution mean and a parameter and the key inferences at the 95% confidence level were drawn. The entire hypothesis drawn was accepted.

b) Correlation Analysis: Correlation analysis was carried out to find the correlation between variables of presence of grids and the role it plays in a layout. Correlations measure how variables or rank orders are related. Pearson's Correlation coefficient (r) is a measure of linear association. The variables, which have strong 'and' positive correlation between them, are: Existence of grids in Jain with the division of space in the manuscripts, the display of sequence and flow of information and with clear division of space. Manuscripts have hierarchy of data has a strong correlation with manuscripts displaying sequence, flow of information and management of content is in a systematic format. Clear division of space has a strong correlation with grids, providing balance to the elements on a page indicating that the Jain manuscripts displayed all the parameters that define the role of a grid in the Western vocabulary of graphic design.

c) Cross Tabulation: The present study shows that, over all, 99.1% respondents agree that grids help while designing a print collateral; 96.4% respondents considered that there is existence of grids in Jain manuscripts. The results indicate that: 85.5% of respondents agree that there is a clear division of space displayed in Jain manuscripts; 72.3% of respondents think that Jain manuscripts display a sequence and flow of information. Overall, 63% of respondents agree that there is a hierarchy of information in Jain manuscripts; 71.8% of respondents felt that Jain manuscripts display management of content in a systematic format; 76.1% of respondents agree that there is uniformity of design in Jain manuscripts. Meanwhile, 85.7% of respondents felt that Jain manuscripts display proof of grids, providing balance to the elements on a page; 88.8% of respondents agree that grids in Jain manuscripts guide the eye movement; 67.85% of respondents felt that that layout in Jain manuscripts pays due attention to proportions.

Conclusion

The study of framework of the basic anatomy of folios of Jain manuscripts highlighted the evidence of elements like margins, columns, rows, page numbering, image and non-image areas, illustrations, decorative and symbolic elements, main text and commentary notes. The folios displayed variation in content. The abstract patterns produced by the geometric lines of the composition are in intimate correspondence with the essence and ultimate substance of form-display that they may therefore have besides their structural function, which in itself has an inherent symbolic value. The study also revealed the structural mechanism based on certain geometric/ aesthetic laws.

The variety of information through our varied cultural landscape is indeed vast. However, the lack of a centralized area of information and the paucity of publicity of the existence of this information is a major hindrance to structured research. What is perhaps the need of the hour is to have a more cohesive, linear stacking of information, and better publicity – of the variety, nuances and uses of our own graphic design tradition as utilized in our rare books and manuscripts – so that the graphic design professional can tap into the history of our own culture to create an indigenous design language. It is perhaps as good a time as any to look back and attempt to incorporate the uniqueness of our design history into

modern design education, thus tapping into a source of the Indian aesthetic language, replete with the depth of philosophical thought and the interconnectedness of all things.

Recommendations

- The strong bent towards horizontal orientation of design that the manuscripts markedly display could become an effective tool in web design, considering its current horizontal orientation. Also, since web based functions envelop virtually all aspects of life, this affinity to the horizontal grid pattern could perhaps straddle a new design language to mirror the one spoken by our ancestors. It could provide guidance to the new breed of designers who may or may not be aware of the flexibility that these patterns afford to the design language. For example, Scrolls, Codex and *Tamrapatra* were the three formats on which most manuscripts were based almost exclusively. The scrolls have been experimented with through the widely used 'scrolling up or down' function in most website designs. The Codex has been extensively explored by Christian and Islamic textual heritage. The Horizontal format is a fairly recent addition to the design philosophy, especially that practiced on the World Wide Web with the increasing exploration of new media. Perhaps a detailed study of this format could lead to a distinctly Indian design sensibility reaching the global village that is the Internet of today, with the via media being the new media devices such as tablets and smartphones.
- The usage of grids in ancient Indian manuscripts and the possibility of customization that they offer can be introduced in the graphic education curriculum. It could be included in the History of Graphic Design curriculum and could perhaps form a vocabulary of graphic design with a distinctly indigenous bent. The initiative of studying and documenting examples of India's visual heritage could well inject a sense of pride and confidence into future generations and may culminate in a visual identity that is more coherent, cogent and relevant to our country (Figures 14 and 15).
- At present, art historians, historians, Indologists and the graphic design fraternity have their own interpretations of the Indian design language and its progenesis, and these may or may not overlap. Art historians generally focus on art through various periods in history and the impact it had. Indologists with their focus on culture, history and background provide a more generalized viewpoint. Put together, these two groups have a deep understanding of various aspects of Indian design history and heritage, but these aspects may or may not overlap. To bring the much-needed cohesion to the Indian design language and its symbolism, a series of conferences with experienced representation from all these fields, along with the design industry, can be held to thrash out a consensus, and for that consensus to then be promulgated through the vehicles that have already been elaborated in the earlier suggestions.

Notes

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2. Muller-Brockmann, *Grid Systems in Graphic Design*. 57–60; Roberts, *Grids: Creative Solutions for Graphic Designers,* 10–11.

3. Brockman, *Grid Systems in Graphic Design,* 11–12; Dabner, *Graphic Design School,* 100–101; Hurlburt, *Layout*.
4. Meggs, *History of Graphic Design,* 80–81.
5. Williamson, *The Grid: History, Use & Meaning,* 177–179.
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7. Muller-Brockmann, *Grid Systems in Graphic Design,* 7; Vignelli, *The Vignelli Canon,* 6.
8. Vatsyayan, *The Square and the Circle of the Indian Arts,* 7–11.
9. Vyas, *Design: The Indian Context,* 26–29.
10. Eames, *The India Report,* 17.
11. Balaram, *Thinking Design*.
12. Meggs, *History of Graphic Design,* 561.
13. Higgins, *The Grid Book,* 4–11.
14. Das, *Culture as the Designer,* 41–42.
15. Mookerjee, *Ritual Art of India*.
16. Sinha, *Architectural Invention in Sacred Structures,* 382–399.
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18. Keay, *India-A History*.
19. Eames, *The India Report,* 6.
20. Balaram, *Design in India,* 54–79.
21. Kramrisch, *The Hindu Temple,* 35–36.
22. Dahejia, *Akriti to Sanskriti*.
23. Banerjee, *The Development of Hindu Iconography*.
24. Zimmer, *Myths and Symbols in Indian Art and Civilization*.
25. Cunningham, *The Mandala Book: Patterns of the Universe,* 6–18.
26. Khanna, *Yantra – The Tantric Symbol of Cosmic Unity*.
27. Bafna, *On the Idea of the Mandala as the Governing Device in Indian Architechtural Tradition*, 26–49.
28. Vatsyayan, *The Square and the Circle of the Indian Arts,* 21.
29. Drury, *The Sacrificial Ritual in Satapatha Brahmana,* 61–71.
30. Matthews, *Mazes & Labyrinths: Their History & Development,* 4–8.
31. Wright, *The Maze and the Warrior*.
32. Kak, *Space and Cosmology in Hindi Temple,* 1–5.
33. Boner, *Alice Boner Diaries: India 1934–1967,* 22–23.
34. Chandra, *Studies in Indian Temple Architecture*; Meister, *Maṇḍala and Practice in Nāgara Architecture in North India,* 204–219.
35. Thapar, *Introduction to Indian Architecture,* 30–31.
36. Losty, *The Art of the Book in India,* 3–4.
37. Samara, *Making and Breaking the Grid,* 22–23.
38. Vignelli, *The Vignelli Canon*. 40.
39. Tschichold, *The New Typography*.
40. Sharma, *Samanya Pandulipi Vigyan,* 102.
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44. Kumar, *The Jaina Cosmology*.
45. Khanna, The Subtle Body: An Illuminated Tantric Scroll.

Disclosure statement

No potential conflict of interest was reported by the author.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 61–89
https://doi.org/10.1080/20557132.2017.1398950

Routledge
Taylor & Francis Group

Art, science, and technology of outdoor advertising in Ghana

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ABSTRACT

Outdoor advertising has been the most popular form of visual advertising from ancient times till now. The craft has gone through various stages of metamorphosis from crude painted signs to the present highly scientific and technologically characterized signage visible in towns and cities across the world including Ghana. Even though, the craft is regarded as art in Ghana, a close study of the nitty-gritties of the practice of the craft in Ghana reveals that it has been characterized by multiplicity of artistic, scientific and technological processes and methodologies in design, construction and installation. Using case study research method, unstructured observation and interviews, this article delved into the activities of experienced outdoor advertising practitioners in some of the largest and highly developed outdoor advertising agencies in Accra, Ghana to examine the tools, materials and processes they used in designing, constructing and installing outdoor signage and to identify the extent to which they apply artistic, scientific and technological processes and principles in the production chain. The raw data collated were transcribed, coded and presented using the Focused-by-research question approach and analysed through narrative and descriptive qualitative approaches. The major findings that emerged from the data analysis were also discussed comprehensively through inductive and descriptive analysis. The analysis and discussions revealed that more scientific and technological process and principles are applied in the production chain of outdoor signs in Ghana than artistic processes and most graphic design professionals in the local outdoor advertising industry lacked comprehensive knowledge and skills in the scientific and engineering aspects of construction and installation of outdoor signs. It is therefore recommended that communication design curricular at Senior High School and tertiary levels must be reviewed to include the scientific and engineering processes and principles of signage production. Mandatory industrial attachment programme must also be introduced and properly enforced in the programmes, so as to link the curricular and training to industrial practice and production managers who have only engineering background must be given training in advertising, marketing, social psychology and graphic design.

ARTICLE HISTORY
Received 22 May 2017
Accepted 8 October 2017

KEYWORDS
Outdoor advertising; signage design; signage construction and installation

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Introduction

The term outdoor advertising is a generic term used to describe an aspect of one major marketing tool (advertising) which is being applied massively in various facets of economies across the world. This type of advertising applies different advertising products technically called 'posters'. According to Stephen Appiah the word poster is a general term used to describe outdoor signs used to inform, warn, and direct people and create awareness of products, organizations, individuals, concepts, or ideologies. These types of items are often posted publicly.[1] Keith J. Tuckwell also stated that the scope of poster include signposts, signboards, billboards, banners, mural signs, vehicle branding, transit signs, replica signs, door labels, paper posters, etc.[2]

It must be acknowledged that the subject of outdoor advertising has been a dominant component of graphic design curricular in schools and a specialized vocation in signwriting and advertising in Ghana, because of that it is widely regarded as an art in Ghana. However, examination of the nature of outdoor advertising practiced in Ghana indicates that, it is a complex subject that embraces different skills. The researcher would therefore wish to question whether outdoor advertising is an art, science, or technology.

To set the premise for logical argument, the researcher would review the operational terms: 'Art', 'science' and 'technology' and find out how the triad has influenced the practice of outdoor advertising across the world including Ghana. Even though the concept and scope of art has evolved over time and heavily debated by many philosophers, the formalist concept of art which is informed by 'significant form' theorized by Clive Bell shall be examined in this write-up because it resonates with the concept of art being highlighted by the author in this article.

According to Noël significant form is the necessary factor that elicits spontaneous emotional response to an artwork. This necessary factor should be universal to all forms of art works. The author further stated that, in visual arts proper organization of visual elements of design in an artwork is the necessary condition that creates aesthetics.[3] Stephen Appiah is of the view that attractiveness is one of the necessary qualities that enhance the viewership of outdoor signs.[4] This is why formalist principles that require the use of formal rules of design such as balance, variety harmony, rhythm, contrast, etc. to organize graphic elements such as text, illustration, colour, motion devices, etc. to achieve unity (synergy) and harmony in a communication design work is an important factor in commercial art. This helps to boost the aesthetic appeal of signage thereby attracting and sustaining the eye of viewers which can influence the purchasing decisions of viewers. Gallery.sjsu.edu cited examples of the influence of the captivating coloured posters of Jules Cheret on viewership of outdoor advertising signage in nineteenth century France and Europe.[5]

From the era of modern poster design to date scientific principles and processes have also been used in the production chain of outdoor signs. These scientific principles and processes help to achieve precision, accuracy and durability in outdoor signs and they are reflective of the explanation of science given by the National Academy of Sciences as the use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process.[6] These empirical processes generate theories, formulas and principles such as forces and stresses, surface tension, alkali and bases, adhesion and cohesion, saponification and others which are applied massively in signage design, construction, installation and preservation.

Figure 1. Large format printing machine and inks. Source: Fieldwork, 2016, ATSP.

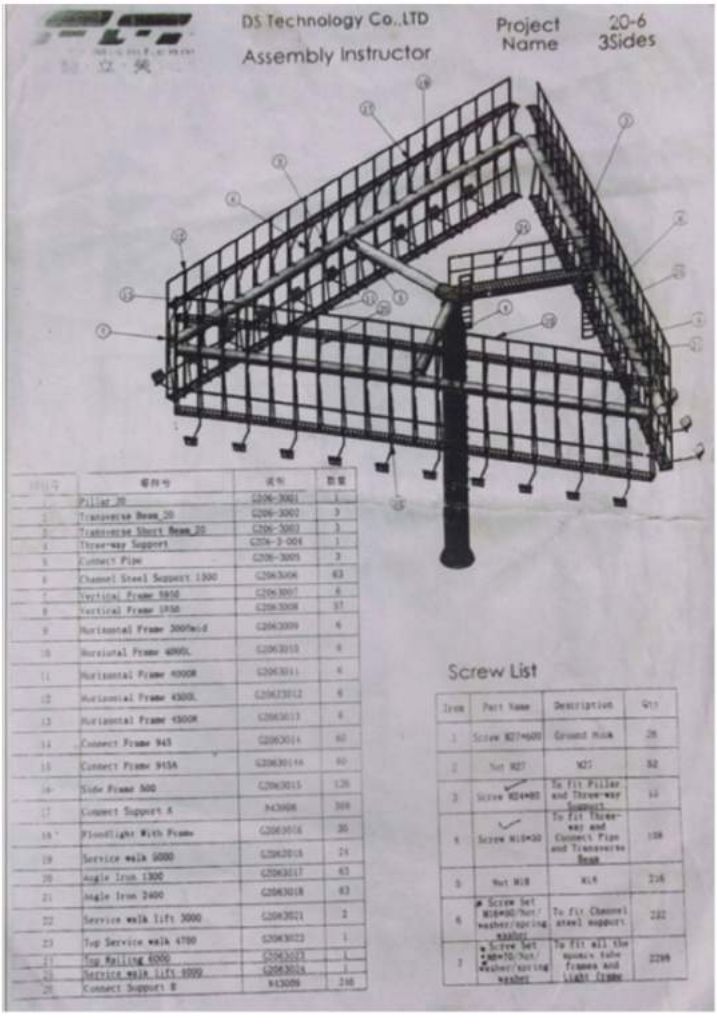

Figure 2. Engineering drawing of unipole. Source: Fieldwork, 2016.

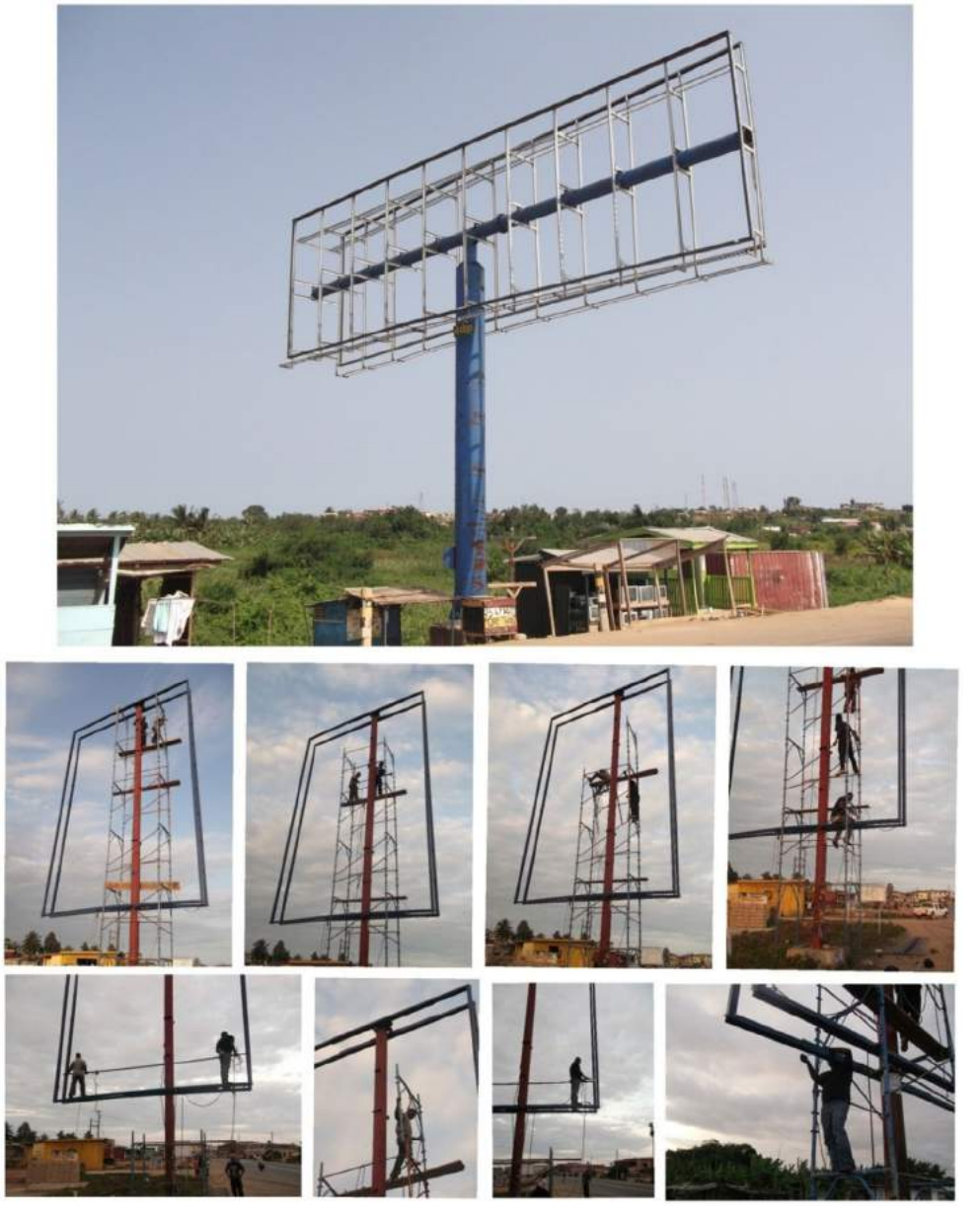

Figure 3. Installation of modern billboards. Source: Fieldwork, 2016.

Reddy and Zhao stated that many researchers have explained the term 'technology' from different perspectives.[7] Kumar et al. opined that technology consists of two primary components: (1) a physical component which comprises items such as products, tooling, equipment, blueprints, techniques, and processes; and (2) the informational component which consists of know-how in management, marketing, production, quality control, reliability, skilled labour and functional areas.[8]

Hold down bolt *Joint of two poles* *Angle Irons* *Construction of holding down bolt*

Figure 4. Materials for installing Unipole. Source: Fieldwork, 2016.

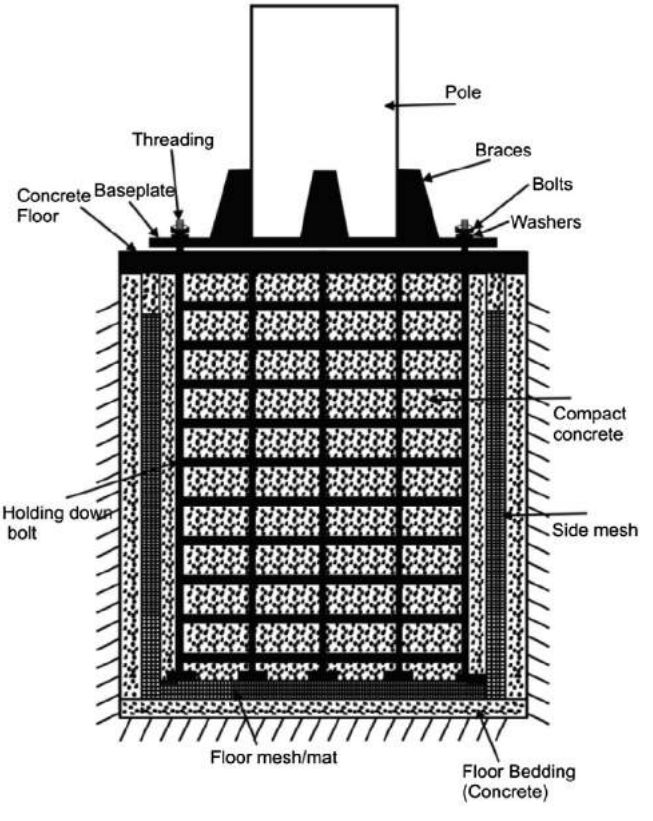

Figure 5. Cross-sectional Drawing of how to Install Unipole. Source: Fieldwork, 2016.

An assessment of Kumar et al.'s concept of technology reveals that both the physical and informational components of technology have been applied in outdoor advertising for centuries. However, it is obvious that the physical applications have dominated.

Gallery.sjsu.edu reported that evidence of application of technology in signage production from history can be traced from the use off-set lithography to produce posters by Jules Cheret.[9] Again, the Bauhaus School of Art and Craft established in Weimar, Germany by

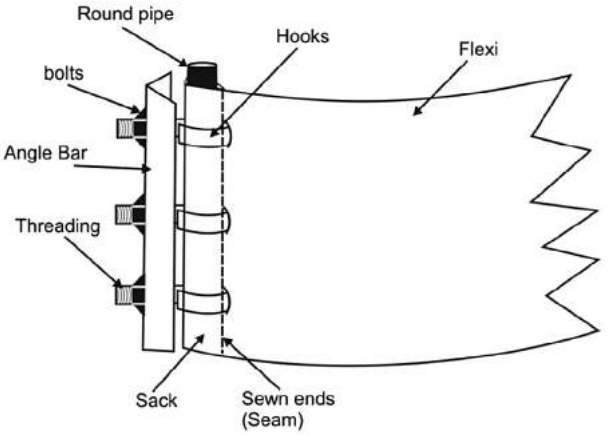

Figure 6. Cross-sectional drawing of how to flight flexi on unipole. Source: Fieldwork, 2016.

Walter Gropius in 1919 is recognized by its manifesto that sought to integrate art, science and technology in its training by developing an integrated curriculum that provided foundation training in drawing and painting, creativity, colour theory and application. Wick et al. documented that basic design theories, technical drawing, mathematics and science were part of their curriculum and stated further that the curriculum further introduced the art students to different relevant areas of art and technology such as sculpture, textiles, cabinet making, metal work, pottery, typography, architecture and others which subsequently led the students to specialize in one field.[10]

According to Griffith, typography, photography and advertising are areas in commercial art where the Bauhaus school made significant contributions. The author for instance, claimed that the Bauhaus School redesigned the classical Roman lettering by eliminating all the serifs to create a form of san serif typefaces and designed a lot of promotional materials, book covers, pictorial posters and others for organizations.[11]

Even though there is evidence of application of the triad: art, science and technology in the production chain of outdoor signage form world history, anecdotal evidence prove that they are also applied in Ghana. This article delved into the production processes of outdoor signs in Ghana to determine the extent to which art, science and technology are applied in the profession. The exploration examined the tools, equipment, materials, methods and process of designing, constructing, installing and preserving manual and digital outdoor signs in Ghana.

Research questions

The following questions were posed to guide the study:

1. What are the tools, materials, equipment and processes used to produce, install and preserve outdoor signs in Ghana?
2. To what extend is art, science and technology applied in outdoor advertising in Ghana?

Review of related literature

Historical development of outdoor advertising (global perspective)

Outdoor advertising has been integral part of marketing culture in ancient, medieval, modern and contemporary societies across the world. It was reported on Billboard and outdoorconsulting.com that available archeological information shows evidence of the practice in ancient Egyptian, sub-Saharan Africa, Europe, Asia, and others. It is regarded as the oldest advertising medium in the world because, it dates back to at least 5000 years ago. The website further reported that, the oldest known billboard was an advertisement posted in the Egyptian city of Thebes over 3000 years ago where notices for reward for the capture of runaway slaves were printed on papyrus paper and posted.[12]

Agnew, cited by Taylor and Chang, also reported that, according to Outdoor Advertising Association of America the Egyptians were also known to have inscribed hieroglyphics on Obelisks to direct travelers and merchants and these messages were carved into stone tablets which were placed along public roads. Taylor and Chang further reported on the website that, according to Sampson (1974), ancient Babylonian merchants were found to have hung a sign above their place of business in order to identify their merchandize.[13] Agnew, and Sampson's claims were also buttressed by Cambell et al., who reported that by 300 BC, shop owners in ancient Babylon had begun hanging outdoor signs carved in stone and wood in front of their stores to catch attention of customers.[14] Taylor and Chang reported again on the website that, according to Presbery, paintings on walls known as 'albums' began to appear indicating the name and profession of the occupant and occasional theatrical announcements spread such as those painted by Callades. Additionally, crude illustrations of gladiatorial contest on walls at places where people congregate were sometimes used to advertise upcoming exhibitions.[15]

The evidence of the use of painted sign in the ancient times was also buttressed by Robbs who reported on Encarta encyclopedia that one of the first known methods of advertising was an outdoor display, usually an eye-catching sign painted on a wall of a building. Archeologists have discovered many of these signs in ancient Rome and Pompeii.[16]

A thorough study of the above data on the history of outdoor advertising reveal to the researcher that painted and stone engraved signs dominated the practice of outdoor advertising across the world. This opinion of the researcher is also buttressed on Trivialibrary.com which documented that even in the middle ages, hand bills and jacked-up notices written in calligraphy and consisted of drawings invaded the advertising field in Europe.[17] The researcher also believes that due, perhaps, to the cumbersome nature and inefficiencies of calligraphy and manual drawing, outdoor advertising remained relatively dormant until the renaissance philosophy moved Johann Guttenberg to invent moveable type in 1450 which led to the development of letter press printing and subsequently ushered in broadsides outdoor posters in Europe.

Commenting on renaissance posters, DesignHistory.org reported that the early broadsides were crudely produced and distributed freely in town squares, taverns, and churches. Most broadsides were produced as ephemera (items printed for short term consumption) and discarded immediately after they have had their impact.[18] Joseph Bartholomew Sebbeh also reported that in order to enhance the communicative power of the broadsides, hand illustrations made by prolific renaissance painters were incorporated. Notable among them is Albrecht Dürer who used small wood cut illustration (engravings) to create pictorial images

on the posters.[19] The emergence of broadside in the fifteenth century is buttressed by Mark Getlein who reported that they were handed out to town dwellers and posted in public places.[20]

Limitations of manual engraving and letterpress which were used to produce broadsides urged on individual humanists to explore different methods of improving the quality of reproducing images. In 1798, Alois Senefelder invented stone lithography which was subsequently developed into a mechanical process called off-set lithography. Around that period another invention was made by Joseph Niphore Niepcy in 1824 that was able to develop a chemical that could photograph or transfer images unto a copper-like plate called pewter. Niepcy's technology went through series of reformation for years until a perfect still-picture could be printed on paper. Joseph Niphore Niepcy is therefore accredited as the father of still-picture photography.

The researcher would also like to state that the invention of photography and off-set lithography elevated the level of poster advertising to a higher pedestal in the eighteenth and nineteenth centuries. Gallery.sjsu.edu reported that the flexibilities and dynamisms of these technologies attracted a number of prolific painters in France to apply their skills in drawing and painting in poster art. The website further reported that, the first painter to make this move was Jules Cheret.[21] It was also reported on Art Source International Inc. that in 1867, Cheret used lithographic process to create a highly stylized form of outdoor poster that thoroughly integrated text and image.[22] It was also reported on DesignHistory.org that, Jules Cheret's captivating depiction of the entertainers of Parisian nightlife, rendered in clear, radiant colors, dominated Paris displays for the last 30 years of the nineteenth century and also attracted others to the medium. In fact, Cheret is accredited as the father of modern poster design.[23]

The lucrative nature of poster art during that period attracted the interest of many prolific painters. It was reported on Microsoft® Student that Henri de Toulouse-Lautrec was another poster artist of the nineteenth century who made changes in both the content and the artistic style of posters. He abandoned the lyrical impressionism of earlier styles by leaving large areas of flat color in his posters, a technique he borrowed from Japanese prints. In his work, the text of the poster steadily decreased in prominence as he concentrated all attention on the picture. Toulouse-Lautrec's last works, *Jane Avril* (1899), eliminates the text entirely (except for the name of the entertainer herself); it is the prototype for all modern, purely pictorial posters.[24]

It is believed that Henri de Toulouse-Lautrec introduced dynamism in poster design by creating attractive pictorial theatrical and commercial posters with varying tones of flat and vibrant colour schemes that were accompanied with few texts to amplify the illustration. The production of classic outdoor posters by Cheret and Henri de Toulouse-Lautrec attracted many artists in Europe and America and this led to proliferation of outdoor posters and signs across Europe.

Trivialibrary.com also reported that, in the eighteenth century, England was glutted with paste-up notices and posters. London became jammed with large advertising signs announcing merchants' places of business. The signs became so numerous that Charles II proclaimed, "No signs shall be hung across the streets shutting out the air and the light of heavens."[25] A reflection on a Trivialibrary.com report revealed to the researcher that billboard advertising might have started in Europe in the seventeenth century.

Another historic event that facilitated the development of outdoor advertising was the industrial revolution which started in Europe in the 1800s. Jethwaney and Jain claimed that during the period, the spirit of entrepreneurship increased amongst the people and this led to the establishment of many small-scale and large-scale businesses, the invention and use of expensive machinery required production on a mass scale to break even and then make profits. Also, with similar products available, companies needed persuasive communication to create demand for particular brands and this created high demand for poster advertisements.[26]

In the opinion of Getlein, the high demand for outdoor advertisements from entrepreneurs attracted a lot of art nouveau artist such as Alphonse Mucha, Aubrey Bearsley, Gustav Klimt, and Henry Van de Velde in the 1900s, who introduced an alternate pictorial style of poster design distinct from Toulouse's style which further boosted outdoor advertisements in Europe.[27] Microsoft® Student also reported that an extraordinary flowing of poster design occurred in the early part of the twentieth century during the Russian revolution of 1917 which was led by an art movement called 'constructivism'. During the beginning of the First World War in 1914, poster art underwent an abrupt change. Posters became propaganda instruments and were also used to encourage army enlistment and to sell war bonds. Also, during the 1920s and 1930s, poster art attracted different people from different art movements such as cubism, surrealism, Dadaism, and art deco and others.[28]

The German Bauhaus school of design in Weimar, Dessau, and Berlin pioneered modern forms of graphic art, making the text of the poster an integral part of the design and in some cases using the words or letters of the text to create the entire design. During the Second World War (1939–1945), forceful propaganda posters were again produced. Posters of the post-war period adapted and refined earlier trends, attracting the attention of serious painters in Europe and several American graphic artists. The principal artistic innovation of the post-war era has been the purely pictorial poster, which has no advertising or commercial purpose but carries an artistic or aesthetic message.

The researcher would like to state that outdoor advertising spread rapidly in Europe and America because of the commercial nature of the craft which attracted a lot of the prolific painters. Also, the development in printing technology and paper manufacturing offered the opportunity for the production of large papers which could be used to print large colour posters. Again, the rapid technological and economic developments that occurred in Europe and America after the Second World War created a keen competition in the outdoor advertising industry which led to the development of different kinds of outdoor advertising works by outdoor advertising agencies. Tuckwell shared that, apart from the junior posters and sign boards that dominated the industry, new forms of outdoor advertising works such as super boards, back-lit posters, mall posters, shelter posters, pillar posters and mural advertising emerged in Europe and America in the 1950s.[29]

The development of the outdoor advertising media in Europe and America reported by Tuckwell was also confirmed by Bovee and Arens who reported of evidence of bulletins, transit shelters, junior posters (billboards), unipoles, mural advertising and others. They also reported of recent developments such as spectaculars which are large electronic signs that usually incorporate movement, colour and flashy graphics to grab the attention of viewers in high traffic areas.[30]

A thorough study of the systematic developments the outdoor adverting industry has gone through from ancient Egyptian and European cultures to the post-Second World War

era, reveal to the researcher that several factors have contributed to the development of outdoor advertising. The development of industrial printing processes, the industrial revolution, art and craft movements, trade and commerce, modern scientific and technological developments in mechanical, electronic and computer technologies, curiosity, innovation, psychology, creativity and others have all contributed immensely to the development of the industry.

It is also obvious from the historical account of outdoor advertising that the practice has evolved from crude mural and wooden signs in the ancient and medieval periods through the development of crude paper posters (broadsides) in the renaissance period to modern pictorial paper posters, wall branding, wooden and metal signs to the recent complex digital signage technology.

Historical development of outdoor advertising in Ghana

Advertising Association of Ghana reported that British and local merchants imported different kinds of metal signboards from Europe to identify state organizations, institutions, warehouses and stores in commercial towns such as Cape Coast, Saltpond, Accra, Winneba, Axim, Nsawam and others. Some proactive artisans in the public services imitated the signage and gradually developed skills in lettering and stencilling.[31] Edusei 2004 also reported that the British introduced formal art Education in the Gold Coast at Achimota School in 1929. The curriculum consisted of subjects such as drawing and painting, colour, designing, lettering, etc. which equipped the students with basic skills of visual communication design[32] The artisans and the art education graduates continued to experiment their skills which gradually developed to a local craft called 'signwriting'. AAG reported again that, in 1927, the United African Company (UAC) a subsidiary of Unilever Company Limited incorporated the West African Publicity Limited (WAP) as in-house advertising outfit to advertise its imported merchandize. As merchandizing and trading activities continued to increase, the demand for advertising services increased.[33]

Responding to the demand, Unilever Company limited spearheaded the formation of international advertising agency in 1929 which created a network of Lintas advertising and WAP which changed the name of the amalgamated company to Lintas W. A. Limited. The agency worked side by side with one of its affiliates – Afromedia – which specialized in outdoor advertising. Being the pioneer outdoor advertising company in the Gold Coast, Afromedia employed some local people who had developed the skill of signwriting and had talent in drawing and painting and guided them to execute their sign works. The reportage AAG is vehemently supported by Amenuke et al. who claimed that outdoor advertising which is an aspect of graphic design is a form of contemporary African art which started in the Gold Coast in the 1920s.[34]

The analysis of how Afromedia and Lintas obtained signwriters for their operations revealed to the researcher that the agency lacked qualified and highly skilled technical staff since most of them learned the craft through personal practice and apprenticeship. The researcher also believes that the craft of signwriting improved after the introduction of formal visual art education in 1929 at Achimota College.

Takoradi Polytechnic also reported that another initiative that contributed to the development of signwriting in Ghana was the introduction of painting and Decorating Craft at the then Takoradi Technical institute in 1955 which later changed to Takoradi Polytechnic in

1963.[35] City & Guilds of London Institute also states that the curriculum of the programme consisted of lettering and signwriting, drawing and designing and domestic, industrial and decorative plain painting which equipped them to become master signwriters and painting technologists.[36]

These graduates worked as signwriters and painters in state institutions. Some of them were also employed by Afromedia and Lintas Ghana limited. Apart from the painting and decorating students, other visual art graduates from secondary schools, Advanced Technical Teachers' College (ATTC), Winneba and Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, were also employed by the outdoor advertising agencies as art directors and illustrators. The researcher can also conclude that most of these signwriters took commissioned jobs from individuals and organizations and after acquiring enough experience in the industry some of them set up their own agencies.

AAG reported again that, by 1960, the only state owned outdoor advertising agency called Central Advertising Company (CADCO) had been established in Accra. Also, more indigenous outdoor advertising agencies had emerged around that period. These include: Ghana poster services, Apra services, scanert, USAS Limited, Design and Display Publicity (DDP), Apple Pie Publicity, and others. The Association emphasized that DDP and Apple Pie Publicity are the only local outdoor advertising agencies that have been able to survive in the industry and held the mantle of outdoor advertising in Ghana since the 1970s. The association further stated that, outdoor advertising continued to boom until 1968 when the indigenization decree was enacted and enforced in 1971. Under it, advertising and other service oriented businesses were exclusively reserved for Ghanaian citizens. Consequently, the foreign-owned outdoor advertising agencies had to leave, and some were taken over by local entrepreneurs. Lintas W. A. Limited and Afromedia for instance, were taken over by Messrs. Jake Obetsibi-Lamptey, Anthony Dickson, Peter Hasford and other partners and changed the name to Lintas Ghana Limited.[37]

The researcher thinks that even though by 1960 many Ghanaians had acquired the skill of signwriting, the indigenization decree of 1968 encouraged many of the local freelance signwriters who were entrepreneurially-minded to set up commercial signwriting shops across Ghana.

Mr Tabgor Mansah, CEO of DDP, and Mr Mantey, CEO of Apple Pie, who were former employees of CADCO in the 1960s, were some of the local signwriters who took advantage of the decree to set up their businesses.

A careful study of the circumstances that encouraged the two local signwriters to set-up advertising agencies in Accra suggests to the researcher that their initiative encouraged other signwriters to set up small-scale commercial signwriting shops in commercial centres across the country who trained a lot of apprentices. A few years later, some graduates from these shops also set up their own shops in other places, and gradually the craft spread to many towns in Ghana. Presently, there are numerous outdoor advertising related businesses across the country that provide variety of outdoor advertising services to individuals and organizations and whose activities are supposed to be regulated by some agencies and associations.

The historicity of the culture of modern outdoor advertising reviewed above proves that the craft has gone through systematic technological development in all cultures. The ensuing sub-topic is reviewed to highlight the artistic, scientific and technological processes employed in the production chain outdoor advertising.

Production of outdoor signs

The signage used in outdoor advertising goes through various processes in the production chain and at each stage different hand tools, equipment and processes are used. Bill Stewards suggested that the processes of signage production include construction, ground preparation, designing and installation.[38] Fulcher et al. also stated that manual wooden signs, wall branding, metal and plastic signs require proper treatment of the ground in other to improve durability[39] Fulcher et al. further stated that proper preparatory tools, materials and processes must be employed in the ground preparation and this must be based on the type of support been used.[40] Goodier for instance advised that, sound and seasoned hard woods must be used for outdoor signs.[41] Goodier's opinion is also supported by Hurst who admonished that highly resinous and knotty woods must be treated before painting to curtail bleeding of the paint film. To secure the durability of wall branding, plaster surfaces must be sealed before painting with oil paint so as to avoid the occurrence of saponification.[42]

Tubb also claimed that new metal sheets are often protected from rusting by coating the surface with a thin layer of grease. To improve the adhesion of paint on such grounds, the surface must be degreased with white spirit. The author also suggested that plastic sheets are sometimes contaminated with grease and dust and must also be washed down with soap and water and rinsed well before using it for a sign.[43]

Tubb's opinion is also buttressed by J. Hess who contended that failure to degrease the ground will lead to poor adhesion of paint and subsequently cause the paint film to peel and flake off.[44] In an attempt to describe how outdoor advertising messages are designed, Dannis and Jenkins stressed only on the copy. They suggested that an advertising message must be well laid out to the comprehensive state before it is reproduced by scaling to actual size.[45] Dannis' idea is vehemently supported by Appiah, who stated that lay out planning must start with series of thumbnail sketches.[46] Even though the researcher agrees with these suggestions, he thinks that too much emphasis was put on the layout planning without tackling how the cartoon or comprehensive layout would be reproduced. Goodier for instance, suggested the following methods of transferring a cartoon onto a prepared ground for painting: chalking, pouncing and scaling.[47] These methods are also stipulated by Bill Stewards who referred to them as manual methods of transferring.[48] Adams et al. also suggested scanning and xerography as some electronic methods of transferring designs.[49]

After transferring, the outlines of the design are painted with sable brushes and enamel paints. Bill Steward again stated that the production of sticker and Perspex signs require high proficiency in lettering so as to achieve good spacing that can enhance clarity and legibility of the advertising message.[50] Even though Perspex and sticker signs are more advanced than wood, cement and metal signs, according to Tuckwell, the production of modern digital outdoor signs require complex scientific and technical processes.[51]

An examination of the above literature on the nature and evolution of manual and digital outdoor advertising reveals to the researcher that the craft has gone through systematic metamorphosis over many years, and that the design, construction and installation processes of the craft across the world have been characterized by artistic, scientific and technological processes and principles.

Methodology

The study adopted a qualitative research approach and case and field study methods, as well as descriptive research methods. These methods were adopted because, according to Kusi, they are flexible and ideal for this type of research problem.[52] A purposive sampling technique was used to select the four oldest, largest and most developed outdoor advertising agencies in the Accra metropolis, the capital city of Ghana and used them for the case study. Yin, for instance, recommends the use of these this type of sampling technique in qualitative research.[53] The researcher thinks that all these qualitative research methods were aligned with the aim and research questions of the study as recommended by Yin.

A total of eight respondents consisting of two experienced production managers, graphic designers and signage production technicians respectively, were used for the study. Unstructured interview and observation guides and still-picture photography were used to gather primary data through short industrial attachments in all the study agencies to gather the data and after transcribing and sifting the raw data, the data was presented in relevant themes.

Descriptive qualitative analysis methods and narrative analysis were used to analyse the data and discussed the major findings that emerged from the analysis. These qualitative data analysis methods were used because; in the opinion of Rubin and Rubin they are ideal for such research works.[54]To justify the internal and external validity and reliability of the instrumentation and data collection procedures used for the study, samples of the questions posed to the respondents and a guide for the unstructured observation were provided at Appendix 1 and 2 respectively.

Findings from field studies

The major findings that emerged from the transcriptions and analyses of the responses, field notes and photographs were presented in relevant themes using the focused-by-research question approach. To indicate the credibility and authenticity of the data collected, and further justify the validity of the findings, the biographies of the respondents were provided before the actual analysis and discussion of the findings were made. Table 1 provides information on the biography of the respondents:

Table 1. Bio data of production managers, graphic designers and technicians of outdoor advertising companies used for the study.

Category of Respondent	Gender	Age (years)	Highest Qualification	Work experience (years)
Production Manager A	Male	54	HND Civil Eng.	33
Production Manager B	Male	48	BSc. Marketing	25
Graphic Designer A	Male	36	B. A Comm. Design	10
Graphic Designer B	Male	42	HND Comm. Art	15
Technician A	Male	52	Craft Cert. in Welding	30
Technician B	Male	42	Advanced cert. in P & D	20
Technician C	Male	46	Craft Cert. in Mech.	21
Technician D	Male	54	M.E. T. 1	32

Source: Fieldwork, 2016.

Tools, materials, equipment and processes of producing and installing manual outdoor signs

All the technicians who were interviewed emphasized that because most signage is posted publicly, exposed to elements such as rain, sun, dust, acids, saline, etc. these elements have harmful effects on the types of materials used to produce outdoor signs. These include wood, metal, fabric, cement walls, plastics, paints, etc. It is therefore imperative that materials that can resist these atmospheric elements are used to produce outdoor signs and the ground on which the advertising message is painted is well prepared so as to prolong the life span of the sign. The responses and field observations revealed the following tools, materials, equipment and processes involved in the design, construction and installation of different types of manual and digital signage:

Preparation of ground for wooden signs

It emerged from the findings that, two major types of wood are used to construct outdoor signage in Ghana: softwood and hardwood. The respondents pointed out that wood, especially hard woods contain resin and resinous knots must be treated before the ground is prepared so as to avoid bleeding of the paint film. To treat the knot, loose ones are hacked out with mallet and chisel and replaced with a piece of sound wood. The entire substrate is abraded across the grains with medium grade glass or sand paper and along the grains with fine grade abrasive paper. Two coats of shellac Knotting are applied to the knotty areas and allowed to dry. For highly resinous wood, the entire substrate is washed with acetone to neutralize the chemical. The treated ground is primed with two coats of aluminum wood primer and allowed to dry. Upon drying, all indentations or holes are filled and when dried, the filler is cut down and the entire ground is slightly abraded with smooth abrasive paper and dust off to obtain a smooth and even ground. An undercoat is applied and allowed to dry then cut off slightly with fine grade abrasive paper and dusted off and then a coat of enamel paint is applied as the finishing coat.

Preparation of ground for cement wall signs

The responses and the field observation also revealed that, to prepare a new dried wall, mortar splashes are first scrapped off to obtain an even and leveled ground. For old cracked walls, the cracks are hacked out with a hacking knife and filled-in with mortar and allowed to dry. The entire surface is abraded with medium grade glass paper and dusted off. Two sharp coats of alkaline-resistant primer or acrylic paint are applied onto the surface to seal the ground against the alkaline contained in the clinker used to manufacture the cement. An undercoat is applied and allowed to dry then the ground is cut off slightly with fine grade abrasive paper and dusted off. A coat of enamel paint is applied as finishing coat. The technicians pointed out that the alkaline contained in the cement is activated by moisture and since cement walls always contain some amount of moisture the chemical can always be activated. When the alkaline is activated, it attacks the linseed oil used as binder in the enamel paint chemically and converts it to a thick soft sticky brown soapy substance scientifically known as 'saponification' on the paint film which eventually cause the paint film to peel and flake off.

Preparation of ground for metal signs

The results of the analysis revealed that, the surface of a new ferrous metal is washed with white spirit to remove a grease coating on it. It is then wet abraded with white spirit and fine grade emery clothe to provide key and then wiped off with clean rag and primed immediately with red lead primer or zinc rich primer. An undercoat is applied and then enamel paint as finishing coat. For a corroded metal, the corrosion is removed by sanding, blasting or flame-cleaning and the surface is dusted off and primed immediately. After priming, all indentations are filled with putty and upon drying filled or sanded down and slightly rubbed with fine grade emery clothe to obtain smooth and leveled ground. Undercoat and finishing coats are applied. For non-ferrous metals such as zinc, aluminum, and others, the ground is prepared as the new ferrous metal described above. However, such metals are primed with an etch primer or zinc rich primer. The respondents claimed that the etch primer contain an acid base which can etch the smooth surface of such metals to provide key for reception of the undercoat and the finishing coats.

Preparation of ground for plastic (Perspex) and glass signs

The researcher observed that since both materials have smooth surfaces, and are not corrodible, they are washed down with soapy water to remove grease and dirt contamination and rinsed with clean water and allowed to dry then painted straight with the finishing paint which is always oil-based.

Designing and rendering the copy of painted outdoor signs

The transcriptions revealed that four main processes are involved: layout planning, setting out, transferring and painting. After the copy is determined, various thumbnail sketches are made to generate visual ideas of how the graphic elements will be organized or composed. These ideas are developed further to rough layouts and finally developed to one comprehensive layout. The comprehensive layout is always a prototype of the actual work.

After layout planning, the comprehensive layout is used as guide to set out the design onto the prepared ground. The design is either set out direct or transferred onto the ground. With direct setting out, the signwriter uses drawing tools such as HB pencil, a pair of compass and divider, metric rule, chalk line, straight-edge, French curves, templates, eraser, etc. to construct the letters and sketch illustrations manually onto the ground. The enamel paint is thinned to a medium consistency into cans and the setting out is gradually painted with sable brushes.

In respect of the indirect setting out method, the copy can be prepared into sheet stencils and dubbed, or it can be manually set out onto a sheet sizeable to the actual sign. Usually, brown paper, bond paper or tracing paper is used depending on the size of the work. The setting out is then transferred onto the ground by chalking or reverse pencil shading and painted.

How to execute manual banners

It emerged from the transcriptions and field notes that two main methods are used to produce manual banners in Ghana: stencil method and painting method. In respect of the painting method, the fabric is first stretched and pinned onto a smooth flat surface (Wall or

table). The copy is then set out direct onto the fabric after layout planning with drawing tools such as chalk, HB pencil, a pair of compass, metric rule, straight-edge, chalk line, eraser, etc. and filled-in with varying sizes of pure bristle art brushes and acrylic paints. Often two coats are applied.

With the stencil method, sheet stencils are mostly used. Before the stencil is prepared, the size of the banner is first taken and used it to plan the layout of the copy. In planning the layout, the copy is written on a sheet of paper. Appropriate heights are assigned to each line of text and each character is also allotted an appropriate width size. Letter, word and line spaces are mechanically assigned and measurements are also indicated to balance the layout. The sizes of the characters, heights of the characters and spaces are summed up respectively and these three values are added up to obtain the size of the positive space of the banner. The positive space is compared with the remaining negative space and makes adjustments for balancing. When the planning is completed, a number of A1 or A2 sizes of manila card are joined together with transparent tape to the size of the banner and then the copy is set out directly onto the sheet by using the measurements in the layout planning as a guide. Professionally, optical spacing method is used when constructing or drawing the letters and balancing the copy.

After setting out, positions of ties or bridges are indicated and the sheet is preserved by applying plain tape over the entire surface of the design before it is cut into a stencil. Often, two or more - coloured logos or illustrations are prepared as separate stencil sheets through colour separation. When the stencils are done, the fabric is stretched and pinned onto a table. The stencil is positioned appropriately onto the fabric and then the design is dubbed with foam and acrylic paint or screen printing ink.

How to execute sticker signs

The responses and the observation revealed that the production of manual sticker signs follows the same layout planning as manual banner design. However, the setting out is made direct at the back of the sticker sheet in reverse. The design could also be set on a manila card in right reading, cut into stencil and traced in reverse unto the back of the sticker before the individual letters are cut into letter templates with a sharp stencil knife or scissors.

The ground of the sign which could be a metal or Perspex sheet is degreased to obtain a clean dry surface. Sticker sheet is pasted onto the entire ground and rolled over with a metal roller to press the sticker firmly onto the ground. Using the layout planning as a guide, the heights of the letters are measured on the sticker and lines are ruled. Soapy water (Omo solution) is prepared into a small container and the letter templates are selected and put on the ground, a piece of foam is used to fetch and apply some of the solution onto the ground, the backing sheet of the letter templates are carefully peeled off and pasted at their appropriate positions one after another. Optical spacing principles (the rule of thumb) are used to arrange the letter templates to form the words and sentences before pasting.

Apart from the manual method of preparing letter templates for sticker signs, the text can also be digitally generated with Corel Draw or Adobe illustrator and saved in outline then cut with a plotter. Different sizes of digital plotters are used. For example, an A4 size plotter called Robo plotter or printer machine was used by some of the agencies. The text is generated with software called Robo Master on a PC to the actual size of the job and saved in outlines. The sticker sheets are fed face-up into a Robo plotter or printer machine. The

plotter is connected to the PC and switched on and the software is used to command the plotter to cut the letters. The head of the plotter cuts through the outlines of the letters and leave the backing paper. The sticker is peeled off from the backing sheet leaving the text to stick to the backing sheet. After that masking tape is applied onto the text on the backing sheet to pick the text and stick them together with the masking tape onto the ground and rubbed over it with a piece of rag to stick the sticker firmly onto the surface. The masking tape is peeled off from the sticker to leave the text on the surface. Two types of coloured opaque sticker sheets are used (scotch sticker which is reflective at night and ordinary sticker which is non-reflective at night) and both are available in variety of colours.

How to execute Perspex signs

The transcriptions also indicated that, previously, the sign makers used different blade sizes of jigsaw to cut Perspex into letter templates but now there are electronic cutting machines called Laser engraver and C & C Router with unique software that is commanded by PC. The design or text is generated with Corel Draw or Adobe Illustrator in vector image to the actual size of the work and saved in TIF format. The PC is connected to the plotter and the Perspex sheet is placed on a board inside the machine and the head of the plotter is commanded through the PC to cut the Perspex into letter templates. The head uses different sizes and shapes of blades according to the thickness of the Perspex. After cutting, the surface of the Perspex is washed with soapy water and rinsed with clean water to remove grease and dust contamination and allowed to dry. Using the layout planning as a guide, lines are ruled on the sheet to determine the heights of the letters then the letter templates are fixed onto the Perspex sheet with a strong liquidized adhesive called 'chromophone'. Again, the principles of optical spacing are used to arrange the letter templates before gluing.

How to produce neon signs

The transcriptions revealed that neon signs are stickers or Perspex signs which have been mounted into a metal case and illuminated with lights. With neon signs, Perspex sheet is used as the support and either sticker or Perspex is used to create the copy or the message and past onto the ground. The sign is fixed into illuminated aluminum case which is lit at night.

Tools, materials, equipment and processes of producing and installing digital outdoor signs

From the perspective of the signage designers and technicians, digital signs are signage that carries computer generated and electronic printed copy. The transcriptions of the interview responses and the field notes made from the observations revealed detailed practical information on how digital signs are produced in Ghana. Below are the details of the information:

Electronic printing equipment and materials

It emerged from the transcriptions of the field notes and the interviews that, there are different types of electronic printing equipment used in digital signage production in Ghana,

but the major one is the large format ink-jet printer. The lengths of these printers range from four feet to thirty feet and above. According to the technicians, the printers are produced with software which is installed onto a PC which is connected to the printer. Apart from printing, most large format printing machines have a cutting device called 'plotter' which is used to cut stickers to design or letter templates. The machines have different software which operates the plotter. The printer uses a type of liquidized ink called 'Eco Solvent' which is available in six colours: cyan, magenta, yellow, black, light cyan and light magenta.

Operative principle of large format ink-jet electronic printing machines

The narratives of the technicians and findings from the field notes revealed that, when the printer is switched on, the printing media (sheet) is loaded into it. The saved design (soft copy) is opened on a PC and commanded to print through the printer. The media is fed into the printer through metal rollers and upon entering, it is transferred through series of oscillating metal rollers where a light sensor identifies the colours in the design whiles the printer head moves left and right along the length of the roller that carries the media and spray the colours gradually onto the sheet to print the image into a hard copy. The gradual spraying of the colours slows down the printing process. The machine prints with all the colours so when one colour gets finished the other colours cannot print. It also prints on only one side of the sheet. Also, when the design is bigger than the length of the printer, the printer can be commanded to break the design into smaller units (a method known as tiling) and print them onto separate media so that they will be joined to form the full design before and during mounting. Below are pictures of large format ink-jet electronic printing machine and inks:

Types of large format ink-jet printing media

The responses indicated that different types of large format ink-jet printing media are used in Ghana. These include *Self-adhesive vinyl stickers (SAV)* which is available in two types: White opaque stickers and transparent sticker. The white opaque type has white or black backing material. The white backing type is used for signboards, sticker labels, posters etc. whiles the black backing type is used to print designs for vehicle branding. The transparent sticker has black or yellow opaque paper backing. It is used to print designs for corporate branding, sticker labels, indoor displays and specialty advertising works. *Flexi*: These are tarpaulin materials available in different thickness. Two major types are used: Front lit and back lit. The front lit material is opaque whiles the back lit is translucent. Both are used for printing billboards and bulletins. The front lit type is specifically used for billboards which would be illuminated with halogen light at the front whiles the back lit is used for billboards that would be illuminated from behind. The thicker ones are also used to print backdrop designs for stages. *Mesh*: White tarpaulin material with white paper backing which has small perforations in it. It is used for printing billboards and bulletins. *Canvas*: White tarpaulin material with matt surface texture and white backing paper. It is used for printing billboards and bulletins.

Banner material: A medium gram white tarpaulin material with smooth surface texture which is used for printing banners. *One-way vision***:** A translucent white sticker with white paper backing which has spots of opaque white ink printed on it. It is used to print posters which would be pasted in front of glass. It is often used for glass doors used in offices, commercial shops, vehicle wind screens and others. The white opaque ink spots printed on the sticker create the illusion of translucency on the sticker which makes someone inside the

office sees outside but cannot see the design printed on the sticker and people outside the office could see the design but cannot see the inside of the office. *Flag material*: Light gram white tarpaulin material with smooth surface texture which is used for printing street flags. *Photo paper*: This is a white paper available in gloss and matt finish and used to print photographs.

How to design and reproduce digital signs

The field observation and transcriptions of the interviews revealed that different types of electronic gadgets and design software are used to generate the copy for outdoor signs in Ghana. These include high speed PCs, laptops, digital cameras, CDs, flush drives and Corel Draw, Adobe Illustrator, Adobe Photoshop, etc. To create the digital design, the design is first laid out, and appropriate photographs are taken and downloaded onto PC, edited with Adobe Photoshop and saved in a file with resolutions ranging from 300 dpi to 600 dpi depending on the size of the sign. The resolution helps to avoid pixilation of the images used in copy.

The textual and other supporting visual elements are generated on a PC with Corel Draw or Adobe Illustrator to the actual size of the sign and the edited photographs are imported onto the page. The elements are creatively organized on the page with appropriate commands to obtain two or more rough lay outs. The roughs are further developed to obtain a final design. The final design is reproduced with laser or large format electronic printing depending on the type and size of the work. Different types of computer generated signage are available in Ghana. These include banners, sign boards, bill boards (standard bill boards, super bill boards, bulletins or spectacular etc.), wall wraps, vehicle branding, bus shelters, replica signs, etc.

How to produce electronic signs

It emerged from the transcriptions that, electronic signage are signs in which the copy is made of programmed light emitting diodes. They are popularly called LED signs in Ghana. It consists of software which is installed onto a PC and operated to programme the sign. The software is used to generate the copy (text and vector images) to the required size, font and colour(s) to fit into the surface area of the sign and programme the copy with a well-timed transition(s). The copy is displayed on the sign in programmed lights, generated by low voltage diodes powered by electricity. They are used for both outdoor and indoor signs. Below are some charges and pictures of LED signs used in Ghana:

Construction and installation of billboards

Findings from the transcripts and field observations revealed that the outdoor advertising agencies in Ghana import the framework or metal structure of large bill boards especially, spectaculars from large-scale international mechanical companies in Europe, America and Asia for assemblage and installation in Ghana. However, some large scale outdoor advertising agencies construct their own structures. Various scientific processes such as galvanizing and others are used to treat the metals to render them non-ferrous before, during and after manufacture.

In respect of how the agencies construct their own structures, it emerged from the transcriptions of the field notes and the interviews that, the agencies construct their structures in their workshops and convey to the site where crane is used to lift it during installation. I also discovered that sometimes all the metal components of the signs are constructed (welded and bolted) at the site by technicians with a scaffold during installation. The signage they construct has a single pole called Unipole or two or more poles.

In respect of the construction and installation of unipoles, it was observed that the unipoles ranged from one-face to four-face. Different sizes of round iron pipes are used to construct the poles and the sizes are selected based on the diameter and the weight of the billboard. The diameter of the poles ranges from 26 inches to 50 inches whiles the height ranges from 20 feet to 40 feet. The poles could be one or two pipes joined together with bolts and nuts. When two poles are joined the base one is slightly bigger than the top one.

With the question of how the pole is fixed into the earth, it emerged that a concrete foundation is prepared on which the pole is erected. The length, breadth and depth of the foundation are determined by the total weight, size and height of the billboard to be erected on it as well as the nature of the soil. Heavier and bigger billboards require wider and deeper pit and the mass weight of the foundation are supposed to be in equilibrium to the total weight of the billboard, so as to avoid falling over during a storm.

According to one of the outdoor advertising technicians in one of the large-scale outdoor advertising agencies, a six metre by 20 metre double-face billboard which has a total weight of 12 tons must be erected on a foundation which has a volume of 27 metre cubed, including wind breaks. This means that the width and length of the pit are to be three metres square respectively and the depth being nine metres. Another technician also gave an example that, a nine metre by six metre double-face billboard could be erected on a nine feet deep foundation casted with eighteen bags of cement.

To erect the pole, the pit is dug to the required size. The respondent said that clay and sandy soils must be dug deeper and the base must be filled with sand before the bedding is cast. The bedding is cast with concrete mixed in a ratio of 1:2:3 (one pan of Portland cement to two pans of sand and three pans of stone chippings). A floor mesh/mat made of three-quarters inches iron rods interwoven and welded together to take the shape of a square or circle is put on the bed and the holding down bolt or iron cage constructed with one and quarter or one and half inches iron rods to take the shape of the floor mesh with a number of stakes with rough threaded ends which projects beyond the foundation for four or five inches is placed on the floor mesh and welded to it or tie to it with bending wires.

Side mesh welded in the same form as the floor mesh is packed at the sides of the holding down bolt and welded or tie to it. After that a compact concrete of the same ratio as the bedding is cast into the pit to fill it completely. A wooden molding box of two to four feet height is formed and placed on the concrete pit and cast with compact concrete to obtain a levelled floor for the foundation and then left it to cure completely for a period between 21 to 60 days.

When the foundation is dried, one and half inches thick cast iron sheet of the size of the floor called 'base plate' is cut and the positions of the projected threading of the holding down bolt are marked out on it. Gas fire is used to drill the holes on the plate. The base of the pole is welded exactly in the middle of the base plate and a number of six by four inches metal braces are welded to the base plate around the circumference of the pole at equal intervals. The number of braces depends on the size of the pole. Example, 12, 16, 18, etc.

could be used. The pole is lifted and the base plate is placed on the floor by fixing the holding down bolts through the drilled holes. Small square metal sheets called washers are cut for each holding down bolt and drilled. The washers are fixed on the base plate and nuts are used to screw them to the plate through the threading of the holding down bolts. One or two nuts could be used depending on the length of the threads. After that a small concrete is cast to conceal the base plate. Below are pictures of the engineering drawings of unipoles retrieved from the practitioners, construction of a billboard and a cross-sectional diagram of the installation process:

Regarding how a flexi is stretched on a billboard, the transcriptions indicated that, the design is always printed to the exact size of the billboard and a borderline of six inches is left around it. After printing, all the four sides of the flexi ire folded over once and sewn to create tunnel hems of about one-inch diameter. The flexi is folded and a number of threaded end hooks made from half inch iron roads are inserted into the top tunnel to hold the pipe to the top angle iron and nut from behind to secure it. The flexi is unfolded and the round pipe is inserted into the bottom tunnel. The bottom pipe is hooked just like the top pipe and the top and bottom nuts screwed to stretch the flexi tightly. The round pipes are inserted into the left and right tunnels and the pipes hooked and screwed to stretch the flexi to a drum tight. Below is a cross-sectional illustration of how flexi is stretched on a billboard:

Discussion of findings

The findings have been discussed with reference to major issues that emerged in the data presentation and analysis as well as the literature. It has been organized to reflect the research questions of the study.

What are the tools, materials, equipment and processes used to produce and install outdoor signs in Ghana?

Several technical tools and equipment are used to produce manual and digital outdoor signs in the local outdoor advertising industry. These range from simple hand tools to power tools. The dexterity in which the outdoor advertising technicians handled these tools and equipment on the field proved the depth of knowledge and competencies they have acquired in the craft. This proves that the selection and application of the tools and equipment require special skills which must be acquired through prolong practice. For instance, according to Fulcher et al., knowledge on hand tools such as scrappers, filling knifes, hacking knives, and power tools such as disc sanders, blow touches, industrial spray guns, etc. fall in the domain of painting technology.[55]

Findings from the data indicated that several of these tools and processes were used to prepare grounds for signage. This indicates that some of the outdoor advertising technicians may be professional painting technologists or they might have acquired the skills of painting technology through apprenticeship. This inference of the researcher is confirmed by the bio data of the outdoor advertising technicians. Also, the analysis of the researcher could be justified because, in the opinion of Hurst among the building trades, it is painters and decorators who are trained to acquire high competencies in painting technology. For instance, preparatory processes such as rubbing down, degreasing, filling, scrapping, hacking,

knotting, sanding, flame cleaning, priming, sealing, industrial spraying, etc. are all skills taught in painting technology.[56]

It can also be induced from the analysis that effective preparation of grounds for manual outdoor signs depends on the outdoor advertiser's knowledge in materials technology because it will help him/her to understand the characteristics and specific uses of supports and preparatory materials that are used to produce outdoor signs. For example, knowledge on causes and prevention of paint film defects such as saponification, bristling, flaking, bleeding, peeling, blooming, etc. can help an outdoor advertising technician to select and apply good materials and processes to produce outdoor signs that will guarantee the durability of the sign. Goodier therefore vehemently proposed the use of appropriate materials and processes to execute outdoor signs.[57]

The researcher can also conclude that, the processes of executing manual signage in Ghana can also be likened to the manual methods used to produce outdoor signs and posters in the medieval, renaissance and the modern era in Europe. This is because digital technology of producing outdoor signage had not been developed by then, so they might have used manual methods. Also, the painting and decorating and the visual art programmes that provided signwriting, painting, drawing and designing skills to the local artisans as reported by Edusei and City & Guilds of London Institute might also be an important contributing factor to the development of the art of outdoor advertising in Ghana. It is also obvious from the analysis that the triad (art, science and technology) were applied in the manual processes and being a member of the commonwealth, the Gold coast had trade, political and economic contact with many European countries at that time.

The production of digital and electronic outdoor signs also required basic knowledge and skills in welding and fabrication, building construction, electrical, electronics, and computer hardware and software management. Apparently, these skills were exhibited by the outdoor advertising technicians and graphic designers on the field especially, in respect of how the technicians constructed and installed outdoor signs into the ground and installed electric cables in metal cases for neon and LED signs. The graphic designers could also manipulate the software proficiently to generate the copy. Manual and digital artistic processes such as brain storming, layout planning, letter construction and illustration; transferring, filling-in, painting, image capturing, image editing, text generation and management, composition of visual elements, etc. are also applied in outdoor advertising in Ghana. Even though the artistic processes are very important in the production chain as suggested by Dannis, they play minor role as compared to the technical processes.[58]

This observation of the researcher could be justified because, apart from the planning and designing of the advertising message, all other processes that are involved in the production chain are scientific and technical.

It is obvious from the discussions of the findings of this research question that, theories, principles, and technical skills of painting technology, building construction, electrical and electronics, welding and fabrication, and computer applications are highly applied in the production of both manual and digital outdoor signage design, construction and installation. This obviously proves that the craft of outdoor advertising goes beyond aesthetic or artistic skills.

To what extend is art, science, and technology applied in outdoor advertising in Ghana?

It can be induced form the data analysis that various forms of scientific, technological and artistic principles and processes are applied in outdoor advertising. The application of simple scientific principles can be identified in how chemicals such as acetone are used to neutralize resinous chemicals in hard woods which have a potential of causing paint films to bleed therefore discolouring the paint. Hurst therefore recommends this form of chemical treatment.[59]Also, the use of shellac knotting as a buffer for resins in knots is indicative of the fact that scientific applications are applied in manual signage production in Ghana.

Again, examination of how outdoor advertising practitioners treat plaster surfaces with alkaline resistant paints to prevent saponification of paint films is indicative of application of chemistry in the process. It must be emphasized that it is this scientific principle that prolong the durability of the wall mural that carries the advertising message. This is why Fulcher, et al. recommended that cement surfaces must be sealed with two coats of alkaline resistant primer before finishing in enamel paints.[60] It can also be identified from the treatment of new metal and plastic surfaces that scientifically, grease do not dry and that it will repel any paint that is applied onto it. So, to facilitate the adhesion of paint on such substrates, grease contaminated substrates must be degreased. Goodier also prescribed this scientific application.[61] The analysis of the types of paints used by the practitioners to prepare and preserve the metal surfaces also prove to the fact that, the practitioners have high technological knowledge in paint technology with respect to compositions, specification and uses of paints for ground preparations. Fulcher et al. for instance, specifies a number of preparatory and finishing paints used for ground preparation and all this information is passed on in the teaching of painting and decorating.[62]

The authors specify that ferrous metals must be primed with red lead primer and non-ferrous metals be primed with etch primer or zinc rich primer. Further analysis of the chemical composition of such paints reveals that, the red lead primer containers a metallic pigment called red lead which has the ability to resist rusting. The etch primer also contains an acid base which can etch the smooth surfaces of aluminum, and zinc, etc. so as to provide key for adhesion of the paint system. Also, the chemical processes of galvanizing applied in the treatment of outdoor advertising metal structures further confirms the application of high scientific and technological principles and processes in the craft. Tubb also confirmed the application of these principles outdoor signage production[63]

A study of the processes of constructing and installing bill boards in Ghana also reveal application of many scientific and technological principles and processes in the craft of outdoor advertising. For instance, the structural calculations made to determine the diameter of an upright (pole) in comparison with the total load of the sign as well as the width and depth of the pit in which the sign are erected are indicative of application of applied physics in the craft. The ratio of sand, cement and stones use to mix concrete and the volume of concrete use to fill the pit when installing the billboard to the holding down bolt further proves application of structural and mechanical engineering in the craft. Since the field study revealed that, the complex mathematical and physics applications used in the installation of outdoor signs in Ghana were performed by production managers, the researcher could conclude that it was their background in civil and mechanical engineering reported in their biography that equipped them with the mental acumen to perform those functions. This

presupposes that, ideally, production managers of outdoor advertising agencies across the world must have engineering background.

Furthermore, analysis of the design process of the advertising message reveals that the graphic designers follow the concept of 'significant form' which is the cardinal principle of aesthetic theory of formalism which has dominated the design of graphic communication items for centuries including outdoor signage. Amenuke et al. claimed that according to formalism, elements of designs used for any artwork must be carefully selected and composed based on relevant design principles such as harmony, rhythm, repetition, balance, emphasis, dominance, contrast etc[64] agree that, it is the perfect application of the elements that creates a synergy of the elements to achieve beauty in the work. It is the spontaneous arousal of desire and interest in the work when seen that creates the significant form. Hanfling and Oswald recommended the need to apply aesthetic theories of formalism and significant form in poster design[65] Chandrasekhar also has an opinion similar to that of Hanfling and Oswald.[66] It is also clear from visual analysis of outdoor bill boards that the designers apply a marketing strategy known as 'celebrity endorsement' to select their images for some of their designs. Keller prescribed this type of psychological application in poster design.[67]

A thorough scrutiny of the discussions that ensued from the analysis of the research questions finally proved that scientific, technological and artistic and psychological principles are applied in the design, construction and installation of manual and digital outdoor signs. It emerged that only artistic skills and principles were possessed by the graphic designers and however, lacked the technological and scientific knowledge and skills exhibited by the outdoor advertising technicians.

Conclusion

The outcome of the analysis and discussions of literature, field notes and interviews proved that the craft of outdoor advertising has been a global marketing culture in all ancient, medieval, and contemporary traditions. Cambell shared a similar as the researcher.[68]

The craft has also developed systematically over the years from hand painted signs to the current digital signs. It can also be concluded form the findings and discussions that complex mechanical and civil engineering processes and scientific applications have characterized the production and installation of outdoor signs in Ghana and these have dominated the execution processes of outdoor signs. Even though artistic principles and processes are applied in the production chain of outdoor advertising, they play minor role as compared to the engineering and scientific applications.

The researcher will therefore conclude that the design, reproduction, construction and installation of outdoor signs in Ghana have always been dominated by scientific and technological processes. However, aesthetics and social psychology plays a minor role in the production chain.

Recommendations

Based on the findings that emerged from the discussions, the researcher recommends that the scope of communication design curricular in Ghanaian institutions must be broadened to include the engineering and scientific aspects of contemporary outdoor advertising

construction, installation and preservation so as to equip the graduates holistically in the vocation.

Also, communication design students in second cycle and tertiary institutions must be compelled to go on compulsory industrial attachments in large scale outdoor advertising agencies to acquaint themselves with scientific and technological processes and principles applied in signage production and installation in industry. Practicing graphic designers who lack the technological and scientific knowledge and skills in outdoor signage construction and installation must be proactive and learn. Likewise, production managers of outdoor advertising agencies in Ghana who have only engineering background, must be given in-service training in advertising theory, social psychology, marketing and graphic design to enable them supervise all the activities in the production chain of outdoor advertising efficiently in other to achieve quality output.

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Disclosure statement

No potential conflict of interest was reported by the author.

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Appendix 1: Samples of Questions Posed and Probed During Data Collection Process.

Part A: Biographical information of respondents

1. Gender
2. What is your age?
3. What position do you hold in this company?
4. How many years have you worked in the outdoor advertising industry?
5. What is your highest academic qualification?

Part B: Technical information

1. *Questions posed to graphic designers:*

   a) What processes do you go through to plan and design a billboard for reproduction?
   b) What tools and equipment do you use in the planning and designing process?
   c) What quality control measures do you observer during the designing process?
   d) What computer application software do you use to design the posters?
   e) What tools, materials and equipment do you use to reproduce designs for outdoor signage?

2. *Questions posed to production managers:*

   a) What tools, materials, equipment and production processes do your company goes through to plan, design and reproduction designs for outdoor signage?
   b) What quality control measures does your company employ to ensure quality output of designs?
   c) What technical methods and processes does your company apply to construct and install outdoor signage?
   d) What artistic, psychological, technical and scientific principles are involved in the production chain of outdoor advertising?

3. *Questions posed to construction and installation technicians*

   a) What materials, tools, equipment, methods and processes you use to construct and install outdoor signs in this company?
   b) How do you ensure quality standards in the construction and installation of outdoor signs?

Appendix 2: Sample of unstructured observation guide used during data collection.

Personnel observed	Specific skills observed
Graphic designers	Manual and digital layout planning, text management, composition, colour selection and application, digital drawing, photo-editing, reproduction etc.
Technicians	Welding, sanding and grinding, cutting, bending, joining, finishing, etc.

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 91–102
https://doi.org/10.1080/20511787.2017.1331896

Routledge
Taylor & Francis Group

A Tale of Two Cities

Visualizing Air Quality in Salt Lake City and Beijing

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Keywords: ■ environment ■ air quality ■ air pollution ■ aqi data ■ data visualization

If there is one thing common to a conservative, US "red" state like Utah and a socialist "red" country like China, it might be the "red-air" days.

Salt Lake City, 2015 Beijing, 2015

Salt Lake City, the capital city of Utah, has constantly been ranked as one of the top 10 worst air quality cities in the US (Penrod, 2016). Each winter and summer, the surrounding mountains disappear for days behind a pool of smog that overtakes the basin. Beijing, the capital of China, has for many years suffered from its dire air pollution issues. The explosion of personal automobiles, along with heavy industries surrounding the city, has created dust storms and layers of smog year around.

Being a Salt Lake City resident I was determined to know more about the reality of the air quality in the city. When I had the chance to visit Beijing during a short summer trip, I also had firsthand experience of the air pollution in the capital city of China. Air quality is of concern to everyone. As a visual communication designer, this is a great opportunity to learn and understand air pollution in these two cities and share the information from a visual perspective.

What Causes Air Pollution in Salt Lake City

The air pollution in Salt Lake City that comes from cars, industry, and wood burning is sometimes trapped by a confluence of topographic and meteorological factors.

This valley is surrounded on all sides by mountains. The right meteorological conditions – cold temperatures, no breezes – cause the cold air to become trapped. Because the air isn't moving, the pollution also has nowhere to go and it begins to build up. It is held in place beneath a layer of warm air. The condition is called an inversion (Figure 1) because it is the reverse of a normal air pattern.

Massive oil and gas drilling also causes air pollution in the area. The oil-field operations create about 99 percent of the volatile organic chemical emissions and about 70 percent of the nitrogen oxides emitted in the Uintah Basin in eastern Utah (Jaffe, 2013).

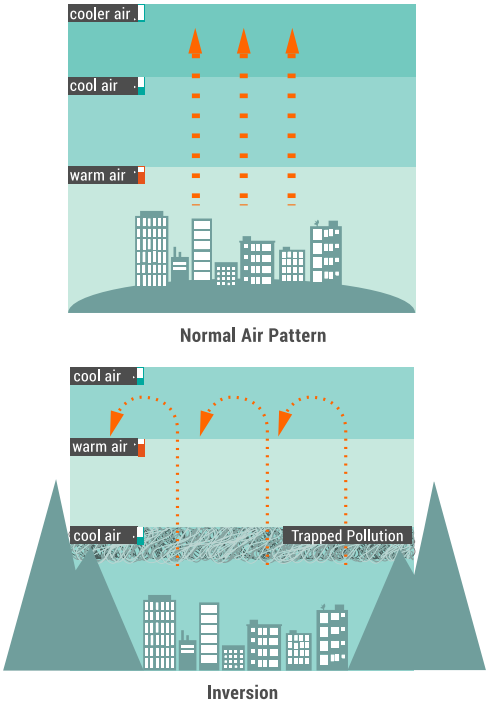
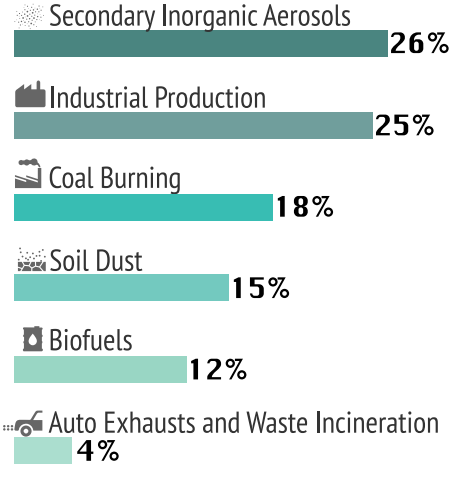


Figure 1 *How Inversion Affects Air Quality*

What Causes Air Pollution in Beijing

Although some of the heavy smog in Beijing can be attributed to its surrounding topography and wintry weather conditions, human contribution is one of the biggest factors that cause the record levels of air pollution in Beijing. There has been rapid industrialization in China and a heavy reliance on coal power, which have both contributed to the problem.



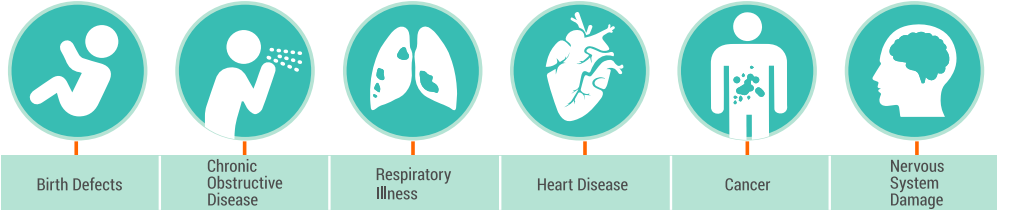
Research that was conducted by the Chinese Academy of Sciences (Song, 2013) shows that the deadly fine particulate matter known as PM2.5 in China's atmosphere is mainly contributed by secondary inorganic aerosols (pollutants that are not emitted directly from natural or anthropogenic sources), industrial production, and coal burning (Figure 2).

Figure 2
Beijing PM2.5 Pollution Source Distribution

How Air Pollution Affects Us

There are many different types of air pollutants. How air pollution affects the human body is determined by the length of time you are exposed, your health status and genetic makeup, and the concentration of pollutants.

In general, air pollution can cause the following major health risks (Pope & Dockery, 2006):



How to Measure Air Quality

AQI, or the Air Quality Index, is often used to measure air quality. AQI is a number that is used to communicate with the public about air quality and its health concerns. It is calculated with five major air pollutants (Figure 3) that are regulated by the Clean Air Act from the United States Environmental Protection Agency (EPA). The EPA has established standards for all of the pollutants to ensure public health. The higher the AQI value, the worse the level of air pollution (EPA, 2016).

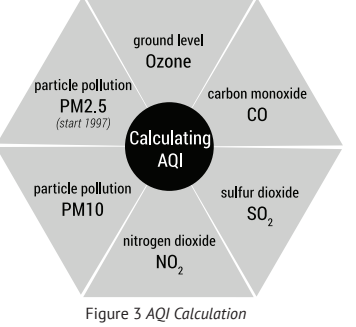
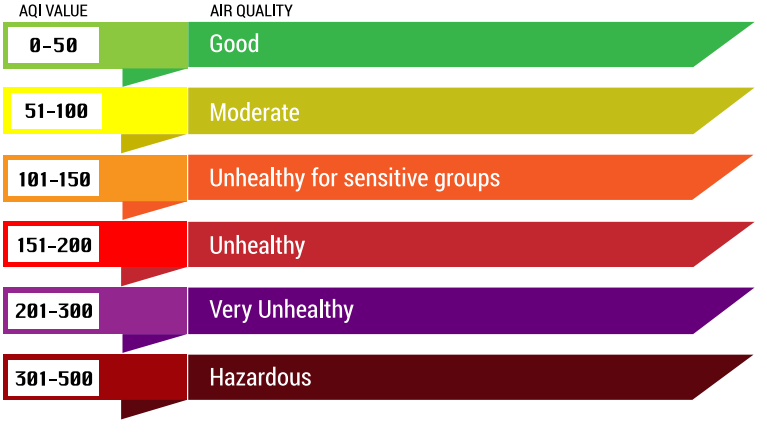


Figure 3 *AQI Calculation*

AQI is divided into six categories for better communication to the public. Each category is also assigned a specific color by the EPA to make it easier for people to quickly understand the connection between the air pollution and health concerns:



My air visualization projects for both cities are based on the data sets of Air Quality Index that are available to the public.

Visualizing the Air of Salt Lake City

Objective

I am interested in learning about the current status as well as the changing trends of air pollution in Salt Lake City. I am seeking answers for questions like:

> Has the air become progressively better or worse?
>
> What are the worst months or seasons?
>
> What are the major contributors to the pollution problem?
>
> Has the cause of the pollution changed over the years?

Data Source

The EPA website provides daily AQI data as well as daily pollutant compositions starting from 1980 to the current year. The available data allows me to examine the air quality from the macro and micro perspectives (Figure 4).

Visual Solutions

The choice of graphic form to encode data depends on the function of the display (Cairo, 2013). Color-coding in information design can convey meanings, but it can also indicate whether elements are connected or separated (O'Grady, 2008). Therefore, I decided to use the established AQI color codes as the foundation of the visualization. The standard AQI color codes provide effective visual distinction between good and bad air. Furthermore, when colors are grouped into clusters, emerging patterns can unveil the data variations and comparisons within a given time.

Horizontal bars were chosen to represent the daily AQI in order to reinforce better perception of color patterns. Area graphs were chosen to show the overall trends of the yearly averaged AQI ranging from 1980 to 2014.

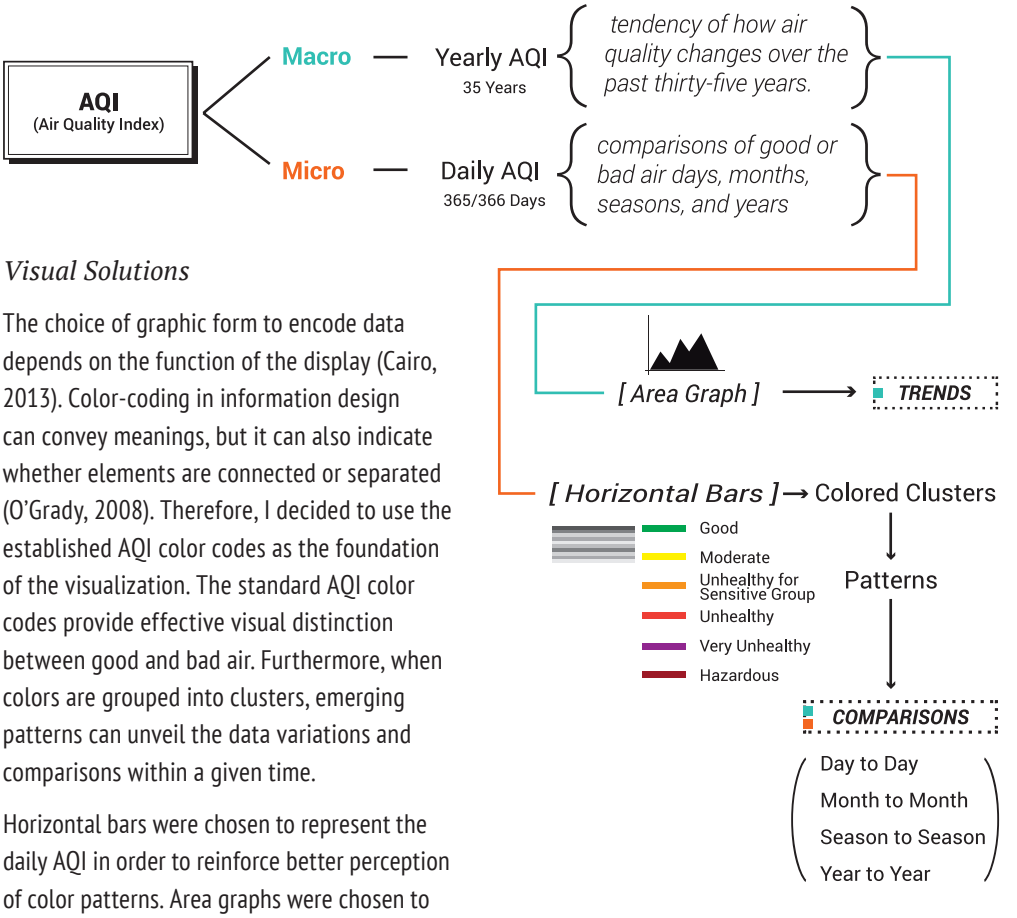


Figure 4 *Visualizing AQI*

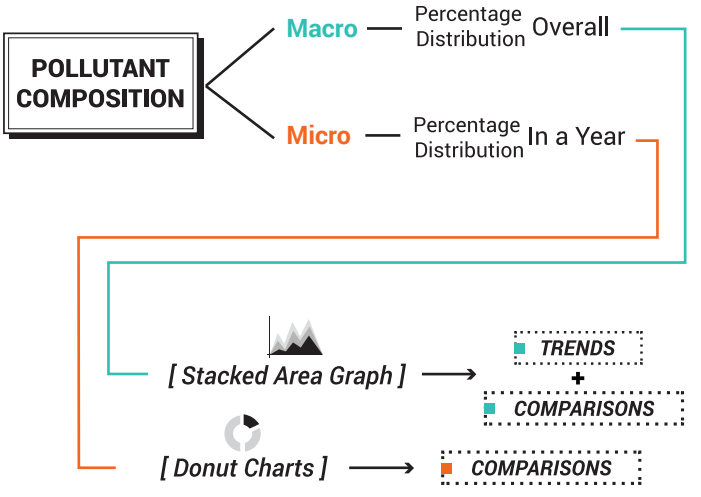
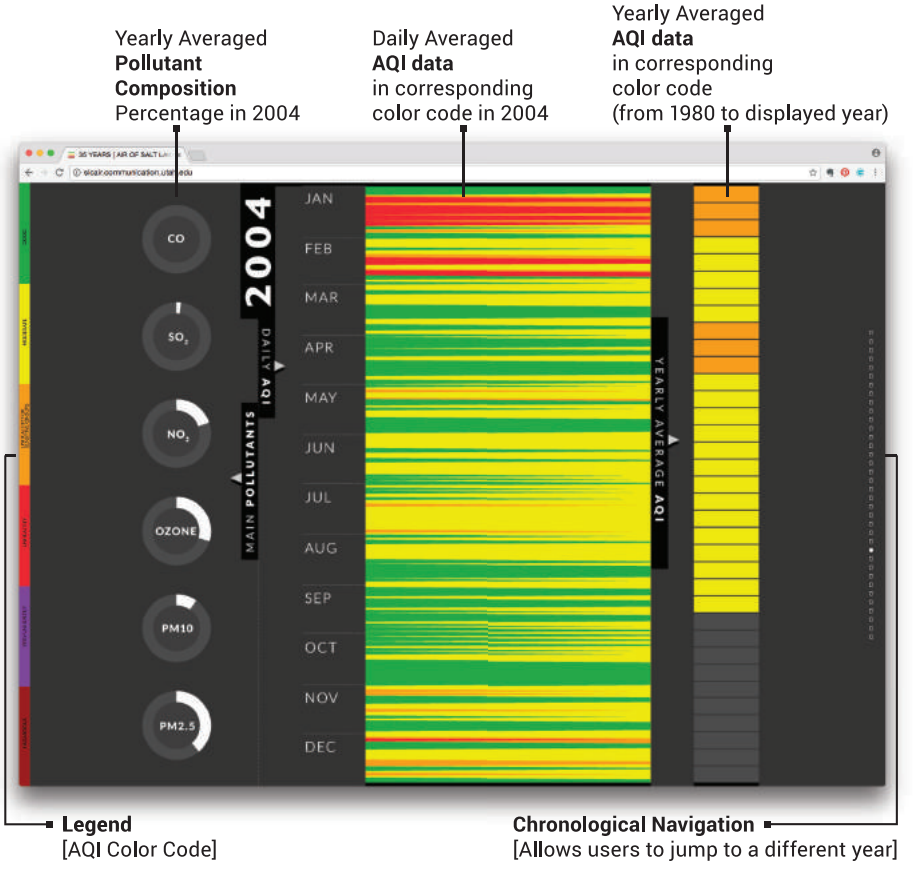


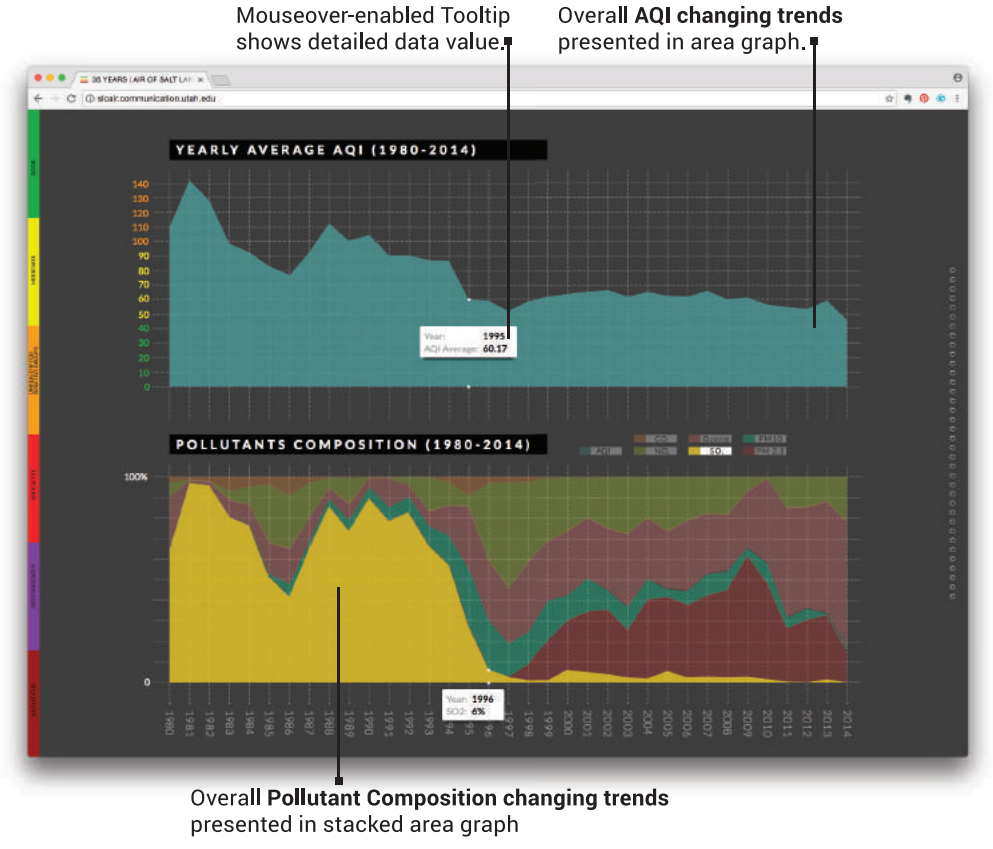
Figure 5 *Visualizing Pollutant Composition*

The pollutant composition was also examined from the micro and macro levels (Figure 5).

The yearly averaged percentage value for each pollutant as the main pollution contributor was represented by donut charts. A stacked area graph was used to demonstrate the changing distributions of pollutant compositions over the entire thirty-five years, which raises the issues of how city and industrial development affects our environment.

The Web Interface





Because of the amount of data information, a web-based interface design was chosen for its multifaceted canvas and possible interactive functions; interactivities add exploration dimensions to visual designs, and allow viewers to build their own stories with the graphics.

Parallax scrolling, a technique in web design that allows the background to move slower than the foreground elements to create an illusion of depth in two-dimensional space, was used to achieve an animated motion effect (Figure 6).

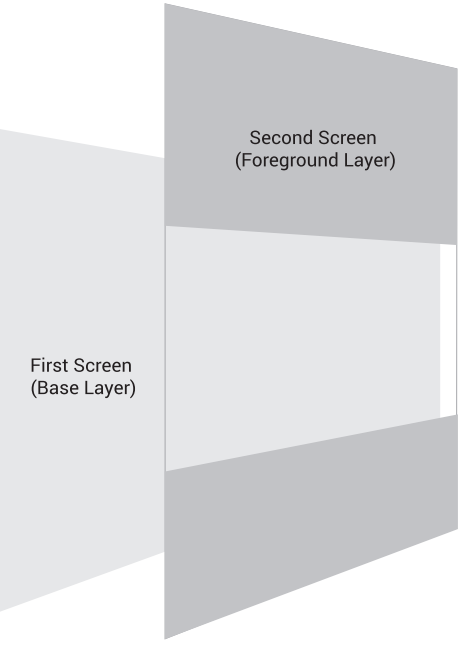


Figure 6 *Parallax Scrolling*

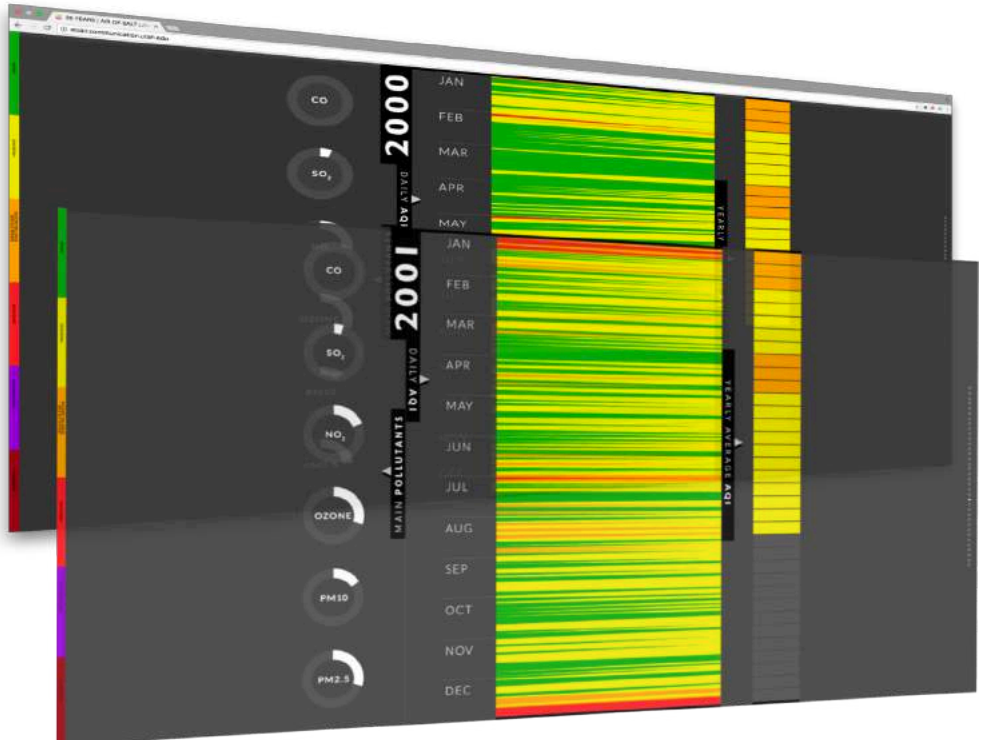


Figure 7 *Visualization with Parallax Scrolling*

Each layer or screen contains one year's visual statistics. When users scroll up or down the page, the adjacent year's graphics overlay the current one. The animated transition intends to emphasize the changing color patterns and morphing graphic forms (Figure 7). Thirty-five years of air quality information is revealed in a smooth sliding effect with user interactions (Figure 8).

The live project
"*35 Years – Air of Salt Lake City*" is available at
http://slcair.communication.utah.edu/

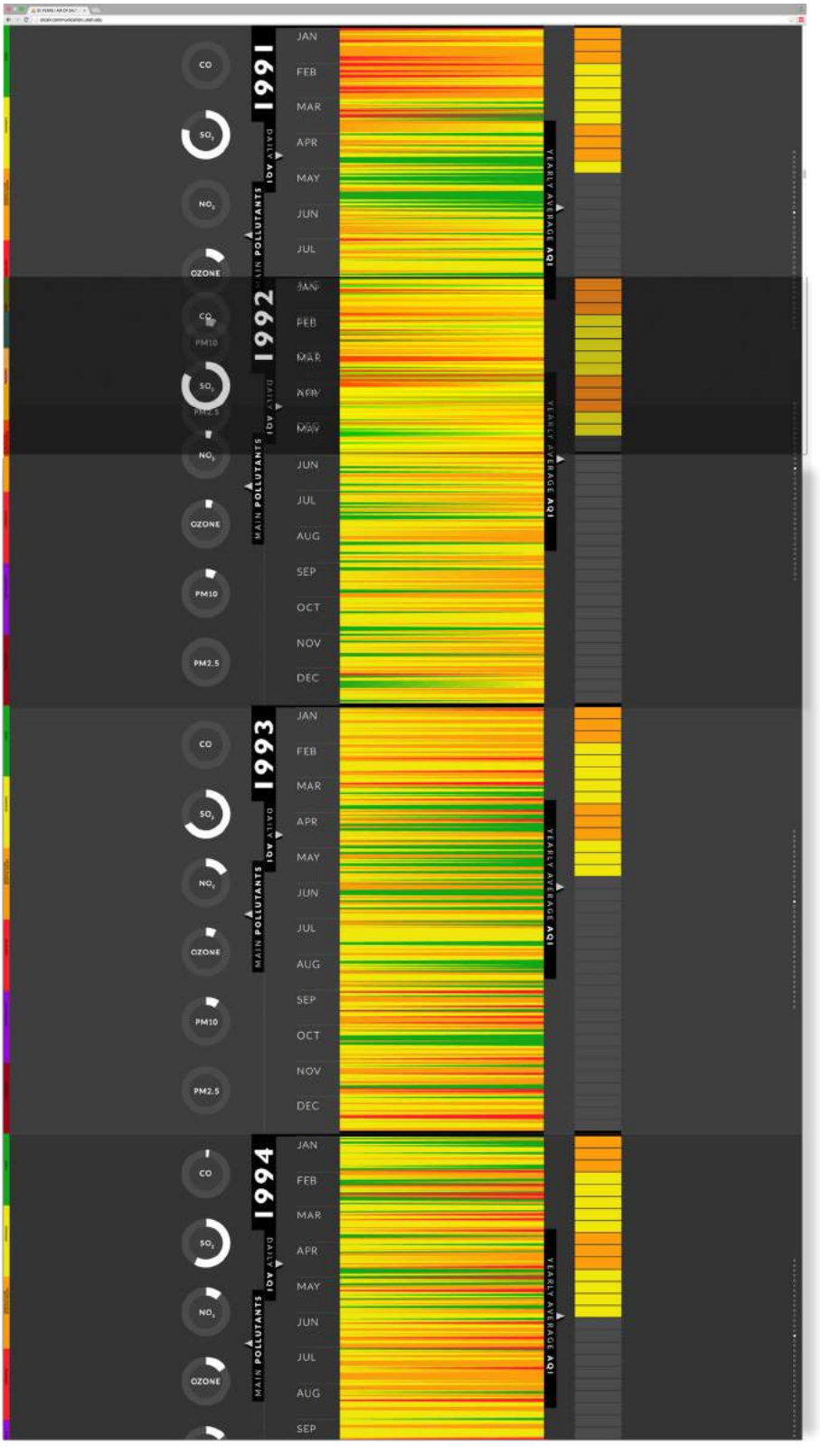


Figure 8 *Sliding Interactions with Thirty-five Years of Data*

Visualizing the Air of Beijing

Objective

The pollution in Beijing is usually considered to be "mild" during summers, as it is the cold air in winter that traps the pollutants and makes things worse. Therefore, when I had the chance to spend a week in Beijing in summer 2015, it was interesting to pay attention to the more "friendly" air quality in this ancient city.

Data Source

The data was collected from the U.S. Embassy's twitter account *@beijingair*. It is often believed, especially by the Chinese residents, that the U.S. Embassy's data is more reliable (Roberts, 2015).

Creative Strategy

My visual documentation has the intention of exploring the flexibility of digital images – a vessel for volumes of information that allows the visual images to reflect layers of objective records. Technology and graphic resources make it possible to use multiple perspectives to depict deeper levels of knowledge and understanding. Just as storytelling can be unraveled from a range of angles (Barthes, 1966), visual narrative can be constructed by multiple dimensions of viewpoints.

To make the air pollution more visible and truthful, I superimposed two aspects of realities into one image (Figure 9).

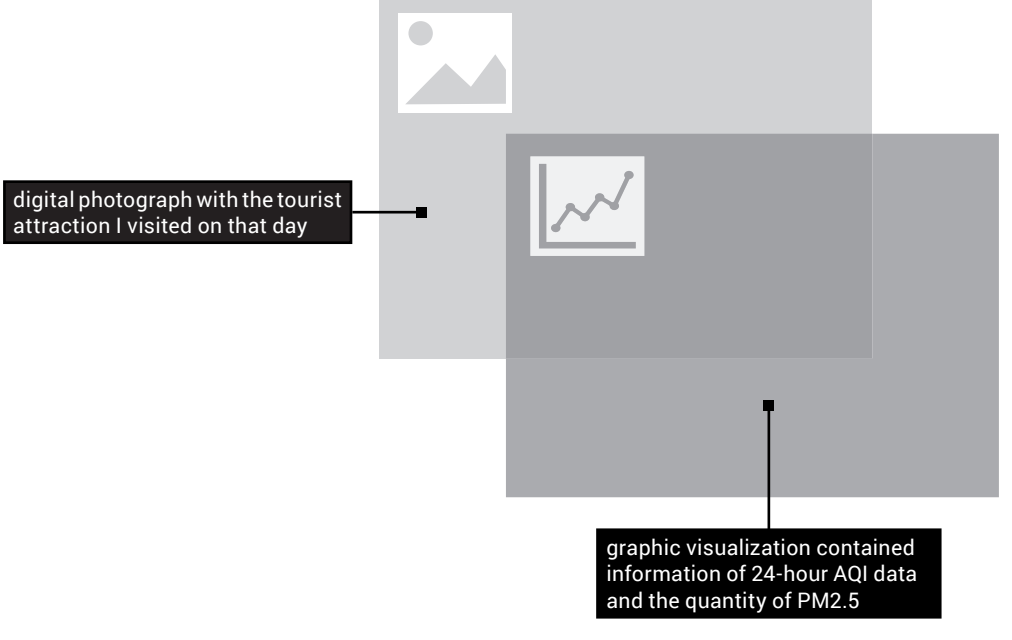


Figure 9 *Superimposing Two Aspects of Realities*

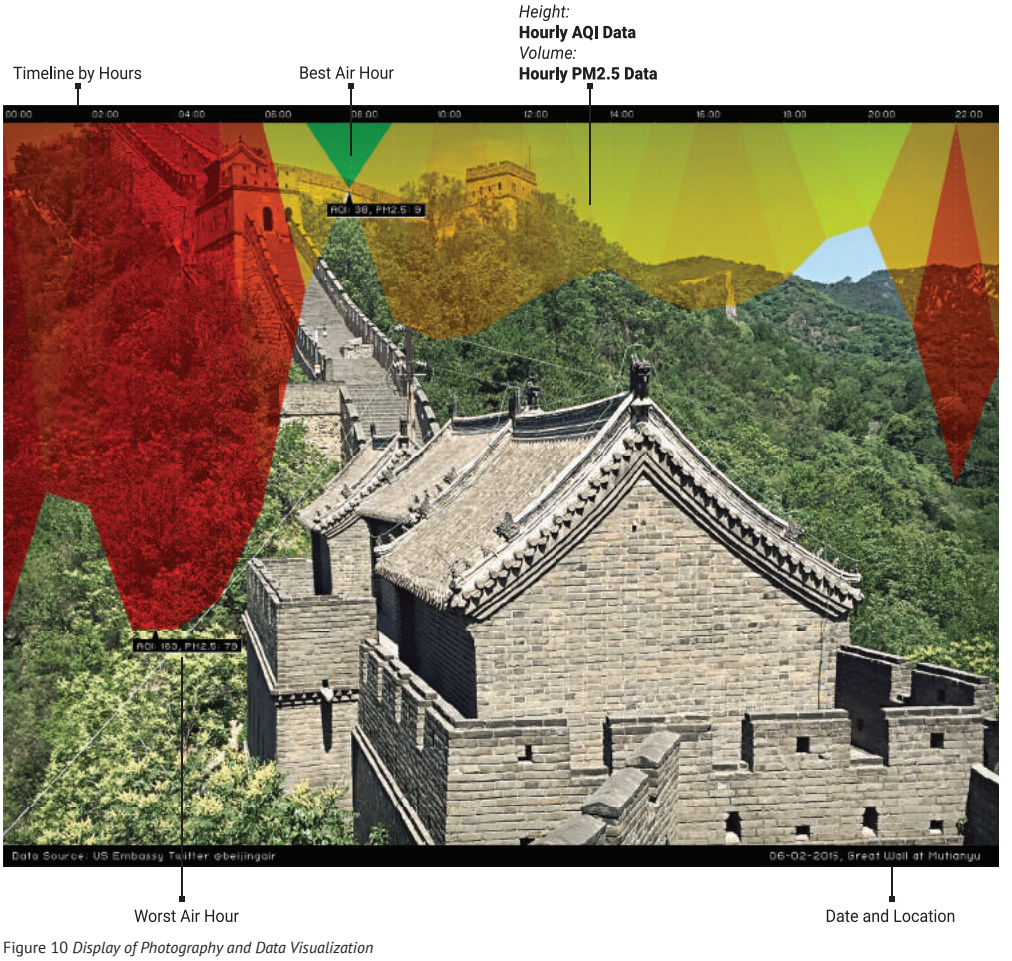
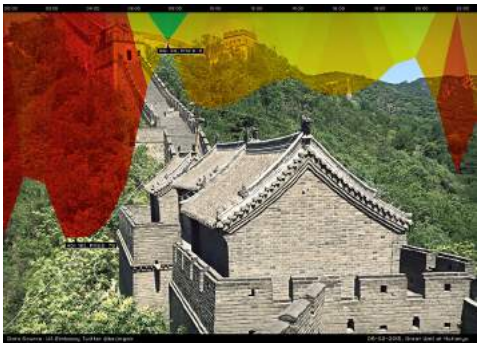
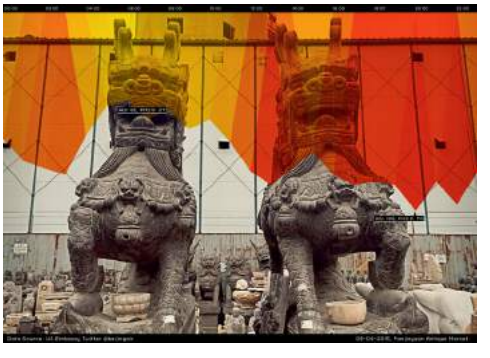


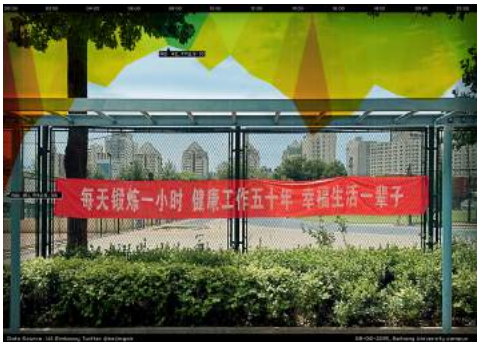
Figure 10 *Display of Photography and Data Visualization*

Figure 10 shows an example of how the collected 24-hour air quality data was fused with the photo of the Great Wall of China – the historical site that I visited on June 2nd, 2015. The hourly AQI and PM2.5 are visualized using graphs varied by length, volume, and color. The length is proportional to the value of the daily AQI. The volume is proportional to the circulation amount of the PM2.5 (μg/m3). The color scale is based on the AQI color code developed by the EPA that shows the level of health risk – the greener the color, the healthier the air is for people, and the redder the unhealthier it is.

The highest and lowest points of AQI and PM2.5 are marked on each photo, indicating the best and the worst air hours. Blue sky was visible on two days - June 2nd and June 6th. Not surprisingly, the graphs for these two days are relatively shorter and smaller, and become partially green during the 24-hour period of time.







The photo that represents my last day in Beijing shows a slogan, on a red banner and in the iconic Chinese style, hanging outside of the track field of Beihang University. It reads, “Exercise one hour a day– Be healthy for fifty years- Live happily for a life time”. ▶▶

Everything is possible only when the air people breathe becomes clean.

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Disclosure Statement

No Potential conflict of interest was reported by the author.

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She formerly practiced web, interactive, and print design for clients such as Lenox Hill, HGTV, ESPN, Saucony, Abbott, Novartis, Comcast, Paul Kasmin Gallery, Garth Clark Gallery, etc. Currently her research and creative work are mainly focused on information design, data visualization, and statistical graphics.

Her creative works have been recognized and awarded by various design organizations and publications such as Information is Beautiful, Photomediations Machines, Civic Media Project, GD USA, Association for Education in Journalism and Mass Communication, Adobe Design Achievement Awards, Creative Quarterly, Applied Arts, etc. Her design work has also been exhibited worldwide.

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 103–105
https://doi.org/10.1080/20557132.2017.1385259

Routledge
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The art of printing: a Mexican manuscript from the nineteenth century

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ABSTRACT
This review discusses the contribution of Marina Garone's 2016 book, *El Arte de ymprenta de don Alejandro Valdés (1819)* to the history of written culture in Latin America.

ARTICLE HISTORY
Received 1 March 2017
Accepted 12 April 2017

KEYWORDS
Alejandro Valdés; Marina Garone; *Arte de ymprenta*; written culture; manuscript book; typography

Marina Garone's book, *El Arte de ymprenta de don Alejandro Valdés (1819),* is, for different reasons, a milestone in the history of Latin American print culture. Built around an unpublished manuscript from the nineteenth century, belonging to the *Biblioteca Nacional de México*, the book goes beyond traditional boundaries of critical edition, presenting fundamental studies for the understanding of the historical and material singularities of the manuscript which was the result of five years of earnest investigation by Garone. In fact, the document has its historical dimension located in the chapters that precede a rigorous work of paleography, which ironically gives rise to the first printed edition of Don Alejandro Valdés' Mexican treatise. Besides this contradiction – characterized, of course, by a manuscript on the art of printing that did not reach the press – the document gains strength and complexity when we discover that it is, at the same time, a handwritten translation of a famous French text from the eighteenth century and the first known Mexican typographic manual: *Arte de Ymprenta, Traducido del francés al castellano a expensa de Don Alejandro Valdés, para la mayor ilustración de su oficina, México, Año de 1819*.

Divided into two parts – one dedicated to historical and material studies and the other to the critical edition of the treatise (accompanied by an important glossary of technical terms) – the book opens with a general study on the origin and development of typographical manuals, documents which, given their technical nature, were long neglected by historiography interested in the history of books. In highlighting the intimate relationship established between the fixing of typographic rules and the consolidation of orthographic norms, with an emphasis on a Spanish context, Marina Garone praises the historical status of these technical texts as invaluable sources for the history of written culture, in addition to underlining information about the machinery and the operation of a printing shop.

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This broad panorama on the treatises dedicated to the practice of typography and ranges from the identification of the first European treatises to the detailing of sections of Valdes' manuscript for the use of this workers. This section is followed by a chapter dedicated to the professional trajectory of the Mexican printer and the process of diversification of his production, located in a period of transition that firmly distinguishes two regimes of production and diffusion of the printing press.

In addition to highlighting all these aspects that contextualize the Valdés typography treatise, from the standpoint of its documentary status and its uses and practices, Garone also calls for another category of analysis (infrequent in Latin American studies on written culture), giving form and reality to the manuscript of the nineteenth century. This is a diversified and detailed codicological analysis, which provides information on the copy's ownership mark, ink, calligraphy, paper, internal organization of the work and binding. Claiming textually the historical statutes integrated into the material states of the documents, Garone criticizes a certain type of historiographical treatment, unfortunately still very present, that insists on submitting the manuscript or printed document to the category of sheer information bearer. In this way, and again textually, Marina Garone urges present-day researchers to become aware of the importance of the bibliological analysis that focused on the material and physical description of historical sources, always marked by their modes of production and their diffusion paths.

Finally, before introducing and reading the full text of the Mexican manual *Arte de ymprenta* (for the first time presented to the general public), the book introduces us to an intricate study, inscribed in the scope of textual criticism and translation, in search of the reference edition used by Valdés for the accomplishment of his treatise. In order to arrive at the selected edition – namely, the *Dictionnaire raisonné universel des arts et métiers*, *1773* – the reader is led to closely follow the entire process of construction of the research, starting from the clues provided by the manuscript itself: the identification of different authors and French texts that described the art of the typography in the eighteenth century and the processes of visual translation operated by the transposition from printed images to drawings, which also compose the manuscript with visual devices for transposition of the plates present in the reference work (*Dictionnaire raisonné*).

Beyond the uniqueness of this unprecedented document, established with care and lightness, and therefore accessible to the non-specialist reader, Marina Garone's book is undoubtedly affirmed by the richness of approaches, successfully integrating the life of the manuscript with the history of Latin American graphic heritage.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This work was supported by the Conselho Nacional de Desenvolvimento Científico e Tecnológico – Brasil, under Grant 449765/2014-8.

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Reference

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 106–109
https://doi.org/10.1080/20557132.2017.1385250

Routledge
Taylor & Francis Group

Lean means at FESTA: the Festival of Transitional Architecture 2016

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ABSTRACT

FESTA was born in the aftermath of the devastating Christchurch earthquake of 2011. FESTA is Christchurch's Festival of Transitional Architecture, initiated in 2012 as a way to reimagine a city in flux, finding its feet and redefining its spaces. The festival is now biannual, and in 2016 the main event – a night-time exhibition of temporary installations – was entitled 'Lean Means', and was curated by Jos de Krieger of Superuse Studios in the Netherlands. In keeping with de Krieger's 'Superuse' practice, sustainability and reuse of waste materials were paramount. The installations were created by teams from Australasian design and architecture schools, allowing pedagogy and the real-world requirements of a large-scale event to meld impactfully.

ARTICLE HISTORY
Received 26 February 2017
Accepted 12 April 2017

KEYWORDS
Urban renewal; sustainable design; transdisciplinary design; transitional architecture

The first FESTA was a night-time light show and street party; a moment of joy and wonder that helped reconnect people, through a shared moment, with the city centre; socializing and social bonding. It was so successful it became an annual event. Five years on from the quake, a great deal has changed for Christchurch, but much change is still embryonic. FESTA is as needed now as it ever was, though the emphasis has shifted from surviving, to thriving for the long-term.

The festival is curated by Te Pūtahi – Christchurch centre for architecture and city-making, a non-profit organization focused on the current rebuild and ongoing renewal of the city for the long-term. In 2016 FESTA shifted to from annual to biannual, and the headline event on 22 October was *Lean Means* – a night of installation and celebration framed around exploring sustainability through the reuse of waste materials in design and creative urban regeneration.

The creative director was Jos de Krieger of Superuse Studios (the Netherlands). De Krieger is renowned for architecture, urban installation and intervention informed by the availability of leftover and waste materials, utilizing these to push architecture and design into a closed-loop, cyclical process. Lean, practical, but with a playful exuberance, de Krieger's *oeuvre* is a great fit for FESTA (churlish thoughts on the carbon footprint implications of flying a Dutchman to Christchurch aside). De Krieger's impact is amplified when coupled with the pragmatic, dynamic force of nature that is Dr Jessica Halliday, art and architectural historian

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and FESTA's director. There is part of the New Zealand's cultural lexicon that claims – because of our isolation and relative youth as a nation – Kiwis have a notable ingenuity: our famed 'number 8 wire' mentality. This fix-it-up, make-do-and mend, get creative attitude is named for a gauge of fencing wire that was ubiquitous here. Kiwis would have you believe we are uniquely inventive with what's at hand, and the 'Superuse' practice and ethos de Krieger imbued into the festival actually gives legitimacy and credence to this somewhat overused maxim; another form of regenerating and recycling! This emphasis on reuse in a city where – despite the efforts of groups such as Rekindle (a social enterprise seeking to divert reusable materials from waste) – much of the post-quake demolition material went into landfill is apt. Perhaps even a logical evolution as Christchurch becomes focused on long-term viability, thriving over surviving.

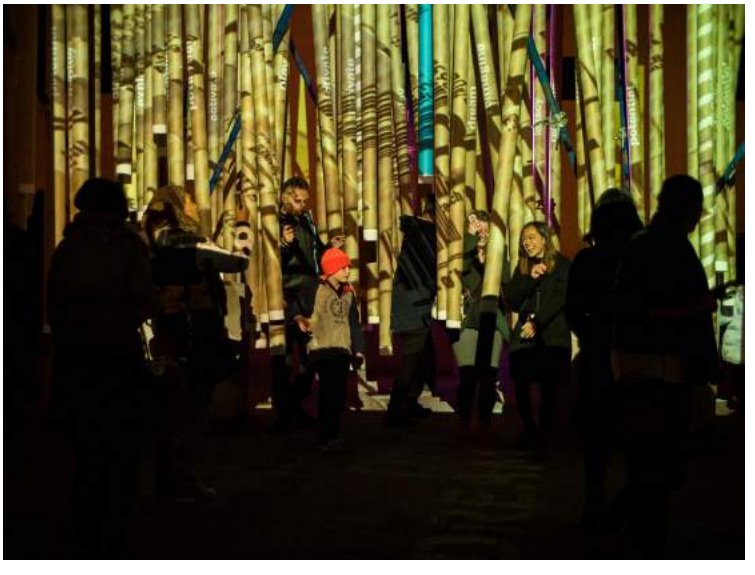
The city still knows how to revel in the *joie de vivre* of its very existence, and *Lean Means* was a joyful moment of celebrating collectively in a city centre still missing buildings, like a gappy smile. A vibrant street party of food, music, performance and 18 installations, all assembled by educational institutions from across Australasia from waste materials. A waterfall of bottles and plastic bags lit with LEDS (*Fallingwater,* Unitec, Department of Architecture); a fence tunnel woven by visitors with waste fabric to become an intriguing knitted obstacle course (*No Offence*, Auckland University of Technology, Spatial Design); an ethereal cloud of plastic bags (*Cumulonimbus*, University of Adelaide, School of Architecture and Built Environment); a temporary village of woven hazel structures (*Hence*, Ara, School of Architectural Studies in collaboration with craft artist Juliet Arnott [Rekindle]) and a landscape of suspended cardboard carpet tubes, lit with projected material explorations (*Pipe Dreaming*, Massey University School of Design in collaboration with artist Julia Morison) were a few of the diverse sculptural pavilions on display.

Working with tertiary institutions is a win–win situation for FESTA and the schools involved. FESTA was able to access managed manpower to deliver a diversity of forms, and the student teams got exposed to 'real' problems: strict site management requirements, engineers, council sign-off processes, and of course gained from the input of de Krieger and the FESTA team. For past events, design teams have been drawn from architecture or spatial design courses exclusively, but this year, FESTA extended the invitation to a team from Massey University that was open to all design disciplines (and was, in line with the makeup of the school, skewed towards visual communication). The Massey students were empowered to consider what they as individuals could contribute; not specifically the skills from 'their discipline'. Students commented that this helped them with new ways of thinking; a Spatial Design student summed this up: 'previous projects I've done in spatial design, because we are all thinking in the same way, approaching the issues from the same perspective, it was more difficult to get over a hurdle'. Another insight was that this approach broadened their perspective in a liberating way. This from a Visual Communication student: 'working in this interdisciplinary team has completely expanded our view of university; expanded our resources, rather than limiting them because of a discipline 'label'. In addition to the interdisciplinary design approach, artists acted as both 'clients' and mentors to two of the teams. This melding of art and design, and, in a broad sense, of design disciplines offered an interesting added dimension, and this exploration of interdisciplinarity could become a more deliberate, experimental part of the FESTA offering in future years.

FESTA's evolution from a format to revitalize the spirits and re-engage a community with their city to a longer-term catalyst for considered city-making and sustainable design

resonates with a realignment or blurring of design practice boundaries. If the festival can continue to push boundaries in both these arenas, its place as a go-to event on New Zealand's design calendar is assured.

Photo credits



Pipe Dreaming by Massey University School of Design used suspended cardboard carpet tubes and projection to create an immersive sensory experience (photo: Peanut Productions).

Lean Means, FESTA's 2016 night-time festival activated key vacant lots in Christchurch city centre, bringing life to spaces still dormant as the city rebuilds post-earthquake (photo: Peanut Productions).

Disclosure statement

No potential conflict of interest was reported by the authors.

Note on contributors

Nick Kapica is Design Lead at Wellington City Council, and former Academic Experience Designer at Massey University College of Creative Arts. Before emigrating to the southern hemisphere, Nick was the founder and partner of SV Associates in Berlin, and a visiting lecturer at the University of Arts in Bremen where together with Peter Rea he initiated and co-directed the Profile Intermedia international conferences held annually in Bremen. He also taught Visual Communication at Ravensbourne College of Design and Communication.

Nick is a designer passionate about communication but interested in all fields of design – his favourite projects are those combining a multitude of fields. Nick generates bespoke communication solutions and is committed to delivering excellent design. He maintains a fine eye for detail throughout all projects that often draw on his rigorous approach to typography. He received a degree in Visual Communication from Ravensbourne College of Design and Communication and an MDes from Massey University College of Creative Arts.

Jo Bailey is a Lecturer in Visual Communication at the School of Design, College of Creative Arts, Massey University, New Zealand. As a designer her practice focuses on facilitating and democratizing access to information, and exploring visual systems across multiple media. She has a research interest in communicating science, environmental and social issues, particularly in the digital space, and also an interest and practice in editorial design. Jo has a background in research and information management, and spent many years in the NGO sector. She is interested in conservation and sustainability, the built environment, and the personal ethics of design practice. She has a BSc (Hons) in Geography from the University of Exeter (UK) and an MDes from Massey University College of Creative Arts.

Nick and Jo oversaw the Massey University School of Design team in the development of their FESTA installation as part of an experimental interdisciplinary studio within the curriculum.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 110–113
https://doi.org/10.1080/20557132.2017.1385255

Routledge
Taylor & Francis Group

Big picture, little details: Graphic Design Festival Scotland Review, 2016

Neil McGuire

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ARTICLE HISTORY Received 28 February 2017; Accepted 29 August 2017

The Graphic Design Festival Scotland (GDFS), now in its third year, brought together a series of graphic design workshops, exhibitions and talks at the Lighthouse, Glasgow. Having grown in the last two years in scope and scale, the event in 2016 consisted of week-long workshops, talks and openings, complemented by three month-long exhibitions.

The Lighthouse is Scotland's Centre for Design and Architecture but, lacking both leadership and funding in recent years, GDFS is one of the few annual occasions that the building is animated in the way it could and should be. In their own words, GDFS 'want to raise the bar of the design scene in Scotland and strengthen the Scottish design community … [and] want to improve the quality of Scottish design and the aspirations of Scottish designers'.

Outward looking, inward gazing

While its ambitions are clear and well communicated, the Festival can have a recurring tendency to fall under the spell of its own hyperbole. Last year it made fairly bold, if erroneous, claims to be the first ever international design festival in Scotland, and this year the identity scheme by Freytag Anderson, designed in conjunction with Warriors Studio (the festival organizers), seemed to succumb to a similar fate – with aspirations towards crowdsourcing and collaboration that seemed in reality very limited and to fetishize the more mundane aspects of graphic design practice.

While this all points to a slightly myopic way of framing and marketing the festival, the scope of the programme suggests quite the opposite. The organizers clearly have a voracious design appetite, and in a short space of time have developed a strong network of practitioners, mainly drawn from across Europe – some very well known, others less so but no less interesting. This year the festival featured workshops with European visitors Grilli Type and Nous Vous (amongst others), as well as a number of local studios and artists including Graphical House, O Street, Ciaran Glöbel and Recoat. Part of this year's itinerary also included a screening of short films, and as part of their aim to promote a broader dialogue beyond graphic design, the festival organizers programmed the 'New Worlds' talk event, featuring

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Wikihouse, Emblemmatic and The Future Laboratory. This diversity adds to an increasingly rich mix of design input.

A tale of three exhibitions

The exhibition programme this year was based entirely in the Lighthouse where in previous years it has been distributed across several Glasgow venues. Two shows were gallery based and the other – images of objects occupying a space between hyper-realistic photographs and 3D renders by Danish studio PUTPUT – was distributed across the circulation spaces of the building. These images, largely of hybrid household objects, oscillated between surrealist juxtapositions and visual puns. Although it was difficult to see beyond the visual one-liners that dominated, the images were executed to a high standard and collectively formed an interesting visual insight to some aspects of contemporary art-direction.

Of the other two exhibitions, No Exit, by Design Displacement Group (DDG), a self-declared 'post-signature' collective (a loosely formed group of designers and a social scientist from various disciplines, cultures and nationalities), was the most thematically and technically ambitious. The project consisted of a number of elements; printed fabric shawls ('costumes'), LCD monitors with scrolling texts and a 3-screen projection work. Taking the title from a play by Jean-Paul Sartre, but with clear references to Brexit, DDG states that the piece is structured around the movements of an opera, but one in which the content can change with each iteration or 'showing'. We are told the content of the opera and projections is driven from an online file sharing system (Dropbox) and the collective was able to update its content at any given point. However, it was difficult for the viewer to get a sense of this, unless they were willing to spend several hours in the gallery or make repeat visits. As an idea though, this neatly bridged the worlds of 24-hour rolling news and image management and manipulation that characterizes much mainstream media output.

A speculative project, the work positions itself 20 years in the future, and uses graphic design and documentary techniques blended with fictional approaches to reflect on contemporary narratives. In its aesthetic rendering, it is difficult not to see a heavy influence of some of the staccato jarring imagery, diffused textures and visual 'noise' of Dutch design and research organization Metahaven. Where Metahaven's political sights are more keenly focused, No Exit lacked some of that incision. Perhaps the surrendering of some editorial control to this computational collage leads to this overall affect, but in the context of this exhibition, we were clearly positioned as a viewer in a room watching a triptych of films, asked to believe what might or might not be going on behind the scenes. Aspects of the visual montages had overtones of Adam Curtis documentaries, but rather than exploding small events to reveal the 'bigger picture' the viewer always felt one-step removed, subject to a torrent of audio and visual stimulation, perhaps mirroring the type of sensation you might get browsing online image aggregators or multiple news feeds. Undoubtedly 'information overload' is one of the contemporary disorientating dynamics the designers are playing with, but the piece didn't seem to reveal anything new about this sensation, beyond recreating it. Regardless of your standpoint on any of these issues, it was important to see graphic designers operating in this type of context who were creating work that was ambitious, embraced the computational, responsive and generative, and were clearly not afraid to play, experiment and take risks in their work.

In the adjacent gallery space, 200 posters were on display, comprising the festival's centrepiece (Figure 1). While the Poster Exhibition has been a core recurring feature of the

Figure 1. Poster Exhibition Opening, Image: GDFS.

festival, it was the most problematic, mainly due to the scope and quality of the work on display, and the mode of presentation. From a submission of 3443 posters, the festival organizers, along with Étienne Hervy of Chaumount Design Graphique, Unfun and Lamm & Kirch, selected 200 posters to be displayed in the gallery. These were arranged cheek by jowl so that it was very difficult to really see any one individual poster – the overall impression was an image assault which occupied your full field of vision. On one level this created an immediate visually striking impact – upfront, bold and in your face. However, it also resulted in a number of very weak posters (unthinking political truisms, trendlist poster-generator shape and type exercises, penis jokes, etc.) being carried along by the crowd, as it was impossible to really distinguish them from the mass.

Strong commercial work by European studios sat alongside student work, posters publicizing social events and political causes were juxtaposed with aesthetically pleasing photographic images, and the commercial 'multiple' was positioned next to one-off art pieces. The exhibition rationale attempted to make several parallel cases; that posters are both context specific, but should be viewed in the exhibition stripped of context; that a poster is a specific communicative device, and can also be any combination of text and/or image; that it can exist as a printed object and/or online as a digital artefact.

While a discussion about what a poster could be is undoubtedly a worthwhile debate to have, the exhibition appeared hesitant about addressing these issues curatorially. The outcome of this reluctance to engage directly and critically resulted in a collection of rectangular images that were selected primarily because they were 'liked' by the organizers. While there were some very interesting and ambitious designs on display – posters that do make us think about type and image and the medium and message – they became lost through the sheer quantity of work on display.

It is interesting to note that while GDFS received 3443 submissions to an open call for posters the 'top 200' still contained a number of weak and derivative pieces. This perhaps reveals something about Graphic Design practice in a contemporary context, and the

discussions that could be had about the volume and velocity of the work and activity that aligns itself around 'graphic design' in 2016. GDFS is coming at this debate from a position of strength and should feel bold enough to open out these questions, addressing them back to its audience.

Changing and growing

GDFS has continually evolved with each iteration. We should not underestimate how difficult it is to not only maintain a festival of this nature, but to grow and improve it year on year. One of its key strengths is its keen understanding of the importance of the 'social' in its activities, and it is positive and proactive in seeking to connect its network with designers and students working in Scotland. The workshops, which are perhaps the festivals strongest facet, are well curated, diverse, and enthusiastically run.

There is undoubtedly scope for the festival to be more discerning and to assert a stronger and more confident curatorial voice. But above all, the festival is a reminder and an example to us working in design at the north-west fringes of Europe that we have to be the change we want to see. While the organizers stress that in the future they are keen to appeal to 'audiences which [they] aren't catering to or engaging with adequately' there is still much more scope to challenge their broad support base built up over the years.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Neil McGuire is a designer and design tutor who works on a range of projects and activities including; graphic design commissions, artworks, event production, curation, learning and teaching, talks, and self-initiated projects. He studied Communication Design at Glasgow School of Art (GSA) at the end of the last millennium, and has since worked in a freelance capacity (under the name After the News). More recently he has also undertaken part-time teaching at GSA, initiating and running a number of new curricular and extra-curricular projects. After the News has worked with a range of clients (mainly) in the cultural and public sector including; Tramway, Dundee Contemporary Arts, Architecture and Design Scotland, Creative Edinburgh, National Theatre of Scotland, the Lighthouse, and various individual artists and designers.

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 115–130
https://doi.org/10.1080/20557132.2017.1385260

Routledge
Taylor & Francis Group

Didn't we solve this one? The function of practice routines in design thinking

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ABSTRACT

While design thinking has become a buzz word both inside and outside the communication design studio, the practice of design – or the social act of *designing* – remains relatively unstudied. Current design-thinking models used to generalize and market design work veil the daily processes and practices of designers behind an ideology of inspiration and spontaneity, while rendering invisible the audit and logic structures in which designers labour. As a result, designers report that these models, though popular, fail to describe the foundational 'steps' through which they generate creative solutions to client problems on a daily basis. This article examines findings from an ethnographic study of design practice, and proposes the addition of recurrent routines of production to an understanding of the larger practice of communication design. Based on an exercise conducted with 22 digital communication designers where 'design-thinking' models were used as frameworks for self-reflection, this article discusses the surprising role of overlooked and under-represented practices of affinity sorting and repertoire use. It proposes that both are generators of creativity which act as a short circuit within communication design work. Findings from this study suggest that repositioning aspects of design practice identified in this study as a critical foundation for creative work, rather than as overlooked aspects of daily practice that 'don't count' as *designing,* could allow for a reconceptualization of design practice as a process of imposing limitations instead of the more commonly described 'thinking outside the box'.

ARTICLE HISTORY
Received 28 March 2017
Accepted 17 September 2017

KEYWORDS
Communication design; studio culture; design community; design thinking; practice; creative work

Introduction

[1]With the realities of client requirements and organizational processes, the daily work of designers in studios often bears little resemblance to the mysterious and magical practice of design thinking promoted in design industry promotional rhetoric. In fact, designers often rail against the way their practice is described in popular culture, taking particular exception to the use of terms such as 'design thinking'. Increasingly, design practitioners are publicly suggesting that the use of the term itself is redundant – akin to air-breathing more so than to a new and unique process form.[2] As Helfand has notably stated, design thinking can be understood as a

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formulaic approach that refutes and denies the power of process.[3] It has even been termed 'trendy but ambiguous … a dubious term',[4] one which is exploited in the business and management literature at the expense of rendering the associated work of 'design doing' invisible. If, as is increasingly true, designers reject the models of prototyping and ideating made popular in business and industry rhetoric, then what is it that they *really* do?[5]

As a complicated interplay of mind-sets, applied techniques, and philosophical approaches, design thinking has become a staging point for a variety of powerful research-based and iterative approaches to problem solving: a common reference for 'designing' that captures the optimistic and creative problem-solving ethos of the community of practice it has come to represent.[6] This article asks: instead of using design thinking models to veil the practice of designers behind buzz words and industry jargon, could we use contributions from IDEO, Stanford's d.school and Simons as comparative frameworks to draw attention to the routine or automated realities of the design work practiced by communication designers in a way that would enable us to better understand their process? What omitted or ignored dimensions of their practice drive their decision-making and generate creativity in their work?

To explore this, we must examine the overlooked practices that serve to generate creativity within design practice. This article presents findings from a sorting exercise conducted with 22 design practitioners as part of a larger ethnography of design conducted between 2015 and 2017 to uncover the way that designers themselves are actively challenging the definition of design practice to include not only the ever popular 'thinking outside the box', but also practices of formulae use and categorization – acts of 'boxing' the information back in.

By working with designers to identify, sort and categorize the 'steps' they took in generating a design solution for a fictional creative brief, the exercise described in this article confirmed that the stages identified in most popular models of 'design thinking' process were indeed not reflective of the professional practice of the design practitioners who make up the creative teams of StudioX, nor were they indicative of the realities of daily studio work. Based on this analysis, a proposal is made of two 'new' design practice categories – affinity sorting and repertoire use – both of which serve as creative drivers within the working process of the communication designers in StudioX.

Identifying these invisible or overlooked design practice 'steps' as part of a fuller definition of *designing* allows us to better understand how the commodified and popularized models of 'design thinking' serve to dislocate the abductive and associative decision-making processes of designers from their daily work – work which is of necessity conducted within the boundaries of the logics and audit practices of the studio setting. As practice forms, 'affinity sorting' and 'repertoire use' are both constituted of the logics of the studio space, and also rendered invisible by the ideology that those very logics puts forward. While they may make up the majority of the design team's daily work, and while they may be effective generators of creativity within a system of tight timelines and limiting client demands, these practice forms are actively rendered invisible by both the institutional logics of the studio space and the ideology of inspiration and spontaneity promoted and packaged within 'design thinking' models. As a challenge to the dominant models of 'design thinking', many of which have come to stand in for the realities of design practice, this article seeks to draw our attention to the way that shared experiences and collective expertise come to define a community of practice focused on *designing* by exploring the ways designers are themselves rethinking what 'counts'.

Disentangling design logics, communities and practices

Despite increasing attention to popularized models of 'design thinking' the institutional logics (and resulting ideologies) of the inside of the studio remains relatively unexamined perspective from which to view changes in cultural understandings of design practice.[7] By disentangling design practice from the culture of the studio, the identity of the design practitioners, and the popularized models of the cognitive process of design thinking, the daily and invisible practices of *designing* in studios today can be revealed as a practice generated at the intersection of routinized work, and ideological structures made material in the studio itself.

The social practice of designing within a studio space is continually made and remade at the intersection of 'the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality'.[8] These intersections of activities and symbolic systems, or institutional logics, are manifested by design practitioners, administrators and studio staff as rules for "doing it right" within the studio space, acting to construct an ideology of practice for those engaged in designing within the institutional framework.[9] As Thornton and Ocasio suggest, the logic of an institution is made manifest in the ideology of the practices of its members. In the entanglement of the logics, communities and practices that come together to form *designing*, this is most often framed as an ideology of spontaneity and inspiration.[10] Using an institutional logics perspective to reveal these ideologies that come to define the studio's culture can then, in turn, expose the broader belief systems that shape the cognition and behaviours of actors,[11] allowing us to disentangle the logics and ideology of the studio from the practices and processes of the designers themselves.

But this, of course, is not a one-way street. The institutional logics of the studio space which act to shape the practice of designers are also shaped in turn by the politics and identities of those who come together to manifest the institutional logic in action. One way of understanding this is to suggest that it is membership in the "community of practice"[12] of *designing* is the defining element of the professional identity of design practitioners, and that it is membership within this community of practice that entangles designers within both the logics and the ideologies of the studio itself.

In brief, '… community of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly".[13] As a community defined not only by their professional accreditation, but also by their continued mutual interaction and support, design practitioners commonly exhibit the key features of such a community of practice, including: shared experiences; the development of collective expertise; the opportunity to learn from each other; and the application of expertise in real life.[14] This definition of designers as those who participate in a community of practice of *designing* is in keeping with similar analysis of social work,[15] nursing, education,[16] and artisan production.[17] By focusing on the community of practice of *designing* (rather than the professional designation of designer) we are able to focus on reintegrating the practice of design with the social role of the designer. This is key to understanding the design practice within StudioX, for what defines a community of practice most of all is not their professional designation, but their practice itself: the embodied and situated knowledge[18] or organizational

knowledge developed within and shaped by the social structure and institutional logics of the studio.

By understanding design practice as constituted of both the social role of the designer, and their membership in a community of practice, we can see how the practice of *designing* is the foundation of becoming a designer – designing as a social engagement and a social acquisition of identity rather than the application of a form of cognition.[19] However, this poses a challenge to popularized definitions of what designing means, many of which take their form within the framework of 'design.[20] This framework has evolved over time to include descriptions of design thinking as a mindset or problem solving act,[21] a creative thinking practice[22] the conception and planning of the artificial,[23] a marketable skill set[24] or a 'way of looking',[25] all the while taking as its focus the cognitive process of design rather than the social practice of designing.

As Kimbell has suggested, 'Design thinking does, however, remain under-theorized and understudied; indeed, the critical rethinking of design thinking has only just begun.'[26] An evidence based examination of Cross's '… things to know, ways of knowing them, and ways of finding out about them that are specific to the design area'[27] provides opportunity for further investigations into the daily activities which constitute the *doing* of this practice form for members of a community practice formed around designing, rather than around the cognitive practice of design thinking. With the evident turn in the field of design studies away from the use of design thinking as a model for design practice has come new explorations of the creative process of design practitioners, including work on design thinking as a form of collaborative innovation.[28] However, much of the work done in this field continues to focus on product and architectural design rather than the work of digital communication designers.

By positioning the social practice of designing as a response on the part of a community to an institutional logic and resulting ideology rather than as a cognitive practice, we can better understand how graphic designers engage in complex and often invisible or unacknowledged practices of production in order to create design solutions. Conceptions of 'product image(s)',[29] which predetermine the form and shape of creative solutions, as well as 'occupational formulae',[30] and 'routines of production'[31] used by creative workers to work quickly and effectively, are especially helpful in understanding the unseen and unacknowledged 'steps' of designing that remain veiled when we substitute models of design thinking for the realities of design practice. Of particular interest in understanding the foundation these routines provide in helping designers do designing is Negus's attention to the way that 'the habitual, un-reflexive and uncritical adherence to well-established production and occupational formulae'[32] can help cultural intermediaries[33] make creative work while staying on budget and schedule within a client and solution focused industry.

Disentangling design practice by making visible the threads of institutional logics, the resulting ideology,[34] the community of practice of designing[35] and the routine, automated and mundane practice forms that constitute their collective work[36] allows us to examine the unique practices of that both contradict and support the ideology of design practice as spontaneous and inspired. In the following section, an exercise conducted with design practitioners is described which popular models of design thinking as a catalyst for discussion and reflection about the roles of routines of production within design practice.

Research methods

This analysis of just how designers work as a community of practice to incorporate and share routines of practice and occupational formulae in their work comes from a year-long qualitative research study of communication designers. Data for this study was collected through individual interviews with practicing graphic designers and through participant observation field work in a communication design studio conducted over the course of a long-term design project. This study aimed to provide a description of the sense-making processes engaged by designers in their work, and the way in which these practice forms could be better framed within popularized models of design practice in use outside of the design community.

The design studio that hosted this research project was comprised of more than 50 designers and design workers whose work was supported by 100 strategic, operational and accounts focused staff members.[37] Creative teams at work in the studio were made up of between eight and 10 members, and were each led by a single Creative Director. Teams featured up to six designers at junior and intermediate levels, one strategic director, a copy writer and a creative director – a professional combination that mirrors the structure of other agencies and design studios of this size in Canada.[38] Participants on the design teams were 60% female and 40% male, with an average of 11 years of professional experience and four years of post-secondary education – most held a Bachelor of Design or Design Certificate designation, and all were members of the professional association of graphic designers in Canada. In addition, all members of the design team had been employed at this particular design studio for five years or more: an anomaly in an industry marked by short term contracts and high levels of career change.[39]

Working with these designers in particular provided an especially rich glimpse into a form of design practice often overlooked in studies of this type: their focus on providing communication and graphic design solutions for clients meant that members of this community of practice engaged a slightly different process than the industrial, architectural and product designer who figure more prominently in the design process literature. Specifically, processes of prototyping and research observed over the course of this ethnographic study focused less on user testing than has been outlined in studies conducted of industrial designers[40] and architectural design.[41]

In an effort to better understand the aspects of design practice that designers used to describe their work, this research study used a sorting exercises conducted with a group of 22 designers spanning two creative teams from StudioX in early 2016.[42] The methodology applied included asking designers, as part of semi-structured interviews, to describe their decision-making processes using a sample creative brief and a fictional client relationship as guiding documents, and to write each aspect of their process (conceptualized as a practice node or 'step') on a separate card. Participants were then tasked with comparing their outlined practice against the methodological prescriptions found in three commonly accepted models of 'design thinking' generated by design firms and business publications: Simon's original five part model of design-thinking process found in the seminal *Sciences of the Artificial*, the original IDEO design-thinking cycle model popularized by Tim Brown, and the Hasso-Plattner Institute of Design at Stanford (d.school) five design-thinking modes model, made public on their institutional website and in their bootcamp bootleg documents. The intent of this phase of the exercise was to mobilize the models as catalysts for discussion

and debate between research participants in an effort to make visible the more automated and routine aspects of the design process often masked by the very models themselves.

The development of the creative brief and fictional client relationship description provided to the participants was of key importance in this exercise. Both documents were developed in partnership with the Accounts team that normally provided briefs to these specific designers, in an effort to make the fictional scenario provided as reflective as possible of the daily communication-focused design work done by the design practitioners. The fictional client relationship described was developed using a collage of clients that were currently serviced by the studio, and the 'sample' brief included realistic timelines, budgets and audience considerations pulled from previous client projects done by other creative teams at the studio. The format of both documents used StudioX's document standards, and both documents were provided for review using the in-house docket system in order to maintain as many of the institutional logic structures as possible. The fictional client was made anonymous, but their industry and key challenge was identified for the designer's use in the exercise. Audience descriptions and 'background research' sections were taken from a real historical client no longer served by the studio. Since the intent of this exercise was to reveal the design practitioner's own local understanding of their process, the researcher ensured that the design team that participated in this exercise had not encountered the particular 'ask' presented by the fictional brief. The creative brief and client description documents provided presented new challenges and information to allow design practitioners to be generative and creative in their process, but also presented a level of familiarity reflect upon their personal and collective practice routines. Since the work of the participating teams focused on telecommunications and automotive industry clients, the brief asked them to develop a digital platform for a co-sponsorship between the two industries (Figure 1).

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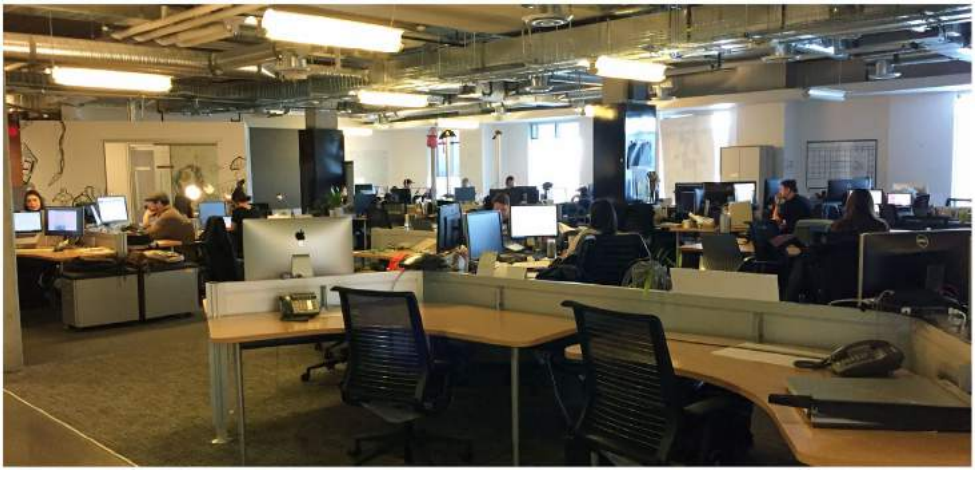

Figure 1. Design practitioners at work on a sample creative brief.

Institute of Design at Stanford (d.school) five design-thinking modes model. Designer participants were then asked to use the design-thinking models as comparative frameworks and were tasked with assigning each of their identified 'steps' to the popular design-thinking structures outlined. Unassigned practice nodes were identified for further examination and discussion. After data collection was finalized from this phase of the larger study, qualitative content analysis was used to derive coding categories directly from the collected and transcribed data,[43] using a descriptive approach to examine the larger narrative presented in specific exercises, field notes and interview text.[44] These initial coding categories from the exercise work were then collated into potential themes, which were subsequently tested in relation to the larger data set and against interview data as well.[45]

By gathering empirical data from designers in both the organizational context of the studio, and through individual semi-structured interviews about their own habitual, regulated and creative communication design practice (a creative practice defined by their membership in both the community of practice of designing and the field site of the studio organization), a framework was developed toward a theory of how graphic and communication design practitioners define the parameters of their design practice within and as a challenge to popularized frameworks of 'design thinking'.

Findings

Overall, designers tasked with assigning self-identified practice nodes to the three models of design thinking identified many strengths of the models themselves. The stages of empathy generation, ideation, iterative practice, trial and error, testing and rendering complex information simple presented in the design-thinking models were highly valued by designers and easily accommodated within their own practice outlines. However, of the 22 participant designers in this exercise, 19 were unable to find space to accommodate a key aspect of their practice – that of compartmentalizing and categorizing the *types* of projects presented in the brief in order to work out the class of solution most appropriate to the client. More than half of the designers identified practice nodes related to sorting, or categorizing types of work in order to accommodate for the use of pre-formed or habitual solutions implemented to save time, billable hours and effort in an already stretched and busy working day. Of the 22 participants, 17 discussed their use of a "mental library" of concepts, or formulaic responses to what was considered a typical design problem and were unable to assign these practice node cards within the design-thinking models provided. All the designers participating in this exercise discussed the difference between "real life" and "dream" design practice and 20 participants of the 22 total sample size attributed this difference to the unspoken and unacknowledged role of routines and habits in creative concept generation. Most designer participants, when asked to select from the provided structures or models, were willing, if not eager, to assign these practice nodes to the stages of Ideation (present in all three provided models) but 15 of the 17 who discussed the use of routines and habits in the ideation phase clarified that these routine oriented steps were not practice forms that would 'count' as part of design thinking.

Key comments from designers participating in this exercise included:

> … sure but it is a mental library, like a pantry, and you can reach in and get ingredients, you know? Once you have decided what kind of project it is, what you can pull that you already have, then you can work faster – you don't have any time to start with. (Designer A, personal communication, 2016)

> I use some habitual stuff I guess, once I've decided what I'm … once it's clear what kind of thing we are doing, then most of it is just plug and play. (Designer B, personal communication, 2016)
>
> You can't really call this design thinking. It's just what you do … you are a designer. You just have this set of stuff, you remember what you've done, you use what you know. Like type choices. Or layout. Or just you know. You remember what you did before. You do that, because hopefully it worked! (Designer C, personal communication, 2016)
>
> Everyone thinks we are always reinventing. Changing things. Reinventing … but most of the time we already know what the end is going to be, just once you know you give me the brief. We can tell the weather from looking at that, then we know what works. (Designer D, personal communication, 2016)
>
> You know what works. You've done this before. I just think about what I've dealt with before, and see what this might be similar to. You know. Find it's similarities … work from before gets you going. (Designer E, personal communication, 2016)

Discussion

An analysis of the data generated by this small exercise highlights two unique themes that appear to be common to much of the *designing* done within this particular studio: *affinity sorting* and *repertoire use*. As frequently omitted or ignored dimensions of design, both are veiled by the existing models of design thinking which so often stand in for a detailed understanding of design practice, and yet both clearly condition and create the practice itself.

Affinity sorting

The first key practice, or routinized type of behaviour[46] revealed through this assignment exercise can be understood as *affinity sorting*. In the sorting exercise detailed above, designers described the stages of assigning a design problem to a category of solution *before* engaging with the process of ideation outlined in the three sample models – in essence employing what Ryan and Peterson call a 'product image' to side step extra or unnecessary work in the 'empathize' (d.school),[47] 'define' (Simon)[48] or "inspiration" (IDEO)[49] phases of their work. In a manner similar to that described by Ryan and Peterson's study of song-writers, designers faced with an assembly line of concurrent projects described the use of product images in the form of applied categories or sorting models used to better understand what kind of problem they faced in the brief. In doing so, they created a short circuit within the initial phases of their process, speeding up their designing in response to the demands of limited billable time allocations and client demands. This incorporation of affinity sorting as a shortcut or heuristic for design decision-making would appear to run counter to Baeck and Gremett's proposal that design practice embraces a more creative approach to problem solving than traditional research and creation methods by defying '… the obvious and instead embrac[ing] a more experimental approach[50] Instead, the use of affinity sorting as a generator of creativity hews much more closely to Lawson and Dorst's conception of the use of a 'gambit'.[51] Affinity sorting included such practices as:

- Assigning specific projects to team members who had done similar work in the past.
- Using familiar language to describe a concept or idea in order to reach consensus among team members.

- Grouping solutions to the creative brief within established categories *before* completing the outlined stages of their design practice.
- The use of standardized rules for the 'type' of project identified.
- The use of patterns (and sample decks) for creative pitches formulated based on similarities between projects, and used for projects which matched the 'type' of project defined in the brief.
- The use of self-described 'moves' (such as patterns of work or processes) that were assigned to projects based on their 'type'.

Each 'step' identified as a form of affinity sorting was highlighted by designers as necessary, effective and critical to their creative process (Figure 2).

The repeated use of affinity sorting practices as a driver of creativity (and notably, not as a limitation) within the social practice of designing shared by this community challenges they key ideology of inspiration and spontaneity enforced within the institutional logics of the studio. Using affinity sorting required design practitioners to not only box ideas in, but to 're-use' the boxes that had been effective for designing quickly and efficiently in the past. In addition, though designers repeatedly devalued this phase of their work as 'not really part of what clients would call designing', the team wide use of affinity sorting practices in the sorting exercise demonstrates a way in which designers are actively negotiating the institutional logics of the studio itself. In order to uphold the ideology of inspiration and spontaneity made manifest in the structures and rhetoric of the studio, designers appear to engage these affinity sorting 'steps' as a strategy to increase their creative output per hour, and to meet the demands of billable hours and client needs. Affinity sorting can also be understood as a way of sharing experiences within a team, and developing a collective

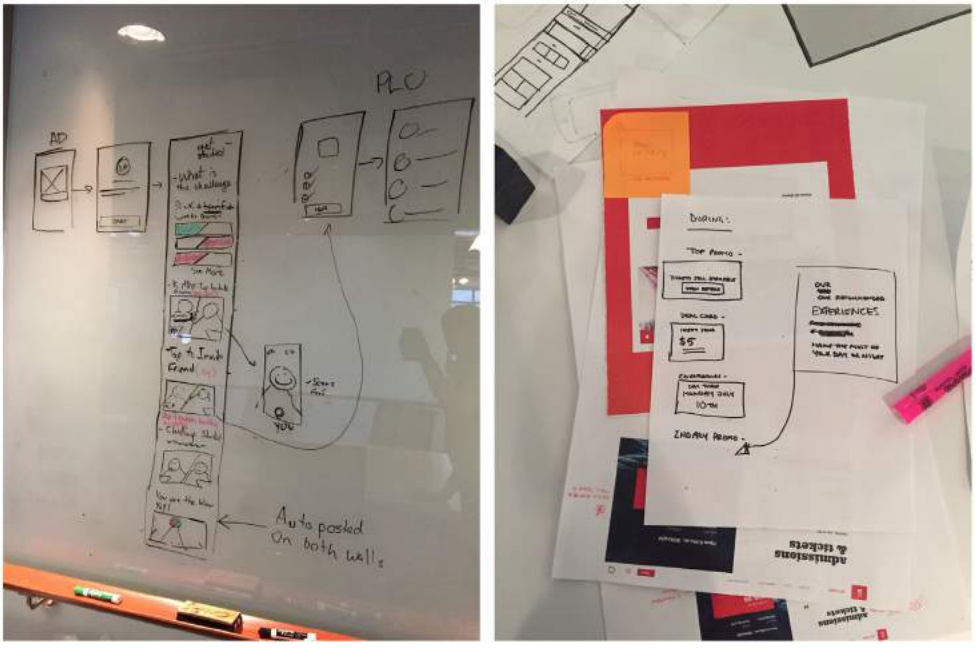

Figure 2. Sorting ideas into affinity groupings during the sorting exercise.

expertise, both of which form not only the basis for the practice of design, but also for the development of a community of practice focused on *designing*.

Repertoire use

The second key practice node identified by designers in this exercise focused on the use of occupational formulae: notably the application of *repertoire use* as a practice form. Designers described having an individual and unique library or stock of ideas 'in the back pocket' from which they drew tested and approved solutions appropriate to the design problem at hand. However, it appears that the repertoires used by designers may also be developed collectively by the community of practice as a whole, again as a strategy to meet the ideology of spontaneity and inspiration made manifest in the studio's institutional logics. For example, design practitioners discussed drawing from their 'repertoire' in order to mobilize the collective experiences they as a community had engaged in with their client – effectively building on their interaction as a community of practice to work quickly and tactically on projects – thus upholding the ideology of inspiration and spontaneity in the face of scarce resource and time allocations. Practice 'steps' that fit into the theme of repertoire use included:

- Using old creative briefs as inspiration.
- Pulling the 'kinds of fonts you know will fit' instead of testing or exploring new options.
- Developing a physical library of stock images that suit particular types of clients regardless of the creative brief details.
- Having a series of 'moves' that included default grids, default layouts and default pantone selections guaranteed to appease specific types of projects.
- Recycling old comps that had been rejected by clients in the past but which remained viable as solutions for future work.
- Returning to incomplete sketches or brainstorms to generate new directions for client work.
- Returning to previously generated presentations to generate new ideas for clients (Figure 3).

Figure 3. Sample reused brainstorming materials preserved for inclusion in a team's repertoire.

Identifying repertoire use as a practice form raises the question of repertoire development: do the designers who participated in this sorting exercise possess individual repertoires for use, or could this be a facet of their community of practice? According to participants, drawing their repertoire, or 'mental pantry' of ideas means drawing from, as one designer described '… our collective experience of doing this just every day. It's everything we've learned and we share it because you don't exactly have a ton of time to be a creative genius' (Designer B, 2016). This repertoire use then serves as a functioning 'routine of practice' and acts again as a kind of short circuit: a way of refining the ideation phase from the possible to the adjacent possible[52] quickly and collectively. With that in mind, designers participating in this exercise were again unable to agree upon a formal place for this practice node within the models of design thinking provided as discussion points – a disagreement which speaks to a discomfort with the use of formulae or routine in a professional practice that faces difficulties with the validation of creative work and of designer skill sets in the first place. This application of repertoire use as a 'step' in design practice is in keeping with models of design practice proposed by Dubberly[53] and Kimbell[54] but runs counter to the emphasis on prototyping, ideation and testing present within the design-thinking models used as catalysts for discussion.

Within both of the themes identified, designers drew attention to the way in which design thinking is a process not only of looking 'outside the box'[55] but also of looking to what could be inside the box as well. By describing their difficulty with the categorization of practice nodes such as affinity sorting and repertoire use, designers draw our attention to differences between the ideology of inspiration and spontaneity developed within the institutional logics of the studio space, and a reality of affinity sorting and repertoire use practices within daily design work. Of particular interest was the ways that the design practices which served as such a strong foundation – and such a common theme – throughout the participant's daily work were entirely absent from design-thinking models, client facing descriptions of design work, or the rhetoric of the studio itself.

Conclusion

Contemporary models of design thinking may be overly popularized, but can also be effective comparative frameworks for design researchers interested in making visible the omitted or ignored dimensions of design practice that make up the bulk of the working designer's practice. Through their glaring omissions made evident in the face of a documented daily practice, these models can focus our attention on the routine or automated realities of the design work practiced by communication designers. However problematic it may be to use design-thinking models as a way to both sell design and to package the creative and spontaneous ideology of the design studio for others to buy and use, these models can still serve as catalysts for discussions about what it means to do design today – an important discussion to have indeed. It is clear from the findings of this study that relying on models of design thinking to describe the daily work of communication designers actively veils the realities of design practice: rendering invisible the fundamental practices that are developed both in harmony with, and in reaction to, the institutional logics of the studio and the ideology of spontaneity and inspiration embedded and embodied in the organizational practices of the studio. However, by omitting the use of routines of practice and occupational formulae as effective generators of creative insight, popularized models of design thinking fail to

address the intersections between the culture of the studio, the routine and automated processes of developing design solutions present in every day work, and the politics and collective development of the community of practice developed around *designing*.

The sorting exercise described within this larger study demonstrates how by engaging the creative 'steps' of affinity sorting and repertoire use within our understanding of design practice, we may be able to create a more fulsome and informed model of designing for use both inside and outside the studio. In addition, by accommodating for the shaping role of both situated knowledges and institutional logics present in the design studio and among designers as a community of practice, the designer's process might again see itself reflected in design thinking, thus restoring the 'ways of knowing and ways of finding out'[56] unique to design practice back to the models which bear its name.

Notes

1. Kimbell, "Rethinking Design Thinking: Part 1."
2. Monterio, "Air Breathing. Water Swimming."
3. Heleo Editors, "Jessica Helfand on the Intersecting Ethics of Business."
4. Lahey "How Design Thinking Became a Buzz Word."
5. Brown. *Change by Design*. Dunne and Martin. "Design Thinking."
6. Simonsen et al. *Situated Design Methods*.
7. Murphy, *Swedish Design*.
8. Thornton and Ocasio, "Institutional Logics."
9. Ibid.
10. Winters, "The Practitioner-Researcher.
11. Thornton, Ocasio, Lounsbury, 2012.
12. Wenger, *Communities of Practice*.
13. Wenger-Trayner and Wenger-Trayner, "A Brief Overview of the Concept and its Uses."
14. Brown and Duguid, "Knowledge and Organization. Weick and Roberts, "Collective Mind in Organizations."
15. Hardcastle, Powers and Wenocur, *Community Practice*.
16. Lave and Wenger, *Situated Learning*.
17. Wenger. *Communities of Practice*.
18. Chaiklin and Lave, *Understanding Practice*. Nicolini, *Practice Theory*.
19. Wenger, *Communities of Practice*.
20. Bauer and Eagan, "Design Thinking." Hassi and Laasko, "Conceptions of Design Thinking."
21. Papanek, *Design for the Real World*; Simon. *The Sciences of the Artificial*.
22. Cross, *Design Thinking*.
23. Buchanan, "Wicked Problems in Design Thinking."
24. Brown, *Change by Design*.
25. Kelley, *Creative Confidence*.
26. Kimbell, "Rethinking Design Thinking: Part 1," p. 301.
27. Cross, "Designerly Ways of Knowing," 22.
28. Ligon and Wong Kung Fong, "Transforming Design Thinking." Brenner and Uebernickel, *Design Thinking for Innovation*.
29. Ryan and Peterson, "The Product Image."
30. Negus, "The Work of Cultural Intermediaries."
31. Ettema, "The Organizational Context."
32. Negus, "The Work of Cultural Intermediaries," 510.
33. Bourdieu, *Distinction*.

34. Thornton and Ocasio, "Institutional Logics."
35. Wenger, *Communities of Practice*.
36. Ettema, "The Organizational Context of Creativity"; Negus, "The Work of Cultural Intermediaries," 510; Ryan and Peterson, "The Product Image."
37. To ensure the privacy of its clients, the communications design studio that hosted this research study requested anonymity for itself and for its employees. The pseudonym of StudioX was selected by the organization.
38. Statistics Canada, "Education and Labour."
39. Ibid.
40. Bürdek, *Design: History, Theory and Practice*.
41. Bielefeld, *Architectural Design*.
42. The design teams that participated in this particular study spent the majority of their working time developing digitally focused communications for a large automotive client and a telecommunications client. This particular group of design practitioners included 14 male and eight female participants, with between five and 21 years of professional practice history. The majority of participants were Canadian, with the exception of one French Intermediate Designer and one Brazilian Creative Director. None of the participants self-identified as First Nations Canadians (which reflects the reported employment figures collected by Statistics Canada in 2011).
43. Hsieh and Shannon, "Three Approaches."
44. Sparker, "Narrative Analysis."
45. Braun and Clarke, "Using Thematic Analysis."
46. Reckwitz, "Toward a Theory of Social Practices."
47. Hasso-Plattner Institute, *D.School Bootcamp Bootleg*.
48. Simon, *The Sciences of the Artificial*.
49. IDEO, "Design Thinking."
50. Baeck and Gremett, "Design Thinking," 17.
51. Lawson and Dorst. *Design Expertise*.
52. Johnson, "The Genius of the Tinkerer."
53. Dubberly, "How Do You Design."
54. Kimbell, "Rethinking Design Thinking: Part 2."
55. Kelley, *Creative Confidence*.
56. Cross, "Designerly Ways of Knowing."

Acknowledgements

The author would like to thank the designers, strategists and other team members who so generously shared the thoughts behind their thoughts, and who welcomed the research team into their place of work. This work was supported by the Social Sciences and Humanities Research Council of Canada Doctoral Fellowship Program under Grant 767-2014-1133.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This work was supported by the Social Sciences and Humanities Research Council of Canada Doctoral Fellowship Program under Grant 767-2014-1133.

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AnneMarie Dorland is a PhD Candidate in the Department of Communication, Media and Film at the University of Calgary, where she brings together her background as a designer, brand strategist and researcher to explore the intersections of innovation in the creative industries and the work practices of cultural producers. Her research study (*Doing Design Thinking: A Study of Creative Practice in Design Studios)* investigates how cultural producers and cultural industries can teach us about new uses and forms of ethnographic, practice based and participatory research. Her disciplinary background (B.Des, University of Alberta, MA Media and Communications, Concordia University) informs her work on creative practice and the ways in which designers apply and adapt forms of tacit and explicit problem solving and 'design thinking' in their work. As principle investigator on the *Doing Design Thinking* study, AnneMarie explores the connection between the professional identity of designers and changes in the practice of designing in the studio setting, with the intent of contributing to the conversation about design's role in Canada's innovation future. Her work is supervised by Dr Brian Rusted.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 131–144
https://doi.org/10.1080/20557132.2017.1385257

Routledge
Taylor & Francis Group

(Still) Educating design thinking

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ABSTRACT

Despite the apparent ubiquity of 'design thinking' it continues to defy an adequate definition. This has led to a conceptual obfuscation, and in turn a reduction of design thinking and limitation of the potential of designing and the goal it seeks to achieve: creative outcomes. This article is a response to this conceptual muddiness. Outlining an abridged version of antecedent 'design thinking' models may assist design thinking's role in broadening transdisciplinary practice. When embraced with greater critical scrutiny, design thinking offers a chance for designers to widen and articulate their capacities, aiding the definition of emergent design practices. However, design thinking continues to be used with scarce critical or historical appraisal. A conceptual elucidation of historical modes of 'design practice' and pedagogy, will contribute to our understanding of inchoate transdisciplinary design practice. How we situate and value design in education is a focus of this article, as developing this area of analysis could enrich our appraisal of design thinking and contribute to a clearer and more sustainable use of the term and what the term implies for designs future.

ARTICLE HISTORY
Received 28 February 2017
Accepted 17 September 2017

KEYWORDS
'Design thinking'; pedagogy; history; education; transdisciplinary; teaching; criticism; theory

Conceptual ambiguity

The conceptual ambiguity surrounding design thinking is well documented.[1] This article examines how design thinking could be understood, or reflected, in changes to design pedagogy. Over the last three decades the position of design in the curriculum has shifted and changed.[2] In 1979, a report put together by the Royal College of Art (RCA) concluded that design has its own distinct things to know, ways of knowing them, and ways of finding out about them.[3] However, there is still confusion over how design sits in the curriculum. In 2003, the University of Technology in Sydney held a symposium on *Design Thinking Research* acknowledging that design education is an area where much ad hoc experimentation and hypothesizing seems to go on, but remains poorly understood and informed by more careful study and investigation.[4] It is important to recognise that design thinking is still an evolving construct.[5] In turn, there are still conflicting ideas as how to define design thinking.

For the purposes of establishing a guiding concept, design thinking can be conceived as 'a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible'.[6] Furthermore, the literature encountered in this article

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develops an etiological outline of design thinking by way of the modernist inception of design thinking as intrinsic to both design practice and design pedagogy, and more recent attempts at a revision of design thinking models for purposes of changing social and ethical paradigms.

It wasn't until the late 1970s that the RCA's research project Design in General Education recognised design and technology as a significant contributor to education. This area of contribution was named 'Design with a capital D' which was loosely articulated as the collected experience of the material culture, skill and understanding embodied in the arts of planning, inventing, making and doing.[7] In *Designerly Ways of Knowing*, Nigel Cross (2006) interrogates the outcomes of the RCA's research project. Cross posits that since the time that this report was published, technology is being acknowledged as a part of everyone's education, in the same way that sciences and humanities are parts of everyone's education.[8] *Designerly Ways of Knowing* enquires into research in the design field, calling on a number of observational studies that have been made of how designers work. Addison and Burgess also recognise a standard model of design thinking in general design education with its foundation in the modern positivist traditions of the Bauhaus. Since the 1980s, a particular approach to design teaching and learning has become a recognised model of good practice in secondary school.[9] This has been a variation on a linear problem-solving approach:

Identify problem > Research > Select and detail > Generate ideas > Make solution > Evaluate

However, design problems are not so linear, they are ill defined or *wicked* and in turn are unique problems distinct from scientific or mathematical puzzles the linear model replicates.[10] This idea highlights a shift in the kind of thinking that is required in design. Buchanan (1992) explains that Rittel's concept of *wicked problems* points toward a fundamental issue that lies behind practice: the relationship between determinacy and indeterminacy in design thinking. The linear model of design thinking is based on determinate problems that have definite conditions. In contrast, the wicked-problems approach suggests that there is a fundamental indeterminacy in all but the most trivial design problems. Buchanan further explains: Design problems are 'indeterminate' and 'wicked' because design has no special subject matter of its own apart from what a designer conceives it to be. The subject matter of design is potentially universal in scope, because design thinking may be applied to any area of human experience.[11] Cross's outline of a field of 'designerly ways of knowing' aims to illuminate what these 'wicked problems' might be. He claims 'design develops students' ability in tackling a particular kind of problem'.[12] This suggests a need for new models of design thinking that respond to wicked problems, and in turn new approaches to the problem of defining design thinking for educationalists.

The modernist inception of design thinking intrinsic to both practice and pedagogy

Efforts to document the cognitive value of creativity is evident in the nineteenth century pedagogy of Friedrich Froebel (1782–1852). Froebel positioned play as a central component of his pedagogy, making gardening part of his 'classroom' and literally inventing the 'child garden' (*kindergarten*). Indeed, his invention of kindergarten in 1840 was premised in large part on the integration of learning, games, and play.[13] Froebel used drawing as a method to isolate the fundamental element of a subject. Using a variety of drawing techniques, Froebel developed his more widely appreciated 'Gifts and Occupations' – a set of geometric blocks

(Gifts) and basic activities that put these into use (Occupations). The 'Gifts and Occupations' were intended as material evocations that aimed to elicit a range of phenomenal experience and thought.[14] Froebel recognised a unique cognition associated with creativity and calibrated his pedagogy to suit. Establishing drawing as a discrete pedagogical tool, Froebel revealed a unique creative thinking that engages young learners. 'Gifts and Occupations' would enable the development of a 'vocabulary' which built on itself as the child progressed through her program. This language would become complex enough to allow the child to begin to form representations of the surrounding world – children were expected to learn through playing with the 'Gifts and Occupations' and in turn make sense of the world by fostering their innate ability to appreciate harmony in design. Many architects and designers, including Frank Lloyd Wright, Le Corbusier, Buckminster Fuller, and Charles and Ray Eames, have credited Froebel's Gifts as central to their professional development.[15] *The ABCs of the Bauhaus and Design Theory* (1991) by Lupton and Abbott Miller outlines Froebel's ideas as a prototype of many of the Bauhaus pedagogical innovations. Miller provides an example in Bauhaus director Walter Gropius who developed plans for prefabricated building components and application of building block principles that echo Froebel's Gifts. Gropius sought to 'exploit prefabrication while allowing maximum variation of form'.[16] Gropius wrote:

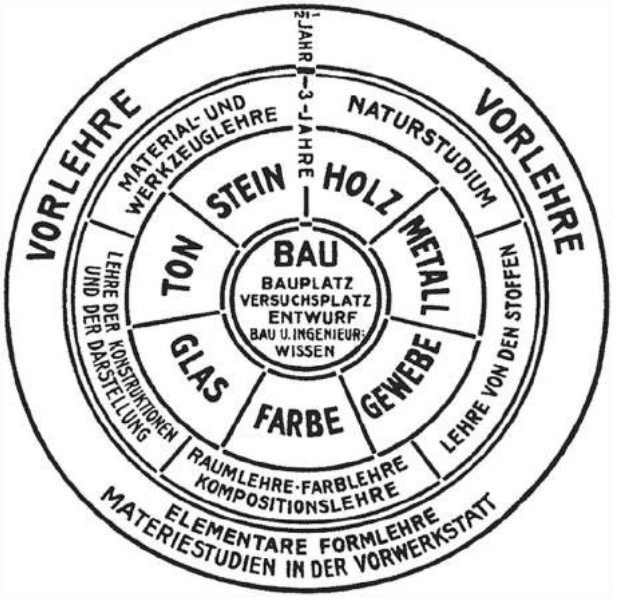
> … the mass prefabrication of houses should be attempted and units should be kept in stock which would be manufactured not on the site but in permanent workshops, to be assembled later. These would include ceilings, doors, and walls. Thus, it would be like a children's box of blocks on a larger scale and on the basis of standardization and production of types.[17]

Preceding this mode of innovation, the Arts & Crafts movement conversely advocated a return to crafting handmade objects as a panacea for the social contagion of factory fabricated aesthetics. Upholding the values of Protestant culture, the Arts & Crafts practitioners asserted that a human being was a 'creative being' and society should make it possible to develop this with freedom.[18] For its proponents, what precipitated the Arts & Crafts movement was the condition of design. This condition was firmly embedded in the bourgeois classes as it was the bourgeois and the households of this industrial evolution that realised social power. Design in the Arts & Crafts movement considered the life of objects in the homes of the bourgeois. As 'good' design precipitates 'good' values, in the attendant protestant society it inevitably forms part of a curricular that determines this 'goodness'. Design was thus entering the curriculum as part of a wholesome education, and in turn design was becoming the subject of analysis beyond ties to industrial production. This was the beginnings of design knowledge in general education, and suggests early evidence of a unique discipline which would inhabit both the school curricula and bourgeois ideals.

However, by 1919 the Arts & Crafts movement had fragmented into relative obscurity, and it was around this time that the Bauhaus was formed in Weimar, Germany. The Bauhaus had established new ideals for art and design pedagogy in post-WW1 Europe. Walter Gropius, founder of the Bauhaus, lamented, 'The second half of the nineteenth century saw the beginning of a protest against the devitalising influence of the academies.'[19] Gropius was keenly aware of a pedagogical gap that continued to affect the lives of citizens of industrialised society, and that the Arts & Crafts movement did not go far enough in establishing its ideals. The Bauhaus founding maxim was ambitious, Art and Technology: A New Unity.[20] The curriculum that Gropius conceived, explicitly opposed the antecedent tradition of polarizing art and technology.[21] The unification of art and design pedagogy is an early iteration of interdisciplinary practice. At the Bauhaus:

> Human achievement depends on the proper coordination of all the creative facilities … they must all be trained at the same time. The character and scope of the Bauhaus teachings derive from the realisation of this.[22]

These ideals are revealed in the iconic Bauhaus curriculum.[23]



The curriculum orientated student learning of 'core' subjects via a preliminary course, and crucially, that:

> Practical and theoretical studies are carried on simultaneously in order to realise the creative power of the student, to help him realise the physical powers of materials and the basic laws of design. Concentration on any particular stylistic movement is studiously avoided. Observation and representation – with the intention of showing the desired identity of Form and Content – define the limits of the preliminary course. Its chief function is to liberate the individual by breaking down conventional patterns of thought in order to make way for personal experiences and discoveries which will enable him to see his own potentialities and limitations.[24]

It was during this time that Bauhaus instructor Paul Klee (1879–1940) published a key artefact that embodies the efforts of the Bauhaus and points to a nascent identification of the qualities that contribute to art and design teaching. His *Pedagogical Sketchbook* (1953), a descendant of Froebel's 'Gifts,' continues in a tradition of learning through creative visual language. In her introduction to the Pedagogical Sketchbook, Sibyl Moholy-Nagy (1903–1971), wife of Bauhaus instructor Lazlo Moholy Nagy (1895–1946), lovingly explores Klee's adoration of nature. For Klee, the goal of art and design study was 'exactitude winged by intuition' and he encouraged his students to hone their artistic instinct. Moholy-Nagy elaborates her appraisal of the Bauhaus, in particular the revitalization of art and design teaching by its instructors. These teachers were 'interpreters of the visual as tokens of a fundamental optical and structural order that had been obscured by centuries of literary allegorism'. Klee worked at defining a spiritual dynamism – one that helps describe the transition from observation to intuition. Essentially, his efforts were to place methods around the sense-making of creative thinking. Rather than the creative process being magically derived Klee gives us a framework to make sense of his of pedagogical language and in turn makes it more tangible

and communicable to both instructor and learner. This process is akin to the efforts of design thinking which purports to make ideas tangible. According to Meinel and Leifer 'make it tangible' is both a rule and a finding of their design thinking research program. The Pedagogical Sketch Book can be understood as Klee's attempt to make his approach to teaching more tangible by making more knowable the ways we conceptualise abstract notions in art and design. He was giving us a set of frameworks to think through.[25]

By documenting the abductive mechanics of his teaching methods, Klee in turn assists in synthesizing a language of designing. Synthesis is an abductive sense-making process. Sense-making can be understood as an action oriented process that enables us to integrate experiences into our understanding of the world. Or alternatively, sense-making is an internal, personal process, while synthesis is an external, collaborative process.[26] Pedagogical Sketchbook may be archaic in its focus, but it provides us with an historical artefact that scaffolds our implicit understanding of the formal qualities of creative work with a tangible language. It is a framework that makes sense of our intuitive creative thinking processes and its application to the external world. For Klee, the onus is on instructors in art and design is to make more knowable not just what is taught, but how we can understand what is taught – naming our learning objectives is a powerful way to ensure that learning sticks.

In 1933, as the Second World War loomed, the Bauhaus was closed down as Nazism prevailed. In 1955 post-war Germany however, the efforts of the Bauhaus continued in the city of Ulm at the 'Hochschule fur Gestaltung', referred to by its metonymy: the *Ulmer Modell* (*Ulm Model*). This revised model of design education once again took shape in the ruins of post-war Germany, and like the Bauhaus it was conceived during the ensuing political and social reorganization of a war-torn society. Shaped by this intense political tumult, the college was driven by a hope and optimism that they could forge a new design culture.[27] During the initial establishment of Ulm, the link with the Bauhaus was unmistakable, and was detectable in every department of theory and practice. As head of the Ulm 'Information' department, Gert Kalow addressed the student and staff cohort at the beginning of the academic year of 1957–58:

> The Bauhaus was a response … to the chaotic internal situation of a defeated Germany after World War I. The Hochshule for Gestaltung in Ulm … is a response to the situation after World War II: the destructive forces that have spent themselves in wreaking unimaginable havoc are now faced by a constructive principle that concerns itself not with prettifying the surface but with structural change … there is no remedy for chaos, or for the self-destruction of humanity, except *Gestalt*.[28]

The presence of former Bauhaus instructors influenced the shape of the Basic Course. Once established however, the course was steered away from the fundamentally craft-based Bauhaus tradition, and was reoriented toward science and modern mass production technologies. This led to what is considered to be the legacy of the Ulmer Modell – the explicit teaching of theory, alongside an integrated multidisciplinary syllabus, as part of general design education. The Ulmer Modell is considered to be the first major attempt to tackle an explicit and comprehensive design theory. In *The World as Design*, founder Otl Aicher (1922–1991) states: 'We were no longer prepared to accept that creativity should be classified by objects.'[29] What followed at Ulm was a program that understood the need to build a critical consciousness into design education. This move to a more critical and multidisciplinary model wrought internal tensions at Ulm. Aicher describes the tensions at Ulm, particularly with Max Bill a former instructor at the Bauhaus. Bill was championing the Bauhaus visual

language and was intent on Ulm being an explicit iteration of the Bauhaus. Aicher and others at the college disagreed. They felt that the 'art' of 'circle square and triangle' is lost without a semantic dimension – an awareness of the symbolic significance of design communication. This, they felt, required a knowledge of semiotic theory, amongst other conceptual frameworks, that aided the design learner in appreciating how to think about her discipline.

This direction away from the Bauhaus model to a more critical mode, introduced theoretical tools that have assisted in our analysis of the meta processes that shape design practice and design as a social activity. Ulm instigated a split in the practice and analysis of design that often still inhibits design educators: how to teach a theoretical component in design curriculum that doesn't hinder the flow of student's creative engagement with practice, and how to deliver a curriculum that develops a critical reflection on the cultural context of the designed artefact. The *Ulmer Modell* aimed to provide design students with a new understanding of their role. As design was to concern itself with more complex phenomena, more than just chairs or lamps for example, the designer could no longer be regarded within the industrial and aesthetic process in which they operated as an artist. At Ulm, it was recommended that the designer:

> … must now aim to work as part of a team, involving scientists, research departments, salespeople, and technicians, in order to realise his own vision of a socially responsible shaping – *Gestaltung* – of the environment.[30]

A revised Basic Course came into being which departed from the Bauhaus model and devised curriculum from the lessons of perceptual theory and semiotics. During this phase at Ulm, the faculty tentatively modelled their early design thinking on precedents in science and technology. The Ulm experiment understood the necessity of building a curriculum that integrated the human and social sciences, ergonomics operational research, planning methodology, and industrial technology.

Eventually, scientists at Ulm outnumbered the designers and among the scientist was mathematician and planning theorist Horst Rittell. Rittel became Rector at Ulm from 1958 to 1963, and was a crucial contributor to this new model of design education. He argued that dichotomies purporting to distinguish systematic versus intuitive, and rational versus non-rational design are untenable. Rather, he asked, to what degree can and should design processes be made explicit, and to what extent can and should they be made communicable to others. Rittel argued that only communicable processes can be taught, and only explicitly formulated processes can be critically scrutinized and improved upon.[31] Rittel was adamant that designers need to think critically about their discipline and develop a capacity for critical reflection alongside their practice. By 1968 Ulm had closed its doors, however the need to make design's tacit capabilities more knowable and communicable continues today.

Recent revisions of design thinking models for purposes of changing social and ethical paradigms.

Rittel's influential notion of the wicked problem was the impetus for Richard Buchanan's seminal essay *Wicked Problems in Design Thinking* (1992). The essay confronts the philosophical elusiveness of design thinking. That 'design eludes reduction and remains a surprisingly flexible activity'.[32] His analysis outlines the trend of design thinking over the twentieth century from a 'trade activity to a segmented profession to a field for technical research and to what now should be recognised as a new liberal art of technological culture'.[33]

By the late 1970s, prior to Buchanan revival of the Wicked Problem concept, and after the closure of Ulm, the RCA conducted their research project 'Design in General Education'. Since the inception of art and design curriculum taught at the Bauhaus as part of its foundational course, and the teaching of transdisciplinary theory to design students at Ulm, the report recognized a need to understand this 'third area' of education as a part of general education in the UK. *Designerly Ways of Knowing* (2006) interrogates the outcomes of the RCA's research project, however Cross's more recent *Design Thinking* (2011) notes that 'The quality of [that] design effort … profoundly affects our quality of life.'[34] Research into design has revealed 'designerly' ways of thinking, and that:

> The concept of 'intuition' is a convenient, shorthand word for what really happens in design thinking. The more useful concept that has been used by design researchers in explaining the reasoning processes of designers is that design thinking is abductive: a type of reasoning different from the more familiar concepts of inductive and deductive reasoning, but which is the necessary logic of design.[35]

Cross transfigures these ideas through Donald Schön (1930–1997) whose writing has had a significant influence on the idea of design thinking or 'thinking in action'. Schön's (1983) description of individual, professional practices, focuses on the work by practitioners during their reflection-in-action as they attempt to reframe problems, based on reflexive judgment. Cross extends this to outline research attempts that describe the thought processes of designers in action: their designerly way of knowing or design thinking. Buchanan's *Wicked Problems in Design Thinking* shifted design theory away from its legacy in craft and industrial production towards a more generalized design thinking which he argues is a new liberal art.[36]

Alain Findeli adds to this discussion in *Rethinking Design Education for the 21st century: Theoretical, Methodological, and Ethical Discussion*.[37] Findeli sketches a new model, an iteration of the modern positivist concept conceived at the Bauhaus. His remodelling of Modernist logic resolves that the designer and the user are both stakeholders in the outcome, rather than the designer being a benign solver of problems with a mechanical distance from the system in which the designing is taking place.[38] The epistemological shift that Findeli suggests reworks the responsibility of the designer – designers are now expected to act rather than only make. Participatory Design takes this further to explore the power and politics, that those affected by design should have a say in the design process.

Design Things and Design Thinking: Contemporary Participatory Design Challenges by participatory design researchers at Malmö University, Erling Bjögvinsson, Pelle Ehn and Per-Anders Hillgren, contend that design thinking has become a central issue in contemporary design discourse and rhetoric. They state 'we put forth both some practical-political and some theoretical-conceptual challenges and dilemmas in engaging in design for change' and that, 'a fundamental challenge for designers and the design community is to move from designing "things" (objects) to designing Things (socio-material assemblies)'.[39] The ideas presented in their paper align with Findeli's remodelling of design to suit new scenarios, and that visual intelligence, aesthetic sensibility, and aesthetic intuition can be developed and strengthened through some kind of basic design education. Findeli believes that 'The impetus is for design to move from a reactive to proactive discipline, proposing new scenarios for the future.'[40] As research about design has shifted focus from objects towards the social, design has started to 'dematerialize'. But it is not yet clear where this idea of the social is located.

Explicit teaching of the design process is congruent with a greater understanding of the role of design outside of producing things.[41] For designers, doing is a way of knowing, and this iterative process is always alerting designers to new problems and opportunities.[42] Such an abductive process can provide design students with an understanding of the meta-cognition of designerly knowing and highlights the changeable nature of design thinking. Findeli (2001) presents a model of design thinking in education that updates modernist ideals through the lens of participatory design.[43] It responds to Rittel's (1972) concept of wicked problems in design thinking – that design cannot simply follow a linear design problem-solving model and requires responses to indeterminate problems.[44] This suggests that design thinking must be reflexive and situated in identifying problems outside of the modernist 'problem-solving' model, which posits an overly simplified transaction.

The multifarious conversation around design thinking indicates an opportunity to connect burgeoning ideas surrounding design to emerging curriculum. Elucidating design thinking responds to changes in its own usage, and facilitates designerly knowing in shifting ethical and social scenarios. Post-St Joost Design School in the Netherlands, put their own models and ideas together in *Copy Proof* (2000). *Copy Proof* addresses similar conundrums and what they claim to be the 'impossibility' of teaching design, outlining the philosophical disjuncture's that design teachers face. The authors posit that the problem of teaching design is in part created by the continuing inability to define the activity of designing, and from the hybrid of definitions on which designers and design educators rely. Hugues C. Boekraad, a contributor to *Copy Proof* and a teacher at Post-St Joost, reiterates that the impossibility of teaching design stems from the absence of a sufficient theory of design to ground the teaching. '

> What is missing is a more or less consistent theory about what design actually is. Design is a project, not an object.' And that 'Where there is no design theory at hand, it should not be surprising that there is no consistent design pedagogy.'[45]

The authors outline an issue that hampers design educators: design moves quickly and develops in so many directions at once and is missing the foundation of a more or less consistent theory about what design actually is. Design has no isolated object for research. Despite their efforts, the Ulm model failed to unite science and design and *Copy Proof* recognizes this. According to *Copy Proof*, design is a project, not an object. An important factor that presents an obstacle to design theory and a clear definition of design thinking is that design has long since ceased to concern exclusively material objects. It is expected of the designer that they be capable of applying the rhetorical and semantic knowledge, aimed at the communicative context in which the design is to be used or experienced. But not only that, the designer must moreover be aware that the communicative context of their design will subsequently function in the framework of larger systems, cycles and environments.[46]

American designer and writer Jon Kolko reminds us of the obvious: designers make things.[47] Increasingly of course these things are immaterial. But implicit to 'making' is the capacity to craft something, and invariably craft suggests an appreciation of materials. This in turn places an emphasis on aesthetics and an appreciation of form through craft. This continues to be at the centre of many design schools despite the conceptual reappraisal of 'making', which now involves the changes or manipulation of systems, processes, policies, people, etc. Rather than craft, we now look to ethnography, systems theory, psychology, etc. to learn how to enable design to make the shifts necessary to achieve the goal of innovation. In highlighting the inherent confusion this is creating, Kolko cites fellow designer Dan Saffer

who has been an outspoken critic of 'design thinking', noting that many design educators now expect that teaching design thinking, as opposed to the more conventional craft model, is enough to prepare our future designers.[48] Saffer's frustrations are reflected in the countless reiterations of design thinking principles and tools using language that often dilutes the efforts of design into endless charts and diagrams spruiking the same promise – more innovative outcomes, better business, better solutions, etc. This confounds both design practitioner and learner alike, and is limiting a deeper, more critical look at designs particular way of knowing.

However not all practitioners are disheartened by the promises of design thinking. In *Convivial Toolbox: Generative Research for the Front End of Design*, Liz Sanders and Pieter Stappers explicate strategies for understanding and applying 'generative design thinking':

> Generative design thinking puts tools for communication and creativity in the hands of the people who will benefit directly from the results of this process.[49]

Convivial Design Toolbox is dedicated to the author of the book from which it derives its title: *Tools for Conviviality* by Ivan Illich. In *Tools for Conviviality*, Illich outlines with a manifesto-like zeal, the need for people to reclaim the creative agency that gives shape to their lives. He reckons this is possible through his concept of 'convivial tools' which he differentiates from 'industrial tools' as 'those which give each person who uses them the greatest opportunity to enrich the environment with the fruits of his or her vision'.[50] His longing to recover a more meaningful social experience aligns with our mandate as design practitioners: to maintain the transformational promise of design. Similarly, we ought to fulfil the dedication that Sanders and Stappers make to Illich but preserving a meaningful language around design thinking.

How things ought to be

In his oft quoted text *The Sciences of the Artificial* (1969), Herbert Simon explains;

> The natural sciences are concerned with how things are … design, on the other hand, is concerned with how things ought to be.[51]

By separating knowledge into these two main sectors, Simon claimed the originality of design thinking.[52] *The Sciences of the Artificial* presented design as a model of thinking – an epistemology – and design thinking presents an opportunity for learners to engage study through design as well as learning about design. We can put our methods into action – we should be careful not to become preoccupied with what design content (or design thinking) we teach, and focus on how we teach design. Learning through design is derived from Christopher Frayling's model of art teaching which posits a similar methodology; learning for-through-about art.[53] Frayling identifies particular epistemological approach to learning creativity and creative learning which could help identify ways in which we could teach design. Design thinking scaffolds the design process as Frayling's model would suggest – that designing can be a way of knowing the world. There are other more tangential approaches to conceptualizing design thinking that may encourage us to look creatively at design thinking's claim on creativity.[54] If nothing else, the design thinking effort has pushed design to articulate both practice and purpose.

A definitive understanding of design thinking may never occur. Indeed, some initial advocates of design thinking are already calling into question its currency. Bruce Nussbaum, a self-confessed and prominent advocate of design thinking, has suggested that it is a failed experiment. His observation has been:

> Design thinking has given the design profession and society at large all the benefits it has to offer and is beginning to ossify and actually do harm.[55]

Nussbaum's commentary is revealing. The problem, outlined by Nussbaum, is that the companies that embraced and absorbed design thinking have turned it into a familiar linear methodology – the type of methodology that design thinking set out to thwart. Ostensibly, design thinking presented change and innovation, however, in order to appeal to business culture, design thinking was denied the messy, conflicting, indeterminate process that comes with creativity. Despite this criticism, Nussbaum does note with some emphasis that there are many positive offshoots to design thinking. Indeed, the contributions of design thinking to the field of design and to society at large are immense:

> By formalizing the tacit values and behaviour of design, design thinking was able to move designers and the power of design from a focus on artefact and aesthetics within a narrow consumerist marketplace to the much wider social space of systems and society. We face huge forces of disruption. … Together these forces are eroding our economic, social, and political systems in a once-in-a-century kind of way. Design thinking made design system-conscious at a key moment in time.[56]

This reiterates the importance of designers being 'system-conscious' as design dematerializes in the face of disruptive changes in the environment and society. These complexities should not prohibit learning about the craft and practice of design. A greater understanding of the history of design thinking and the unique set of characteristics of this process could enlighten our understanding of designs cultural and social currency, and this could provide meaningful learning opportunities for student and practitioner alike.

Lucy Kimbell framed this problem in her essay *Beyond Design Thinking: Design-as-Practice and Designs-in-Practice*'.[57] She reiterates that the term 'Design Thinking' is confusing and that Nussbaum and his contemporaries argue over what it means and whether other terms like creativity, innovation, invention on their own, are more helpful. This discussion echoes the lack of consensus and coherence in academic literature about definitions of design thinking and what might make it distinct as a form of knowledge production. Kimbell's paper suggests new ways of conceiving design activity, in relation to the activity of other stakeholders in the design process, which is grounded in theories of practice. Hence, she conceives of design-as-practice and designs-in-practice.[58] These concepts, according to Kimbell, replace design thinking, and in doing so resolves the problems that plague it. Kimbell suggests that design thinking should be replaced with designerly ways of knowing which are embedded in practice, in the making and doing that is part of the design process. Cross points out in *Designerly Ways of Knowing* that designers have the ability both to 'read' and 'write' in their world of 'stuff'.[59] That is, they understand what messages objects communicate, and they can create new objects which embody new messages.[60]

Conclusion

The conceptual review of the literature in this article has intimated that the efforts of practitioners to explicate the tacit knowledge of creativity has the potential to deepen our understanding and engagement of design practice, and that this is in danger of being denuded by diluted versions of design thinking that belie the complexity of designing. Indeed, the thinking that occurs during the design process might have implications for broader learning

research. As the research of Kimbell and Stables (2008) contends, there are intimate associations between designing processes and more generalized thinking processes:

> Design discourse seems to trade in various oppositions, such as design as an abstract reasoning or thinking process opposed to design as an embodied activity dependent upon tools and media.[61]

By elucidating the contribution design could make to learning, we may begin to form a richer understanding of the way in which design can help us make sense of how we synthesize ideas across disciplines.

Postscript

Changes to the landscape of design education, resulting from the expansion of design practice, have been disruptive to say the least. Making sense of these changes is difficult and often painful as we strive to maintain the currency of our practice and place in the academy. Nonetheless, design educators must tolerate these shifting demands and appreciate the role of design in building a broader knowledge base across multidisciplinary practices. It is both necessary and urgent as the conceptual obfuscation around design thinking is adding to the confusion around design education's future. A greater cultural appraisal of designs role in a transdisciplinary context, especially in education, can help us ground design teaching in an era that is increasingly complex and uncertain.

Central to the challenge that has prohibited conceptual clarity of design thinking is how to make the tacit knowledge of design practice more explicit and communicable. In the rush to adopt a design thinking approach, perhaps there has been a reduction of the potential of design thinking to scaffold the expanding boundaries of transdisciplinary design practice. It is vital that careful conceptual consideration is ascribed to how the term is used. As further co-opting of design thinking leads to greater dilution, designers must appreciate the broader social and cultural role of their discipline, and achieving this, must include a concise navigation of how we name the process of designing. Rigorous reflection, corralled through research and learning, has the potential to transform our practice.

Notes

1. Cf. Kimbell, *Beyond Design Thinking*, 3; Nussbaum, *Design Thinking*, 2; Kolko, *Unveiling the Magic*, 53.
2. Addison and Burgess, *Issues Art and Design*, 10.
3. RCA, "Design in General Education."
4. Cross and Edmonds, "Expertise in Design."
5. Martin, *The Design of Business*, 7.
6. Brown, *Design Thinking*, 2.
7. Cross, *Designerly Ways of Knowing*, 17.
8. Ibid.
9. Addison and Burgess, *Learning to Teach Art*, 197.
10. Rittel and Webber, *Dilemmas in a General Theory*, 155.
11. Buchanan, *Wicked Problems in Design*, 16.
12. Cross, *Designerly Ways of Knowing*, 27.
13. Tekinbas *The Ecology of Games*, 15.
14. Wilson, *The Gifts of Froebel*, 238.
15. Ogata, *Architecture in Play*, 283.

16. Lupton and Miller, *The ABCs of the Bauhaus*, 10.
17. Ibid., 162.
18. Kaufmann Jr., *The Arts and Crafts*, 6.
19. Bayer and Gropius, *Bauhaus: Weimar 1919–25*, 21.
20. See note 18.
21. Findeli, "Rethinking Design Education," 5.
22. Bayer and Gropius, *Bauhaus: Weimar 1919–25*, 23.
23. Ibid.
24. Ibid., 24.
25. Plattner, Meinel and Leifer, *Design Thinking: Understand*, xv.
26. See Kolko, "Sense-making and Framing," 3.
27. Lindinger, *Ulm Design*, 11.
28. Ibid., 171.
29. Aicher, *The World as Design*, 86.
30. Lindinger, *Ulm Design*, 29.
31. Churchman, Protzen and Webber, "In Memoriam: Rittel," 89.
32. Buchanan, "Wicked Problems in Design Thinking," 5.
33. See note 31.
34. Cross, *Design Thinking*, 4.
35. Ibid., 10.
36. See note 11.
37. Findeli, "Rethinking Design Education," 5.
38. Ibid.
39. Björgvinsson, Ehn and Hillgren, "Design Things and Design Thinking," 102.
40. Findeli, "Rethinking Design Education," 17.
41. Ibid.
42. See note 5.
43. See note 40.
44. Rittel and Webber, "Dilemmas in Planning," 155.
45. Gruson and Staal, *Copy Proof*, 4.
46. Ibid.
47. Kolko, "Unveiling the Magic," 53.
48. Ibid.
49. Sanders and Stappers, *Convivial Design Toolbox*, 289.
50. Illich, *Tools for Conviviality*, 21.
51. Simon, *The Sciences of the Artificial*, 114.
52. See note 40.
53. Frayling, "Research in Art and Design," 5.
54. Allen, *Education*, 158.
55. Nussbaum, "Design Thinking," 2.
56. Ibid., 7.
57. Kimbell, "Beyond Design Thinking," 2.
58. Ibid.
59. Ibid., 3.
60. See note 7.
61. Coyne, Park and Wiszniewski, "Design Devices," 263.

Disclosure statement

No potential conflict of interest was reported by the author.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 145–164
https://doi.org/10.1080/20557132.2017.1398925

Routledge
Taylor & Francis Group

Theoretical foundations for a performative art and visual culture education

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ABSTRACT

Language is central to the renewal of humanism. The term 'queer', for example, obtained a different usage from its pejorative meaning in the search for restoration of a community. What are the conditions for language, in its many forms, to be redefined in an activist way? Judith Butler shows that the disruptive repetition of injurious language can lead to its redefinition. She offers a theory of the performativity of language in which some discourses can define actions as much as activism can redefine language. Visual culture and design, by using language, is an essential tool in that transformation, revealing a performative pedagogical power. Such power, infused with Paulo Freire's vision of language as the only means to develop people's voice, creates a new performative visual culture education that can contribute to the achievement of freedom through public pedagogy.

ARTICLE HISTORY
Received 28 February 2017
Accepted 27 October 2017

KEYWORDS
Performativity; visual culture education; public pedagogy; language; activism; queer

Introduction

At the heart of what Edward Saïd called the movement of resistance in humanism, is critique, and critique is always restlessly self-clarifying in search of freedom, enlightenment, and agency. The critique of language involves the disclosure of what it may hide, mask or distort. In his view of language, Saïd declares that words are not passive signifiers standing in unassumingly for a higher reality; they are, instead, an integral formative part of the reality itself. Language, then, is central to the renewal of humanism, which is a process of critique and resistance.[1]

The term 'queer', for example, as part of the common language, has been revaluated in the past decades obtaining a different usage from its pejorative meaning in the late 1990s. This generates questions of how a term like this can eventually be used as a category with which many people actually identify themselves[2] and about the conditions in which language can be redefined in an activist way. In the same way, Butler asked how language acts in different cultural sites by reviewing hate speech regulations, anti-pornography arguments, and controversies about gay self-declaration in the military. Negotiating the work of Austin, Derrida and Bourdieu, she offers a theory of the performativity of language, showing that

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repetition of injurious language can lead to its redefinition. Butler prevents us from the vision of language in which the words we speak are translated into unequivocal forms of conduct[3]; instead, language needs to be understood as an agent of change.

As 'the visual displaces language and film grapples with the temptation of exceeding the limits of signification,'[4] the influential power of visual culture and design on the meaning of language seems evident. As an example of that power, the British mini-series *Queer as Folk* (broadcasted from 1999 to 2000) and its American remake (broadcasted from 2000 to 2005)[5] are seen as one of the events that brought the term 'queer' into common language.[6] In addition, queer theory has influenced many areas of visual communication, including the creation of a cinematic movement named the New Queer Cinema, which challenged notions of race, class, gender, and sexuality;[7] or the graphic productions of many of the amateur-produced photocopied zines during the movement Queercore, such as Queers Read This, Freaky Queer and Queer City, among others (Figure 1).[8] Queer then moved from counter-public to public sphere.[9] This leads to posit that visual culture actually has a great influence in the transformation of language, and vice versa, that the redefining of the meaning of terms

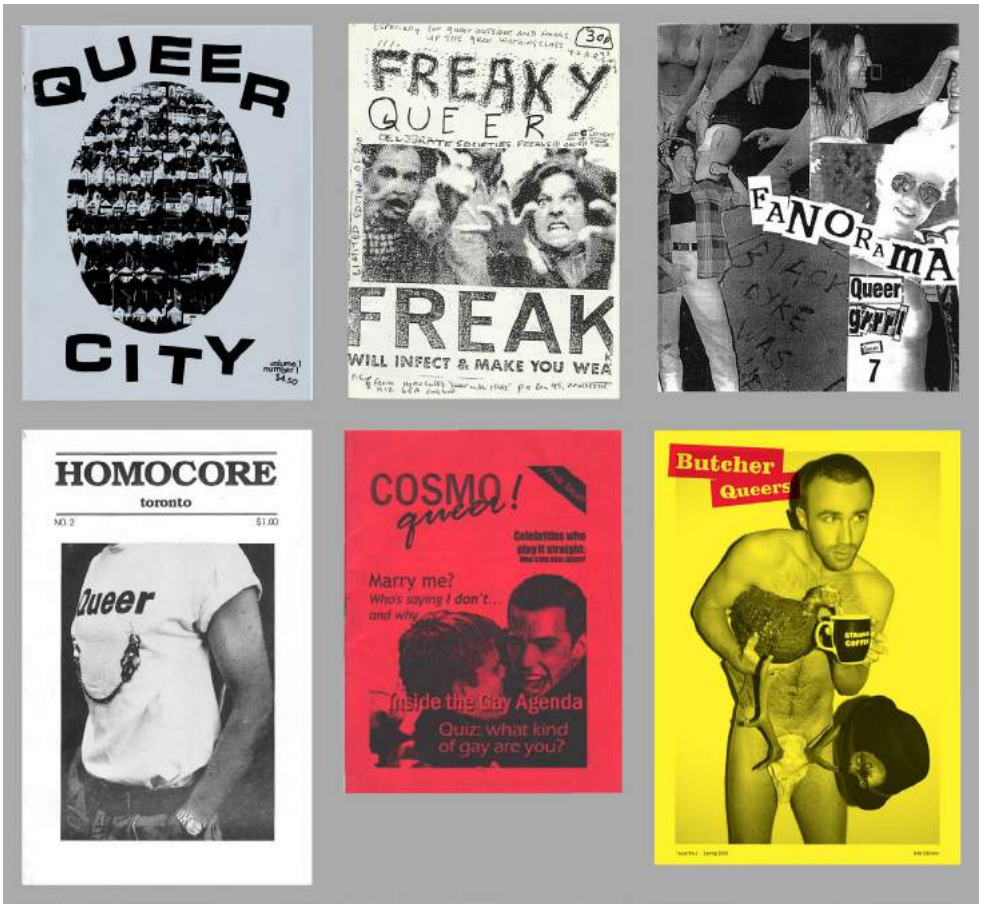

Figure 1. Queer zines covers (1991–2008). **Citation:** "QZAP – zine archive," digital images, posted to qzap.org by users Rachel and Alex, http://archive.qzap.org/index.php/Splash/Index (accessed 8 October 2011). Licence at https://creativecommons.org/licenses/by-nc-nd/4.0/.

influences visual culture and its pedagogical power. This power can be supported by Freire's assertion that language, being part of identity and visual culture, is the only means by which people can develop their own voice and a positive sense of self-worth.[10] By relating Freire's critical education, Butler's concepts on performativity (and their implications on queer theory), and concepts of language, literacy, pedagogy, and identity, this theoretical analysis attempts to make clearer the actual pedagogical opportunities for expression and self-identification that underrepresented and discriminated populations (for instance, LGBTQ people) are provided with by visual culture.

Despite several studies, the critical analysis of visual culture is not specially included within institutional curricula, and public pedagogy seems suitable to take advantage of its educational potential. According to Sandlin, Schultz, and Burdick, public pedagogy refers to 'the spaces, sites, and languages of education and learning which exist outside the institution of schools.'[12] Many studies about public pedagogy, and its influence on young people's education, expressions, and socio-political participation have been addressed,[13] demonstrating its specific and important repercussions on the lives of those who are discriminated (like Coval's[14] and Chappel's[15] works, for instance, where the combination of voice, language, and art are considered as speech acts that perform a pedagogical function).

Through the literature review and analysis of the influences of language and popular culture, this article intends to assure the important role of visual culture education – and its application in public pedagogy, in the development of critical thinking. Additionally, by infusing Freire's liberatory ideas with the promise of social justice of queer theory – using Butler's performativity concepts, this article attempts to support the efforts of fighting against oppression by different discriminated groups of people, through their critique, analysis, redefinition and production of the language inside visual culture used (or misused) to identify them.[16]

Seeing the redefinition of meaning of terms as a relevant factor on the development of activism and the pursuit of social justice, in this study, the case of the evolution of 'queer' into an identity term will be exposed as a precedent. However, although the term queer may have become domesticated and accepted in certain contexts (as in Brussels or Amsterdam), as stated by Butler in an interview, there are other places in which that acceptance is far from happening. Butler yet worries when queer becomes an identity term, since it might lose its critical edge.[17] This implies that there is still much trajectory in the transformation of this, and others, identity-related terms. Due to the long way this evolution has yet to walk, this article also tries to serve as a theoretical foundation for future projects in visual culture education wherein the power of the production of visual culture as voice and activism gives people the opportunity to transform their language.

Ultimately, I argue that within the process of performativity of language, critical visual culture education plays an essential role, by helping participants to create new forms of visual culture, which, through critical public pedagogy, can be inserted in cultural identity, where, through repetition (performativity), pejorative language (within visual culture) becomes a tool of activism that oppressed communities can use to achieve freedom. Such process could be framed within what we might call a performative art and visual culture education practice.

Visual culture, identity, and public pedagogy

Visual culture has received special attention in art and design education, while some claim it does not belong in a traditional art class. Although people often think of visual culture as contemporary visuals such as graphic design, advertising, films, television, and videos, visual culture also includes anything in a culture dependent on visual representation.[18] As means of communication, many of these forms of visual culture further perpetuate and complicate racial, religious, cultural, and other identity stereotypes. These stereotypes may encourage both positive and negative assumptions about identity representations.[19]

On the other hand, the various forms of visual culture provide rich opportunities for meaningful exploration, production, and analysis.[20] Hammer and McLaren advocated for the creation of a 'media literate citizenry that transforms media apparatuses so they no longer possess the power to infantilize the population and continue to create paranoid social subjects.'[21] The inclusion of visual culture within education is not a new concept,[22] and the visual stimuli of media are available to more and more people presently than in the past. Moreover, it has been found that school learning experience may be enriched with activities generated through critically viewing visual culture.[23]

Thus, since schooling is just one dimension of public pedagogy in which education can occur,[24] the opportunities for critical media literacy are expanded. Pinar claims education now occurs everywhere, schools have expelled pedagogy into the streets (including parades), onto television and video games, into the movies, on the Internet, through music, poetry and the visual arts.[25] That could mean the critique and production of visual culture by the same users of popular language, as part of their identity, may take place in those sites.

Popular culture, identity, and literacy

The term popular culture is extended beyond its common connotation of widespread media sources to incorporate the full range of cultural forces experienced on a daily basis, and which the same experiencers can produce. Popular culture is considered as a site of learning even more influential than formal educational institutions, largely to the ends of domination, consumerist drives, and the reproduction of constrained and constraining identity formations. Some authors have focused their analyses on popular mass media products and the ways in which these products teach us about our identities.[26]

Schubert claims we need more attempts to see the educational impact of popular culture, noting ways that such media, popular music, and movies influence outlooks (which seem to be part of what Butler calls gender performativities). In order to explore how human beings can be enabled to acquire and produce certain knowledges and skills, Schubert questions, from a Freireian perspective: how do we enable ourselves and others to name, read, and write the world?[27] This ability to critique, understand, [re]define, and [re]produce the language immersed in popular culture, could be called popular culture literacy.

Popular culture plays a dominant role in children's lives, but despite a persistent necessity of making reading and writing relevant to children's lives, their cultural funds of knowledge, a set of values students bring with them,[28] are often unrecognized or dismissed in schools. In contrast, popular culture provides pervasive sites for exploration and literacy of that knowledge. Hass-Dyson argues that to make schooling meaningful to children, we must allow them to bring those out-of-school funds of knowledge.[29] Bakhtin's sociocultural theory,

explains how children's emergent writing is not linguistically impoverished text, but rather discursively rich cultural practice.[30]

The case studied by Coval about the Chicago Teen Poetry Festival shows the reach of the voices young people can get through the use of arts in public pedagogy, as in the creation of poetry as community expression.[31] Young people have begun to use community-based arts spaces to express their political views of the world, as well as their struggle for social justice. Chappel, while exploring the artistic activities of Q-Speak, a youth theatre group that form a Gay–Straight-Alliance, says that, when exploring themselves, these young people can invoke an 'I' that references, as Butler (1997) suggests, 'an inherited set of voices, an echo of others who speak as the "I"'. The production of visual and community arts provides them with a space to use their 'I am' that exposes 'gender discontinuities' experienced daily.[32]

In their search for self-labelling, young people dispute even those labels existing on the margins, such as queer or questioning.[33] However, perhaps it is not the identity labels themselves that are central to subjectivity, but the personal application or rejection of labels that allows them to build a sense of belonging in a larger world excluding them. They want others – who are different from them – to accept their power to label themselves and celebrate the names they have chosen – like 'queer.'[34]

Cultural identity, language, and critical pedagogy

In Freire's work on cultural identity, he states we have been able, through history, to distinguish ourselves from others by our own decisions, as individuals among humanity, but still within the workings of society, which helps in the definition of what we are, or what we could call, our identity. We are not just what we inherit or what we acquire, but the result of the relationship between these two factors. By thinking or speaking in a certain way, and having certain likes and habits, we recognize ourselves as being similar to others like us.[35]

The transformation of material world and structures, which is the effort of critical pedagogy, is the way to overcome cultural inheritance. Also, not to take these cultural inheritances into consideration is impossible in this effort. Recognizing and respecting (without adapting to) cultural inheritances repeated from generation to generation are important conditions for the efforts of change.[36]

He also explains that we extend the natural world (not made by us) into the cultural worlds with the social invention of language. Language as part of identity is the product of the relation of both inherited and acquired languages. Through the power of interests and feelings contained in acquired language, we also fight the impediments for freedom related to the products of inherited – social, political, and ideological – structures. Thus, the acquired language in identity plays an important role in the search for freedom.[37]

In respect to cultural identity in education (which includes language), Freire states it is important for teachers to know the concrete world in which students live, where their language, syntax and semantics are found in action, wherein certain habits, beliefs, fears, desires are formed and are not necessarily accepted in the teacher's world.[38] Ignoring this alienates critical thinking and education. What Freire calls cultural identity, some authors (Dewey, Schubert, Pinar, Sandlin, Schultz, and Burdick) have seen it influenced by the visual culture,[39] immersed in popular culture. Today, viewers become producers of such visual culture, by posting their productions online and engaging in global discourse of identity representations. However, without critical reflection this helps to reproduce identity stereotypes, but

not to resist them. We need to critique what we see in visual culture, not just be passive spectators. To do so, some educators aim to an intersection of classroom practice, public pedagogy, and critical thinking. To ignore visual culture as curriculum is to consciously avoid public pedagogy,[40] which according to Freire, is not possible in critical pedagogy. Focus on pedagogy in schooling alone presents a myopic view of what shapes human beings[41] leading to an authoritarian way of teaching.[42]

The intersections of critical thinking with visual culture analysis (and the language in it) inside the spaces of public pedagogy could mean an induction of a critical public pedagogy, which supports what Hammer and McLaren called media literate citizenry. In fact, studies[43] and applications of critical public pedagogy have been made. For instance, *Adbusters Magazine* discusses the deterioration of cultural environments by commercial forces (Figure 2);[44] and, The Freire Project is committed to supporting activism in community and media.[45]

Figure 2. *Adbusters Magazine* covers (2015–2017). **Citation:** 'Back Issues,' digital images, posted to adbusters.org, https://subscribe.adbusters.org/collections/back-issues (accessed 9 October 2011). Adbusters © 2017.

Visual culture and the [r]evolution of queer

In the film industry as a space for public pedagogy, lesbian and gay gender stereotypes used to stigmatize actors (the gay man as feminine, the lesbian as masculine) have been emphasized to undermine them.[46] In contrast, queer movements pose a form of organizing in which, far from inhibiting accomplishments, the destabilization of collective identity is itself an accomplishment of collective action.[47]

During the 1960s, social and industrial changes altered the ways sexuality was depicted on films. Homosexuality began to take on a new visibility in popular culture being framed as a civil rights issue, and not a medical one. During the 1980s, the AIDS crisis impacted in complex ways on sexual mores; in response to that, new modes of thinking about human sexuality began to be formulated in academic circles. Other areas of visual culture, like magazines, became sexual primers of a newly liberated sexual lifestyle, like *Playboy* and its imitators. In state and federal courts, legal decisions struck down laws prohibiting sexually explicit publications. This allowed a full sexploitation and the growth of pornographic culture. However, genre formulas and ideological meanings in films remained about the same.[48]

The birth of the modern gay and lesbian civil rights movement is associated with the Stonewall Riots in 1969. In the next years, all sorts of lesbian and gay groups – political and social – began forming (Figure 3). Gay and lesbian activists stressed the importance of coming out of the closet, demonstrating that non-heterosexual people are everywhere, not just in the professions popular culture had turned as clichéd stereotypes. At the same time, the

Figure 3. Homocore block in 1994 Chicago pride parade. **Citation:** 'Queercore Chicago pride parade,' digital image, posted by QZAP.org to Wikimedia.org, 2 March 2006, https://commons.wikimedia.org/wiki/File:Queercore_chicago_pride_parade.jpg (accessed 9 October 2011). Licence at https://creativecommons.org/licenses/by-sa/2.0/deed.en.

representations of non-heterosexual people on popular culture were on the rise, with some attempts to fight typical negative stereotypes.[49]

During these years, Western popular culture was beginning to acknowledge (although problematically) that homosexuality existed. However, sexuality was still understood as binary, reduced to the concepts 'straight' and 'gay'. Activists began to use the word queer in order to represent those sexualities not being gay nor straight, as in the group Queer Nation, wherein the term was used to designate a 'community of difference' which was inclusive of a broad variety of sexual identities. Queer was not only meant to acknowledge the many ways of being gay or lesbian, but also other sexually defined minorities for whom the labels 'homosexual' or 'heterosexual' were less than adequate: bisexuals, cross-dressers, transgender people, interracial couples whether homosexual or heterosexual, queer people with disabilities, sadomasochistic sexualities, etc. While queer activists were demonstrating in the streets, universities across America and Europe began to discuss what was soon labelled queer theory. In the early 1990s, films used queer theory as structuring principles and were more overtly political than before.[50]

From a recount of these events, we can overview a cycle: from discrimination, gay and lesbian activism arose as response, these movements influenced the creation of queer theories in the academia, after this, popular culture was modified, consequently, cultural identity inside some minority groups, including common language was redefined, which for their part, came to modify visual culture while using it as a medium for expression. From this, our focus moves to overview more deeply some parts of queer theory and the concept of performativity by Butler and its implications on the redefinition of language.

Performativity, identity, and language

Queer Theory critiques categories of sexual identity, the heterosexual-homosexual binary to echo post-structuralist oppositions to dualist thought structures, has a formation in feminism leading to an interest in gender in contrast to a more narrow focus on sexuality in gay and lesbian studies; and its attempt to determine queer as an identity term is consistent with postmodernist philosophy's critique of the liberal subject.[51] Queer theory's critical approach to the intersections of race, gender, and sexuality distinguishes it from Gay and Lesbian Studies (by creating sub-fields as black queer studies and transgender studies). Queer Theory has its influences from civil rights and women's movements, the concept of Deconstruction by Derrida, and archaeological studies of Foucault, whose analyses are critiqued by Butler.[52]

There are at least three queer alternatives to conceptions of identity: the normative, which understands identities as community commitments; the vision of identity as performance or phenomenological presentation; and the performative or speech act approach, which is explained by Butler,[53] and which will be the focus of this article. Also, it is important to clarify the difference between performance and performativity, the first is considered as playing a role of a presupposed pre-existing subject, while performativity is a repeated action that challenges and changes the notion of the very subject.[54] Butler then claims that gender, being part of identity, is the result of performativity, not performance.

Since Butler draws her formulations of gender identity and performativity from linguistic concepts of J.L. Austin's speech act theory and Derrida's deconstructions of Austin's ideas,[55] we can infer that linguistic performativity is key in the definition of the subject's identity. So,

the language used in the definition of identity is performative as it not only describes it, but also accomplishes the act of its definition in its very enunciation.

Performativity conceptualizes the paradox of identity as apparently fixed but inherently unstable, revealing norms requiring continual maintenance. Butler's works contribute a new conceptual grammar in the inter-related concepts of performativity and citationality to denote a reading of gender neither as essence nor socialization, but as the consequence of the performative (i.e. recurring) 'citations' of gender thought as actions that institute 'girling', for example. Butler's insistence on seeing gender as constitutive (as literally making the material of the embodied self) signifies social and cultural forces coming to sculpt femininity and masculinity as norms on the body and psyche.[56]

The importance of language in queer theory may be supported by Longo's assertion that 'people know the world through language and we construct realities through language;'[57] by the ideas from Edward Saïd, who claims that language is central to the renewal of humanism, which is a process of critique and resistance that involves interrogating words and discourses so as to reveal silences and exclusions. Only through language, Saïd contends, can the 'obstruction[s] of language' be diagnosed.[58] Likewise, Freire states that language is the only means by which we can develop our own voice and a positive sense of self-worth.[59]

Butler develops further the performative effect of language and discourse, and extends the limited linguistic origin [of Austin's] performative by applying this concept to constructions of gendered identity and subjectivity more generally. Butler suggests that gender is not an essence of the self but an action of performance that inaugurates the self. This suggests that identity does not pre-exist its enactment but is produced through this performative doing. She also questions the pre-existence of a natural biological sex in which a gender is said to be mapped or inscribed.[60] Butler also claims that, since gender is an act that brings into being what it names, and gender identities are constituted by language, there is no gender before language, but the other way around: language and discourse create gender.[61] However, Salih argues that one's gender is performatively constituted in the same way that one's choices are predetermined – and limited – by other factors such as society, economy, etc.[62] In this way, identity is constructed in part by the subject's performativity – and the language used in it, but also by other factors in the subject's reality.

Butler argues that language as performative inaugurates the subject and the subject's connection to the world, indicating that words have material effects. However, she cautions against a reductive collapse of speech and action. Performative effects of speech have been used to justify the legal regulation of hate speech, which is said to be a verbal assault equivalent to a physical injury.[63] To Butler, language is endlessly reiterated and rearticulated, enabling resignification, and acquires its efficacy not through the single utterance of a lone speaker but through repeated citations by a collectivity. She elaborates theory in the face of a reductive and conservative application of performative linguistics. Focusing on radical interdeterminacy of the speech act, she rejects the necessity of the relation between utterance and effect. As a result of repetition and citation, the meaning of words can be transformed. While gender is produced through linguistic performativity tending to produce normative identities; variation, incoherencies, and failures enable the possibility of completely different outcomes, such as: drag kings and queens, butch and femme personas, tomboys, sapphists, trannies, leather men, bears, inverts, and so on. In the pejorative use of these terms, not only are identity subversions possible but, additionally, the injurious effects

of insults as 'queer' can be reversed and adopted as a sign of resistance: 'We're here, we're queer, so get use to it.'[64]

Queer activism and the performativity of language

Queer is a word with many meanings. As stated by Shneer and Aviv, doctors, scientists, lawyers, and psychiatrists have tried to identify, discourage, and reshape gender identities and sexual orientations derived from what science, religion, and other institutions of power said was 'normal.' However, those who sleep with the 'wrong' gender or sex, who dress in the 'wrong' clothing, or who have the 'wrong' biology, have their own voices, identities, and labels that challenge and ignore what those with power are saying about them.[65]

Not only are people's experiences shaped by how they have sex, fall in love, and create families, but also everyone learns how to be a person and how to live in the world through the words they hear (or do not hear), and images they see (or do not see), and produce, around them, which is called visual culture.

What queer people have called themselves and been called by others has changed over the course of the past hundred years. But one thing has remained consistent: the language we use to describe queer people, identities, and practices reflects who has the power to name and be named. One of the definitions of queer found in the dictionary is: 'strange or odd from a conventional viewpoint;'[66] and other negative connotations. This gives an idea of how those who had the power a time ago, still have it; and that this performativity process is still in progress.[67]

By the mid-1990s, queer had moved from being an insider term of identity to an epithet of derision, a word with no one wanted to be associated. 'Homosexual' became the term to define people who expressed same-sex desire. It took radical queer activism to take power over naming away from institutions. The world 'homosexual' began again to be seen for what it was – a medicalized term that transformed personal identities into fixed categories – and the words gay, lesbian, bisexual, and transgender began to be used. Other groups reclaimed other terms, like 'radical fairies' or 'butch dykes,' that had once been identity terms labels but with negative connotations. For many, queer became simply a shorthand for 'lesbian, gay, bisexual, and transgender,' much like 'people of colour' became an inclusive shorthand for a long list of ethnic, national, and racial groups. But in 1990, a group of homosexuals reclaimed a potent epithet by calling their activist group Queer Nation (previously ActUp). In doing so, they returned the word to its former meaning, as an insider badge of pride.[68]

Those interested in queer theory and performativity, share a commitment to power of language, and to the reclaiming of the language made to work against some groups of people. In the transformation of silence into action, language has a vital function.[69] Then, anytime queers take control of language and name what they are, they are engaging in activism. As 'queer' moved from labels meant to demean to powerful words expressing identities, queers began to claim power over their own lives. Queer activism began the first time someone said, 'I am queer' in the face of silence. Some people say activism happens on an everyday level whenever a queer fights back, kisses in public, or has sex that violates social norms. Others claim that to call something activism, one must have the goal not just of challenging power structures but also of changing those structures. Shneer and Aviv claim queerness, real and performed, is everywhere, which shows people have moved from silence

to action. But, what spaces are provided for these people to take action, name their identities, and choose – or reject labels?

Since the 1980s, 'queer' has served to mark many political movements and queer theory. Besides activist groups, queer politics operates through the decentralized, local, and anti-organizational cultural activism of street postering, which is inside a bigger range of possibilities of cultural expressions. Sexuality-based politics contain a more general predicament of identity politics, whose implications are not well understood: it is as liberating to demolish a collective identity, as it is to establish one. Queer movements pose the challenge of a form of organizing in which the destabilization of collective identity is a goal and an accomplishment of collective action.[70]

The revaluation of queer suggests, according to Butler, that speech can be returned to its speakers in a different form and perform a reversal of effects.[71] She underlines the importance of a queered repetition of norms in some contexts.[72] Such subversive reiteration of norms leads to their own re-signification, which suggests a contingent construction of meaning.[73] Although queer was never intended to be an identity term, it has been employed in some discourses, as a noun to refer to an identity category or umbrella of identity categories under which lesbian, gay, bisexual, transgender, intersex, and queer (LGBTIQ) people may be placed.[74] Commonly, the term is used to denote same-sex sexuality, lesbian or gay,[75] but it is also used as a substitute for LGBTQ.[76]

According to Bell, the use of queer as an identity term is productive, since it allows for those with shared experiences by virtue of their existing outside of heteronormativity to be represented. However, this use of queer essentializes the understanding of sex, gender and identity, erasing important differences in terms of race, ethnicity, and class between those considered queer. Although there are debates about the definition of queer, there is an undeniable shared understanding of what the proper object of queer should be.[77] That understanding is taking place more frequently in common parlance. The examinations of art, design and media become necessary to understand what it means to be queer.[78]

Queer theory is based on the critical method of deconstruction, a social analysis of what is said – and unsaid – through language, form, structure, and style of a text (also part of the objectives of critical thinking and popular culture literacy). Queer theory enlarges that definition of text to include any forms of communication used to understand one's world; it could be a book or a film, but also a conversation, a life story, a memory, sexual activity, history, a gathering place, a social trend, a magazine, a banner in a protest, the graphics on a t-shirt, a logo, and any form of visual communication (Figure 4).[79]

Visual communication gave voice to LGBTQ communities while trying to appropriate and transform the meaning of queer. This could explain why the production of resistant visual culture (from many forms of visual art to graphic design) by queer communities have performed an important role in the process of performativity of the term queer from a pejorative to an identity term in many contexts. The production of this transformative visual culture, which seeks to change the meaning of this and other discriminatory languages, could become more intentional in sites of public pedagogy wherein critical thinking is encouraged. The power of this linguistic transformation in the hands of oppressed communities may lead to their own freedom.

Figure 4. LGBT Solidarity Rally in front of the Stonewall Inn. **Citation:** 'LGBT Solidarity Rally (31901702853),' digital image, posted by mathiaswasik to Wikimedia.org, 4 February 2017, https://commons.wikimedia.org/wiki/File:LGBT_Solidarity_Rally_(31901702853).jpg (accessed 9 October 2011). Licence at https://creativecommons.org/licenses/by-sa/2.0/deed.en.

The process a performative art and visual culture education

Visual culture education has played an essential role in the process of transformation of language, since it contributes to the comprehension of visual communication structures, which includes language in many forms, from visuals in the arts to typography in graphic design to messages in urbanism. For its part, critical visual culture education, being the infusion of Freire's critical pedagogy into the instruction of the understanding, and more significantly, the production of images within culture, helps participants to critically analyse their visual environment, and its effect on human lives, in order to transform it. As a result of critical thinking, changing some social structures becomes a necessity, especially for those suffering from discrimination, who find in visual language derogatory terms.

In the transformation of queer into an identity term, the production of different visual works was paramount. This transformation could not occur so effectively without the intervention of banners, t-shirts, magazines, films, street art and advertising, among others, which promoted the reuse of the term differently (Figure 5). While changing the meaning of terms, LGBTQ people created a new language. The power of visual production contributed to change the meaning of a pejorative term into an activist weapon. As seen in some references, this visual weapon, and the new language in it, are inserted into the actions of public pedagogy to give voice to discriminated groups in the realm of collective cultural identity. This activist and critical performance turns public pedagogy, which sometimes helps to perpetuate negative stereotypes, into a critical public pedagogy.

Thus, the activists-generated visual culture propagates new language through cultural identity. However, this new language is not instantly understood nor accepted into common speech. To achieve this, it has to overcome a process of repetition and citation in which the new meaning of language establishes as legitimate. Queer, once immersed in the visual culture around the 1990s, was not easily accepted either. In fact, it did – and still does receive

Figure 5. T-shirt at Jerusalem Pride 2012. **Citation:** 'Queer Riot,' digital image, posted by Neil Ward to Wikimedia.org, 2 August 2012, https://commons.wikimedia.org/wiki/File:Queer_Riot.jpg (accessed 9 October 2011). Licence at https://creativecommons.org/licenses/by/2.0/deed.en.

reluctance from many political, religious, and social forces. Queer roles, for example, were banned or misrepresented in films for many years. Despite rejection, queer persevered to represent a large number of identities considered out of the norm. As supported by Butler and queer theory, this performativity of language, although not instant or easy, has been possible and might be replicated in the contexts of other identity terms.

Freire asserts identity can be formed by cultural inheritances and acquired knowledge, as well as language, which is part of that identity. When performativity occurs inside the acquired language, its new meanings permeate into cultural inheritance, giving new terms the possibility of being considered part of the common speech. In the case of queer, although its activist meaning is not universally instated, in several contexts, it works even beyond the inclusive and reclaiming uses of its initial transformation. Today, being queer is an option as valid as any other identity-related term. Also, since its usage has already been learned and practiced by new generations, it is fair to claim it is part of the actual inherited language.

Ultimately, since Freire and Saïd claim the transformation of language is essential for the renewal and liberation of self; by renovating identity, which resides inside collective cultural

identity, the new reformulated language contributes in the search for freedom of oppressed people. Queer, for instance, after all its performative process, continues the fight for freedom of LGBTQ people by generating spaces for voice, activism, belonging, new significations, debate, research, and self-identification.

Since the process of performativity may be long and sometimes inconclusive, critical visual culture education might need to reinitiate the process, critiquing the already transformed meaning of language and including it in a new visual strategy. New generations of users of the term queer have already proposed new interconnections of the term (as 'genderqueer'),[80] expanding its meaning and usage (as 'queer AF'),[81] and even rejecting it by considering it just another label.[82] All this new reconsiderations are present in actual visual culture, and they might follow the process of critique, activism, repetition and performativity, once again (Figure 6).

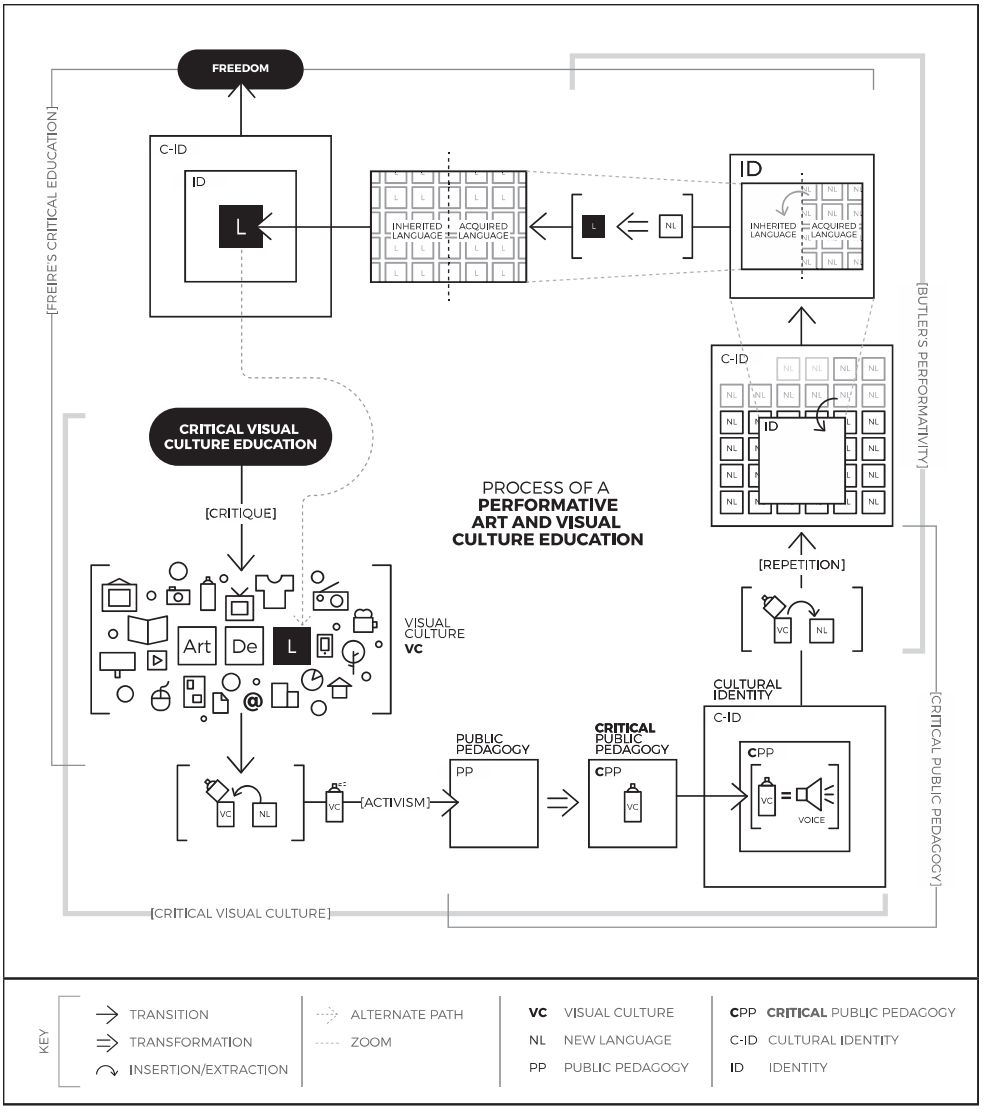

Figure 6. Visualization of the process of a performative art and visual culture education. Source: Author.

Conclusion

The findings of this analysis, which build the model for a performative art and visual culture education, contribute to identify the under-exploited potential of participant-generated forms of visual culture in the transformation of the meaning of language, which eventually produces social change. At the end, critical visual culture education represents an effective and necessary tool for critical social analysis, activism against oppression, critical public pedagogy, language performativity, and the search of freedom.

As human beings, we should have the right to decide how and what we are called or not, by others and ourselves. Performativity grants people some part of that right by giving them the opportunity to change those pejorative terms used to despise us. That power of decision places us closer to freedom and further from discrimination. If we want to overcome this and other forms oppression, we need to open our eyes to our own situation as oppressed; only through awareness, we are able to change our reality. This change would not be possible without critically analysing our environment – specially the visuals – to eventually denouncing injustice – by creating our own visuals. The spaces visual culture education provides for such critical analysis and activist performance have not been fully exploited. When infused with participant-generated visual culture, critical public pedagogy becomes an essential tool for deconstruction, construction and reconstruction of social structures. To give the process of performativity of language a better opportunity to change reality, public pedagogy needs to be provided with strategic and conscientious visual culture curriculum designs. This theoretical contribution attempts to serve as the foundations for such designs.

Notes

1. Saïd, "The Return to Philology," 59–74.
2. Butler, *Excitable Speech*.
3. Ibid.
4. Restuccia, *Amorous Acts*.
5. Davis, *Queer as Folk*.
6. Morland and Willox, *Queer Theory*.
7. Benshoff and Griffin, *America on Film*.
8. "QZAP": The Queer Zine.
9. *The Free Library*. Queercore.
10. Freire and Macedo, *Literacy: Reading the Word*.
11. Muirheid, "Visual Culture within Comprehensive Art"; Duncum, "Visual Culture Art Education," 14–23 and "Visual Culture: Developments," 101; Prosser, "Visual Methods," 13–30.
12. Sandlin, Schultz and Burdick, *Handbook of Public Pedagogy*.
13. Sandlin et al., *Handbook of Public Pedagogy*, 1.
14. Coval, "Louder than a Bomb," 395–408.
15. Chappel, "Young People Talk Back," 318–326.
16. Although Freire's ideas has been used in the practices of critical visual culture education, at the moment of this research, it was not found many pedagogical applications of his ideas with LGBTQ people.
17. Butler, "Interview with Judith Butler."
18. Passmore, "Why Teach Visual Culture," 26.
19. Carpenter, II and Sourdot, "What Are You Watching," 444–455.
20. Duncum, "Instructional Resources: Visual Culture," 25–32.
21. Hammer and McLaren, *The Spectacularization of Subjectivity*, 60.
22. Nadaner, "Art and Cultural Understanding," 6.

23. See note 18.
24. Schubert, "Outside Curricula," 10–19.
25. Pinar, "Foreword," xv–xix.
26. Sandlin et al., *Handbook of Public Pedagogy*.
27. See note 23.
28. González, Moll and Amanti, *Funds of Knowledge*.
29. Haas-Dyson, *Writing Superheroes*.
30. Bakhtin, *Speech Genres*.
31. See note 14.
32. See note 15.
33. Questioning: 'A term used to describe those in a process exploration about their sexual orientation or gender identity.' Available at: https://www.pflag.org/blog/about-q
34. Ibid.
35. Freire, *Pedagogy of the Oppressed*.
36. Freire, *Teachers as Cultural Workers*.
37. See note 33.
38. See note 34.
39. See note 23.
40. See note 18.
41. See note 23.
42. Freire, *Pedagogy of Hope*.
43. Sandlin and Milam, "Mixing Pop (Culture)," 323–350; Zorrilla and Tisdell, "Art as Critical," 273–291; MacDonald, "Reading Pedagogy."
44. *Adbusters*, "About."
45. Steinberg and MacDonald, "Freire Project."
46. Examples of relatively negative representations of gays and lesbians in film: *Victim* (1961), *The Fox* (1968), *The Boys in the Band* (1970), *Fortune and Men's Eyes* (1971), Cruising (1980), and *Windows* (1980).
47. Shneer and Aviv, *American Queer*.
48. Shneer and Aviv, *American Queer*; Benshoff and Griffin, *America on Film*; Russo, *The Celluloid Closet*; Buckland, *Film Theory*.
49. Ibid.
50. Ibid.
51. Turner, *A Genealogy of Queer*.
52. Osucha, "A Genealogy of Queer"; Wall, " Review of Turner."
53. See note 6.
54. Butler, *Gender Trouble.*
55. Salih, *Judith Butler*, 19–72.
56. Hey, "The Politics of Performative," 439–457.
57. Longo, "An Approach," 53–73.
58. Secomb, "Words That Matter."
59. See note 10.
60. Davies, *Judith Butler in Conversation.*
61. See note 48, 145.
62. See note 49.
63. See note 55.
64. Ibid.
65. See note 41 above.
66. Dictionary.com.
67. Ibid.
68. Ibid.
69. Lorde, "The Transformation of Silence," 81–84.
70. Gamson, " Must Identity Movements Self-Destruct?," 390–406.
71. See note 2.

72. Xhonneux, "Performing Butler?," 292–307.
73. See note 48.
74. Ball, "The Use of 'Queer'," 1–9.
75. Sedgwick and Goldberg, *The Weather in Proust*.
76. Duggan, "Making it Perfectly Queer," 215–231.
77. See note 51 above.
78. Ibid.
79. Dilley, "Queer Theory: Under Construction," 457–472; Barthes, "Rhetoric of the Image," 32–51.
80. Beemyn, " Glbtq >> Social Sciences >>."
81. Tsjeng, " Teens These Days."
82. Segal, " The Problem."

Disclosure statement

No potential conflict of interest was reported by the author.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 165–182
https://doi.org/10.1080/20557132.2017.1402501

Routledge
Taylor & Francis Group

Unpacking communication tensions in visual transmediation from print to digital papers

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ABSTRACT

The interest in visual transmediation in newsrooms has emerged against a backdrop of multimodal change in design practice. Visualization in news websites can be described as having new requirements and considerations of transforming textural reportage. In this article I consider communication tensions evolved as the result of contemporary media convergence in the newsrooms, and combine them in discussion on how visual journalists make collective effects in practice. Empirical materials involving the fieldwork about in-house visual journalists' routines, activities and practices are collected from two Finnish newsrooms, respectively Helsingin Sanomat (HS) and Lapin Kansa (LK). Considering media convergence in newsrooms, I focus on an elaboration on the visual transmediation in the two newsrooms with ethnographic research tools, particularly in corporate settings. In doing so I reveal some of the limitations and possibilities emerged in visual transmediation from print to digital papers in the newsrooms.

ARTICLE HISTORY
Received 27 February 2017
Accepted 18 October 2017

KEYWORDS
Communication tensions; visual transmediation; digital newspaper; Finnish newsrooms

Introduction

Nowadays, communication and collaboration between multidisciplinary teams are inevitable in the twenty-first century, especially when technological developments of the new media and the revolution of information economy have profoundly influenced the practice of visual communication design. Such a design context demands a dynamically networked team of multidisciplinary experts who can work both individually and as a part of a design procedure.[1] Some research has already been dedicated to proclaiming the new possibilities and benefits in collaborative projects. For one thing, involving collaborators demonstrated to be effective in addressing multiple needs in the project, such as connecting activities, constructing dialogues, reconciling concerns and fostering novelty in creation. For example, a four-year case study was conducted in UK to investigate the productive values of designer's creative practice within academic-industrial collaborations.[2] For another, there has been an increasing of awareness of knowledge sharing both within and outside organizations, for instance, a field study of 182 work groups in a global organization that demonstrated

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performance improvement when external knowledge sharing was engaged in diverse work groups.[3]

Media work, described as 'liquid life' by Deuze,[4] shows a prevalent sense of permanent flux and constant uncertainty. It comes from a rapid-changing global environment, both in technological field and through different media. Meanwhile, interaction aesthetics that enhances audience's detection of design affordances[5] ask for multidisciplinary collaborations as well; this continuous confluence between the aspects of design through media creates bewildering complexity. In news organizations, the key to understanding our opportunity and necessity to collaboratively "remix" different specialists from multiple disciplines is to make this change as a way for us to make sense of the growing complexity. In this article, I conducted ethnographic studies to place empirical findings in the context of transforming visualization processes in two newsrooms. Helsingin Sanomat (HS) witnessed the middle stage of visual transformation from conceptual to practice in the biggest Finnish newsroom. Lapin Kansa (LK) examined the pre-stage of media convergence of different team members during visual transformation in a middle-sized regional newsroom. Findings of this study should be useful in providing guiding information for visual journalism.

Background

Multimodality increases in news website visualization

The news media have evolved from a pre-dominantly reliance on text-based reporting to those embracing multimodal communications. On the one hand, it is attributed to the vanishing boundaries between journalism and other forms of public communication,[6] such as individually customizable methods through menu interfaces, Web browser, client emailing, instant sharing and Rich Site Summary (RSS, though also called Really Simple Syndication) subscription. Either commercialization or cross-border merger happening in this field makes all other forms of news media possible and 'news is a major branch of the information business, not an option, a basic necessity'.[7] On the other, culture and technology allow both reporters and readers to communicate with ease through mobile devices and this has led us to explore the growing importance and popularity of other forms of communication except text-based journalism.

The largest media companies in Finland actively developed new forms of web-based publications during the second half of the 1990s.[8] Before that revolution, visual journalists mainly relied on paper communication. The fact that newspapers existed in a single medium responded to the limitations of printing, distribution and display. Nowadays, the type of content, news frequency and expectations of readers all greatly influence what, where and how visual journalists use multimodality in practice. Just as there is not simply one way to make visual composition in print, screens are not one size fits all. Before visual transmediation from print to web, visual journalists have to reconsider the whole design process about technically infinite in variety and different possible impressions.

Multimodality is now gaining academic ground due to the changing communicative landscape, as stronger reliance is on various modes other than merely texts. In visual transmediation, both text and image are brought together as mutually informing partners in news storytelling.[9] As to the way that multimodal modes are mutually informed in the

process, a social semiotic approach to multimodality in visual communication demonstrates the active production of meaning in several studies. For instance, a 'compositional' metafunction is done by visual resources to form the visualization into a coherent whole.[10] The linguistic paradigm is then transmediated with visual texts in a consistent framework,[11] and complementary meaning potentials emerge in the composition of different modes.[12] In this case, people's aesthetic experiences have enhanced not simply due to visual qualities, as well as 'form and structure, qualities that define a situation, our felt sense of the meaning of things,'[13] which in turn ask for more interesting compositions of multimodalities in visual representation.

Academia gives the explanation of the emerging multimodality in the field, but this is not the end of the story. As more contributions have invested into news websites these days, both multimodality and multimediality[14] are allowed in practice. In visual transmediation in news websites, information design, as a production medium, is multimodal in its affordances, because it involves texts and (motion) visuals, meanwhile it can only be seen, and not been heard, smelled, touched or tasted. The case of illustrations follows. Another textual transmediation form, on the other hand, could be videos, which can be both seen and heard. Video therefore invites audience to a both multimodal and multimedial world. Several modes (e.g. pictures, languages) realized in different media (e.g. infographics, video) are used in news reportage, and this is the result of a particular social environment. But how multimodality affects production media depends on a specific organizational context.

Expertise and collective effects in newsroom

People in the media as creative industries used to muddle through independently with a life full of their own breaks and contradictions, but the basis of this life has become precarious as everything would be woven together. 'Diversity and unclarity' caused by different agenda such as globalization, ecologization and digitalization[15] have shed light of collaboration in practice. Inspired by the emergence of new media, news practitioners have found a way to work collaboratively; they may still keep their way of working individually, but no longer independently. Yet the way to work collaboratively is not that easy as expected, in that individual practitioner's tacit knowledge and conceptualization has to reach an agreement,[16] thereby producing norms, routines and rules in a certain way. Traditional newsroom organization, according to Moen,[17] failed to take advantage of the synergy of the reporters, editors, photographers, artists, and designers. He also notes:

> The traditional newsroom is organized vertically to move the raw materials horizontally … the decision-making authority follows downward from the editor to the departments. Each department produces its own product: stories from the city desk, photographs from the photography department, graphics from art department, headlines from the copy desk and layout from the news or design desk. This structure creates unnecessary barriers. Reporters often are not consulted about editing changes, and photographers are seldom asked about selection, cropping or display. Artists too often are told to produce illustrations, charts and maps on short notice and with incomplete information. Furthermore, the designer who puts all these efforts together often doesn't know what is coming until it arrives. The managing editor often specifies what should be on page 1 with little regard for the effect on photo size, white space or the number of jumps.

Regardless of the different titles used in 1990s, we have seen the inconsistency of visual journalists' work in the past. Nowadays in newsrooms, the cooperation between multiple disciplines, such as journalism and design fields, seems to be more feasible than before. For

one thing, as a backdrop of collaboration, multimodality allows potentials of different communicative use of media. The news production is associated with different channels from multiple disciplines, such as reporters, information designers, motion designers, data journalists and photographers. Reporters usually turn to visual journalists for cooperation in visualization when they 'feel' that there is a need to have complementary visualization so that the news looks either more compatible or seductive, and raw materials flow successfully and horizontally between desks in news production.

For another, the interpretation of 'material resources'[18] is characterized by a particular configuration of media qualities, while it is the practitioners who make the decisive choice of the multimodal text. Some inspirations of these decisions come from previous experiences, as 'the similarities and differences between innovation processes in online news and in other settings would help to ascertain what might be unique to the journalistic field.'[19] Therefore, the result of multimodal text is both the effect of collective inputs involved in the newsrooms and the integration of multiple expertise.

Conceptually distant of ideation

Visual transmediation discussed in this article is rendered complex to undertake by the communications between reporters and visual journalists. Meanwhile, involving transformation from printed newspapers to digital version can be a means of addressing challenges, particularly in the early stage of 'Digi(tal)-first' policy, according to Petri Salmén, one design producer in HS. The new requirements for practitioners arise from different values held in their creative practice within a complex collaboration.[20]

Theoretical perspectives have identified designer's thinking as several substantial root, such as a way of reasoning or making sense of things,[21] and as creation of meaning.[22] From the ethnographic observations conducted in newsrooms, visual journalists' work is likely to be practice-based activity. They consider the contextual information and 'how sense can be made of something and given this, the designer is then in a position to choose which contexts should dominate and the manner in which they should'.[23] Although accuracy and truth are part of the competence and practice of the journalistic work, creativity is the main point in design ideation. What reporters do, on the other hand, mainly is to gather information and present it in a written or spoken form in news stories, feature articles or documentaries, as *The News Manual* proceedings archived in 2008. Conceptually distant gap between reporters and visual journalists determines the representational gaps.[24]

In the communication between reporters and visual journalists, intricacies of producing multimodal content emerge due to the distinction between disciplines. As Macken-Horarik has already proposed,[25] two kinds of awareness in analysing multimodal texts remain: (1) awareness of a 'lack of fit' between categories of one mode applied to another; and (2) awareness of the deconstructive power of this kind of analysis, which reveals gaps in transmodal analysis. The multimodal texts in news websites are taken dominantly to encompass both text and visuals in different multimodal representation forms. On the other hand, reporters who get used to the old impressions feel difficult to learn new digital system in the newsrooms, which is also called as a generational gap, while the logics behind creativity for visual journalists are originality, functionality and aesthetics.[26] My analysis focuses on the two Finnish newsrooms and the communication between reporters and visual journalists.

But before conducting the ethnographic research in the newsrooms, I had my hypotheses about visual journalists' practices in visual transmediation.

Propositions and hypotheses

In recent times, print news appears to have gone through a transitional phrase from prose to visual narrative,[27] as there reflects that visualization has empowered with the ability to tell the story itself. What needs to be emphasized, as a dominant trend nowadays, however, might be the platform transformation from newspapers into digital news. While the telling of the news used to focus on the verbiage, the rise in interest in digital visualization in recent years and the expansion of multimodal modes have resulted in a much broader consideration of professionals' work in this area. It is important to question what design practices might be applied in the visual transmediations in newsroom. Based on the aforementioned distance of conceptual ideation between reporters and visual journalists, two basic propositions were derived that contextualized the present analysis, as follows:

- Practitioners' work diverges in relation to what a project entails in the creative process. In the design domain, Nelson and Stolterman have provided multiple design judgments that include framing judgments, appearance judgments, quality judgments, compositional judgments, and navigational judgments.[28] During design ideation process, journalistic practitioners, both reporters and visual journalists, may have listed their important values according to the news content. The 'potential' that the project entails may spill over into representation forms according to the practitioners' judgments. What I have mentioned about creativity in digital visualization are functional value as well as aesthetic values.[29] The inclination of different values and judgments held by practitioners leads to the divergences in their practices. Although creativity maintains a focus on visual journalist's work, the final result of the project depends on the ideas perceived in the conceptual development.
- Complementarity and evaluative stance in terms of practitioners' work. In order to get at the evaluative stance being construed in practitioners' work, it is necessary to investigate how interdisciplinary communication is negotiated in multimodal visualization. In practice, news is perhaps more likely to be finalized as having 'potential' in relation to aesthetic judgments, while others maintain the ability to be verbalized in a better way. On the one hand, in the textual transformation into visual, aesthetic evaluation stands out in this respect, with perceptual ideation and creativity seeming to be especially important for designers. On the other hand, reporters insist to keep textual originality and journalistic accuracy in the visual transmediation procession. These two needs could be challenging to reach a balance. But for some reasoning of layout design or readers' interest, the reportage should be of interest by both reporters and designers, so that their work can be complementary mutually. While complementarity maintains a focus on creativity in visual transmediation, I contend again both functional and aesthetic values in visual variations of design practices.

The two propositions as to how design practices differ emerge when questioning the visual representation changes. As rephrased into specific hypotheses for the design ideation process, I come to the following movements for visual journalists:

1) From design to convention

In visual transmediation, there does exist a process to undergo both for reporters and visual journalists. Designers each collect a bundle of visual materials and then play with these visuals for the sake of their own tastes. While in newsrooms, the visual journalists sort the visuals according to the criteria, which factored in their sense of the newsroom's requirements: colour, size, kind, pattern, and composition of the visuals. After all, rules were 'given' and established to fit in the specific style. In this perspective, visual journalists design according to rules in most cases, in line with design principles.

2) Recognition of difference

For reporters and visual journalists, both visual and verbal multimodality, strictly styled under the newsroom's rules, would guarantee the success of brand communication with readers. However, in the production process, it is important to point out that difference emerges between visual and textual expression in multimodality. There has been the task of sorting visual transmediation to fit the imagined conceptions of how the representations tell the best of news stories, as well as to adapt them into the style of the news-to-be.

3) Consensus and negotiation

During visual transmediation, I predict more mental simulation from designers' part and more discussion among practitioners for development through trial and error. Such considerations from both reporters and visual journalists result in better suggestions for testing the conceptual thoughts. When the two groups come to consensus of how to realize visual transmediation in news websites, the sorting would give the visual representation a distinctive look.

4) Alliances through multiple disciplines

When realizing visual transmediation in newsroom, significant work has been done by multiple disciplines. In a news website, weight equals when comparing functional value and aesthetic value; yet as it turns out, each discipline has done their work in somewhat different ways, each using somewhat different principles: reporters have textual preference as a sorting method; visual journalists privileging visual over texts. With their collaboration in workflow, differences (between texts and visuals) are utilized to produce natural harmony.[30]

I believe it is rare to focus on such an atypical group, visual journalists, to shed light of the logics behind their practices and design critiques. I nevertheless think that the investigation of logics helps explain changes in representation, orientation and presentation.[31] In order for a closer observation of visual journalists' work and visual transmediation in procession, I conducted an ethnographic research in the two particular Finnish newsrooms. There emerged some further implication of the present argument and it seemed that distinct creative domains were likely to diverge in actual design practice, or to be more specific, in the newsroom culture.

Methods

Newsroom ethnography is the decisive method applied in this article due to the importance of spending considerable time in the fieldwork, where media workers as the study objects

carry out routines, activities and practices. My research methods were designed on the basis of exploring complex cultures due to the movement steered by a focus on news websites in the two newsrooms. The aims were to document and to understand the visual journalists' practices, so as to further interpret the current situation. To start the explanation of this complexity, I firstly had interviews with the dominant personnel who were in charge of the design department in the particular newsroom. After discussion with them, the access to the newsrooms was facilitated by the support from the design department. When conducting ethnographic research inside the newsrooms, one of the few prime principles was to study newsroom people's behaviour not created by my own setting. Rather, it should be studied in the context of their living of daily life, so that the research strategy inclines to unearth the shared meanings and practices of their real work during the visual transmediation process.[32]

Followed by the typical methods for conducting an ethnographic research,[33] I decided to conduct the research in two Finnish newsrooms, respectively HS and LK. The first step for me is to identify the context in the two newsrooms. After some initial visits and interviews, the differences between the two newsrooms are obvious. I will elaborate the methodology session in the following part by discussing the particular case separately, as different research questions may be inaugurated through the different organizational cultures. The discussion intends to explain questions, such as the reasons for choosing these two newsrooms, and physical evidence, such as how to observe the journalists 'in situ'.[34]

Helsingin Sanomat

HS is the biggest newsroom in Finland, considering its readership, number of pages, journalists and working facilities. Owned by Sanoma Group, HS is the largest subscription newspaper in Finland and the Nordic countries as well. The field observation in HS Design Department consisted of a total two weeks in April 2015. I spent time at the following locations: Graphic + Data (10 days), Monthly supplement (1 day), Saturday (1 day), Sunday (1 day) and Photography sections (1 day).

The fieldwork was conducted in mainly the Design Department just after a physical reconfiguration in HS newsroom. I realized there would be many movements and differences that influenced visual journalists from both the print and digital production teams. During the study, I observed daily meetings and the activities of their roles, such as communication and interaction with other collaborators in the projects. The methods were eminently qualitative and focused on the parameters of specifications in work, deploying multiple methods,[35] such as direct observation, semi-structured interviews, written records, photos and videos, as evidence to validate certain conclusions. The intentions were to broadly map the views and practices around the transition of print papers to digital versions. For the purposes of this article, I focused on examining what the research showed me about (the different kinds of) HS journalists' communication and attitudes (in the Design Department) to the different workflow, and how the change affected their own practices.

After surveying the visual journalists' experiences in visual transmediation, the fieldwork was emphasized on ethnographically mapping their workflow in the department, the communication between different desks and the exercises shadowed by schedule. The main interviewees who were enlisted in the research consisted of people with many years' experiences of news production practices: some had extensive knowledge and had carried out

many projects before, and others were only familiar with this practice in the department, like information design, to name one. People with varying levels of experience in HS newsroom were interviewed and their practices were recorded by field notes, photos and videos. After all, around 20 semi-structured qualitative interviews with information designers, data journalists, layout designers, photographers and reporters were collected, not alone other informal chats and discussions by their working space.

Lapin Kansa

LK was established in 1928 and is based in Rovaniemi, the capital of Lapland Province, Finland. Owned by Alma Media, LK is considered to be the biggest subscription newspaper in Lapland area. In January 2011, the daily paper changed its format from broadsheet to tabloid. Confronted by the decreasing circulation and subscription in a global scale, LK joined Lännen Media's (LM) collaboration in Western and Northern Finland by the end of 2014, which formed a joint national editorial team to produce content for print newspapers as well as their digital, online and mobile channels. I had several interviews with Mr Antti Kokkonen, the Editor-in-Chief of LK, together with some informal chats about the changes and happenings in the newsroom. This facilitated me the access to the fieldwork in LK's newsroom during March 2015.

I conducted my ethnographic research in the newsroom right beside the visual journalist, Ms. Miila Kankaanranta. The two weeks, approximately 70 hours of observation, notes and recording, suggested that LK was preparing the newspaper with a more digital thinking. During my visit, the Internet producers were launching the demonstration for LK's new website. According to the interviews with the producers, the Beta version of the new website would be ready in June. The Editor-in-Chief, Mr Kokkonen, said, 'more possibilities of visual journalism, such as good photos with bigger proportion would emerge'. In this case, there would be more and more online news services for readers and the role of online news would be heavily increasing. I gradually realized that there should be more changes and movements in visual journalist's workflow than just 'making photos bigger' during the transit to focus more on web news in LK newsroom. Therefore, in February 2016, I revisited LK newsroom for one week to take a closer look at whether there was any difference in this visual transmediation in this regional newsroom.

As a regional middle-sized newsroom, LK has fewer resources than HS, which means it is impossible to have exactly the same working model as HS. In the LK newsroom, there is only one visual journalist working for graphics, illustration and other visual impressions. The Editor-in-Chief argued that LK was trying to seek more innovation, especially after setting the pay wall subscription system since June 2015. This was also one of the reasons why newsrooms in Western and Northern Finland needed cooperation. Therefore, I planned to sit beside the visual journalist during the fieldwork. The collaboration between the visual journalist and the reporters seemed different from that in HS newsroom, which made it difficult for reporters to adapt themselves in the visual transmediation with the function as information disseminators. Through similar research techniques as in HS, I intended to analyse the situation in a smaller Finnish newsroom, other than an ambitious comparative analysis.

Results

Ethnographic research methods are applied in this article, as the starting point of any ethnographic writing 'constitutes a valuable and distinctive way of asking and answering the recurrent question in an anthropological enquiry – "what does it mean to be human?"'[36] In my research, it is defined as 'a research approach that produces a detailed, in-depth observation of journalist's behaviour, beliefs and preferences by observing and interacting with them in a natural environment'.[37] From the fieldwork in the newsrooms, it seemed that all journalists were asked to think about 'digi(tal) first' when taking on new tasks while figuring out what this really meant in workflow. Dynamic data visualization is one of the challenges that push journalists to reinvent their professions. Multimodality presents new challenges for both reporters and visual journalists who are being compelled to craft multimedia as part of their daily work.[38] For visual journalists, they consider both print visualization and digital versions, while different media impose revolutionary thinking on reporters' work.

Miila Kankaanranta, the visual journalist in LK, used to describe the plight she had come across in communication with reporters when making infographics from print to digital version. As introduced in the previous part, LK has joined LM and cooperated with journalists in different newsrooms from Western and Northern Finland. Therefore, Miila has created information graphics as exclusive quality content for its partner newspapers. What attracts attention here is that information graphics encompass different forms of information design, such as infographics that communicate complex ideas and data in a clear and beautiful way. On 26 February 2016, Miila talked with the corresponding reporters, with copies to the Internet producer from LK, Editor-in-Chief and another graphic designer from LM. In the email, she explained explicitly about the difference between print and digital infographics on the basis of her experiences as a visual journalist. Here is some extract from her email.

> The (info)graphics should be working in both platforms, print and digital. But the print graphics rarely work online with the same format, as we need to take the resolution into account. The (info)graphics usually contain text almost without any exception, in which cases readability becomes the most significant for visualization. Different newspapers have different criteria for the maximum image. It depends on whether the image is the main picture or not. As a result, graphics should be done in accordance with an acceptable pixel. Of course, it is another matter if only the graphics may enlarge by a further clicking or mouse-over.

For Miila, the visual transmediation from print to digital version became a challenge, and apparently, some reporters did not understand what the dilemma was to convert the print 'image' into a digital one. What was more was that they hoped the digital infographics worked in all media. The visual journalist, however, got the idea that infographics was not 'image' and visual transmediation in this case was never as easy as filling the image.

After the discussion with colleagues in February, Miila had another conversation with reporters. In March 2016, Miila needed to finish an infographic design of a plant to accompany the news texts. As she usually created the print version first, the reporter asked for a visual transformation for the website. The print item was a seven-column assembly (Figure 1), but there was not, in itself, even slight change (size, colour, etc.) to be applicable to the Internet. In the visual transformation, there should be some changes when the pixel width was fixed in digital visualization. As a result, the design in online version included both the plant's main photo in addition to two infographics (Figures 2–4).

The situation Miila described above is the image of what the visual journalist team faces in general, and how the communicative gaps are working in visual transmediation in

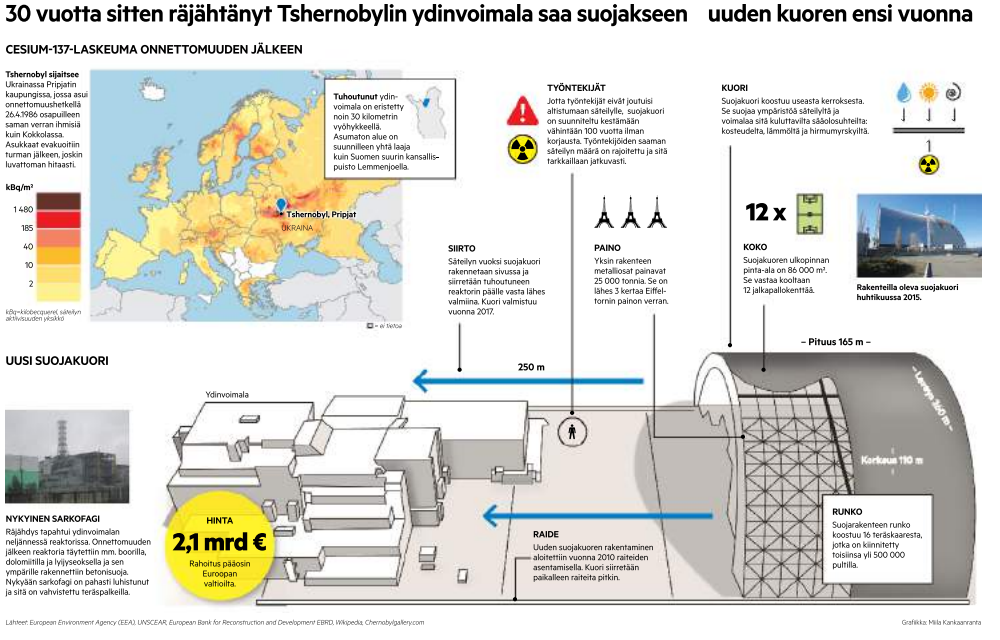

Figure 1. Seven-column assembly applied in Lapin Kansa's tabloid newspaper. Graphics: Miila Kankaanranta, used by permission.

Figure 2. Plant main photo used in LK's online version.

particular. Especially for a pre-stage converged newsroom, either LK or LM, the pressure is great to adapt new organizational culture as well as to produce integrated stories. As Brannon described her subjects: 'They felt the pressure of immediacy and often failed to take further

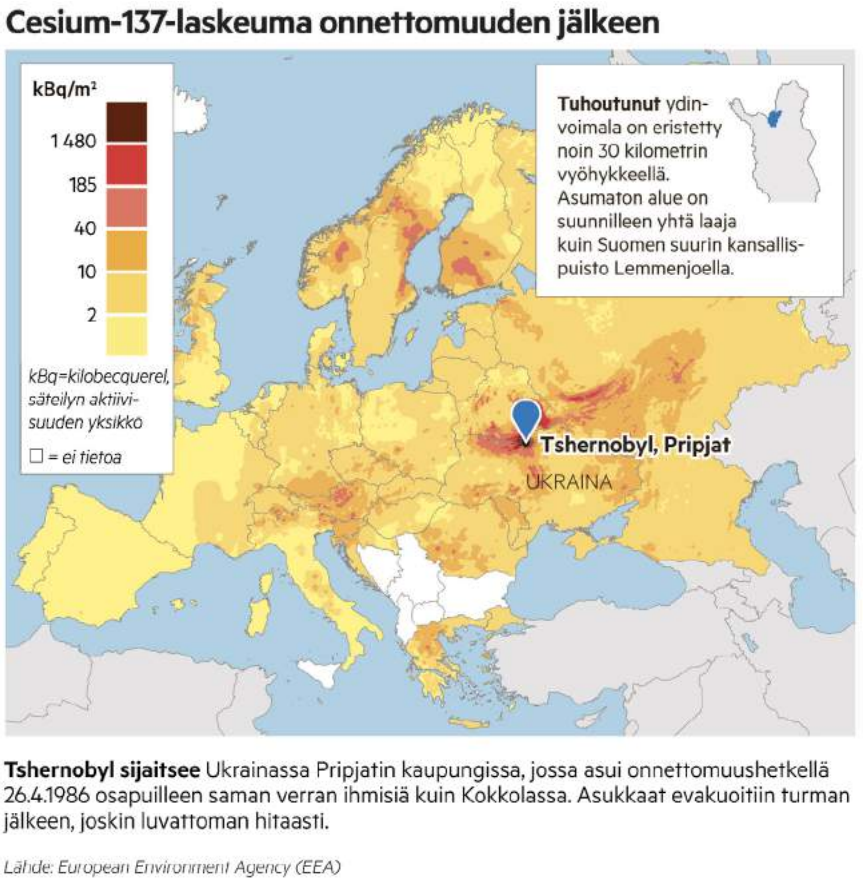

Figure 3. Infographics used in LK's online version. Graphics: Miila Kankaanranta, used by permission.

steps to develop content suitable or the medium'.[39] The production of LK's online, however, is highly influenced by the collaboration and co-involvement through multiple disciplines.[40] This means that the knowledge of immediacy and the communication between different desks are both dominant in the feature journalism. My concern is to go above revealing how the communicative gaps are brought about by the disciplinary distinction exercised in newsrooms. I realize that I need to consider this as systematic as possible, so as to avoid simply describing what communication tensions are.

Creative teamwork in multidisciplinary teams is a topic of interest to cognitive psychologists as well as social/organizational psychologists. For example, researchers have found that representational gaps in the multidisciplinary teams in the production process are more likely to spark conflict, on the social/organizational side.[41] Yet by diving beneath the surface features of the 'conflict' in the newsrooms, communicative gaps between journalists do exist, instead of representational difference as a major contribution towards unpacking the tensions.

Regardless of the amount and the ways to be embedded in the visual transmediation, complex graphic representations[42] (e.g. infographics consisting of data-rich, multipanel computer visualization) are resilient to the journalists' communication and application. The

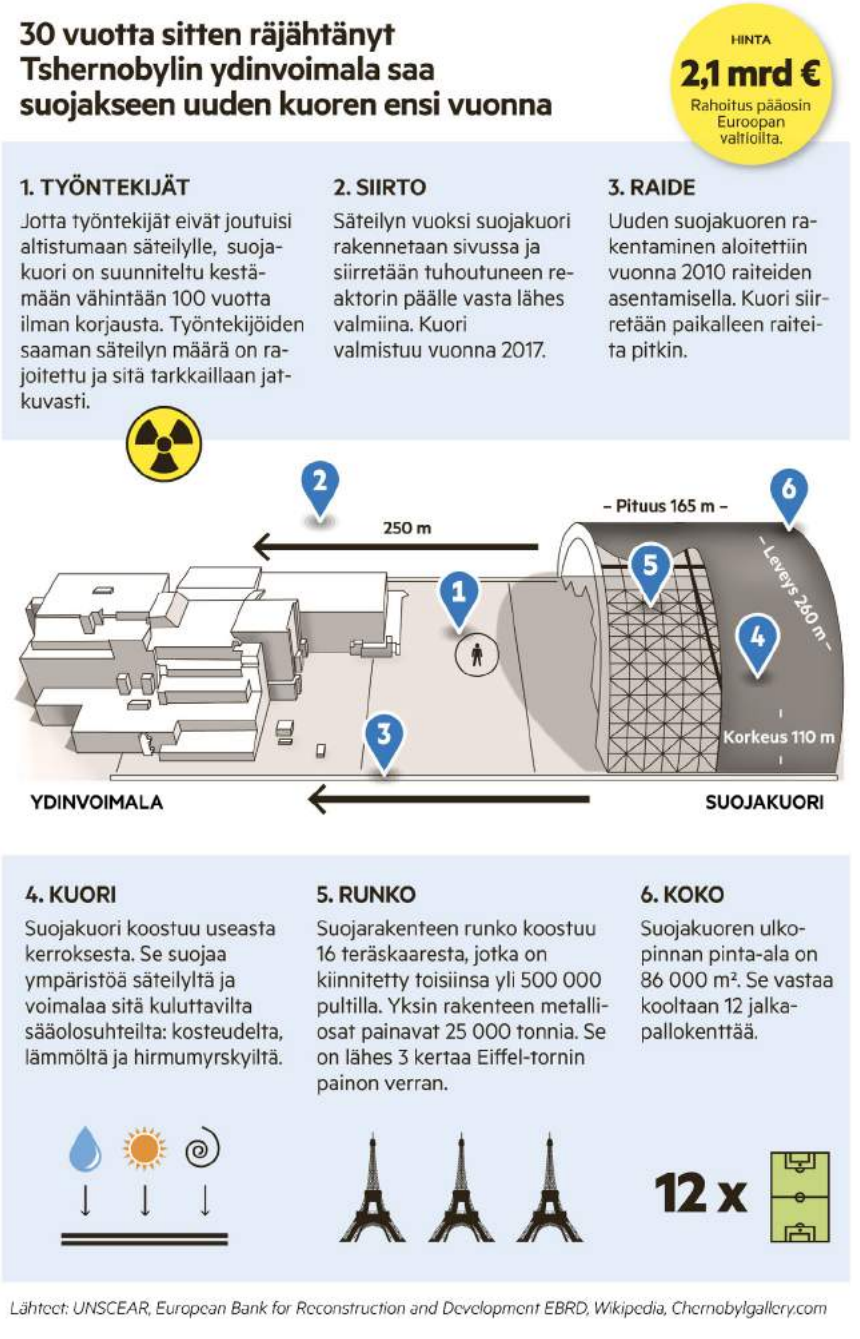

Figure 4. Infographics used in LK's online version. Graphics: Miila Kankaanranta, used by permission.

disciplinary separation has resulted in theoretical and empirical gaps in our understandings of communicative constructs. Given our analytic attention to knowledge diversity and performance,[43] the communication between visual journalists and reporters explains inconsistent link during the visual transmediation. The ideational diversity leads to different

performance in their practices. As Miila's communication implied, some reporters were in the middle of adapting the visual transmediation thinking in their own practices.

It is noteworthy here that this shows how important and valuable it is to be very specific about the particular responsibilities of professions being addressed. Otherwise, journalists are just cutting and pasting material from the traditional papers to a website according to some researchers, such as Barnhurst.[44] Reporters' ideational thinking about the visual transmediation has emerged from their experiences as the journalists who record and tell the truth by texts. Yet, dividing visual representations into the kinds of 'syntax'-like objects is generally doomed to failure, not alone multimedia thinking during the process. Therefore, such communicative gaps are, in short, created by nature and the 'gaps' between the reporters and visual journalists are dependent on the professionalism distinction. In other words, reporters and visual journalists have their own intentions, in which cases the different principles they hold lead to different representations. As we have seen from Miila's instance, this is precisely formed case-by-case following the principles in the specific organizational culture.

In addition to these kinds of thoughts about the communicative constructs, graphic redefinition influences the interpretation of information graphics as well. One of the first things I was made aware of upon entering HS Design Department was that the Web team was working in harmony with the content being created by the various news desks. This was most obvious in the fact that visual journalists were in charge of both infographics and data visualization. Although both of the designs communicate and analyse statistical data and complex information, infographics integrate multiple semiotic modes in a manner of composition, such as manipulating layout space.[45] Meanwhile, dynamic data visualization is 'more interactive, allowing viewers to explore, manipulate unedited data and discover their own story'.[46]

For a visual journalist working in a pre-stage converged newsroom, like Miila, it is a challenge to make both the print and digital graphics with exactly the same pictorial content. In most cases, the quality of the digital infographics invariably suffers, as the designer determines that the information is more important than the visual part, such as photo and illustration. It seems that the digital infographics are still subordinated to the print version due to the organizational resources, time frame and the like. But for a bigger Finnish newsroom, HS provides a more attentive visual manual for both the spatial layout and conceptual guidelines of the contents during the process of visual transmediation.

Since the visual journalists take various media into consideration and employ multiple practices to cover multifaceted media events, not every visual production is transmediable. The visual transformation depends on the news story, the photograph, the layout space, and even the visual journalist's style. Thus far, the majority of the graphic representation spreading across different media platforms is simply repurposed. The visual journalist from HS, Petri Salmén, had a clear idea to make the 'Stadin derby' infographics for both print and digital versions (Figure 5). Occupied half of the spread in the print version, the infographic featured a schematic chart that provides a general view of the two football teams, together with two eye-catchy football stars and their detailed career information. Meanwhile, in the digital version, the big silhouettes were removed due to the cramped layout plan. Essentially, what we have seen are two different kinds of infographics with similar diagrammatic elements – charts, numbers and colours. The difference between these two infographics serves

Print version

Digi version

Figure 5. 'Stadin derby' infographics with print and digital versions, published on April 23rd, 2015. Graphics: Petri Salmén, used by permission.

the broader goal of allowing viewers to access the schematic chart, but also performs some similar supportive clues for conceiving purpose.

In Petri's production process, it went smoothly during communication with reporters and layout designers, as the team members are familiar with the visual transmediation. Another reason of such successful communication went to the digital system where the practitioners, including reporters, visual journalists and layout designers, could share ideas and contents. With the improvement of content sharing, visual journalists thought more about the ideation and design, rather than communication with other collaborators. This is absolutely different situation compared to the past, as the visual journalists nowadays can see the planning earlier and obtain reporters' requirements in a better way than paper ordering. In this sense, technology eases the communication tensions. After all, visual transmediation in this case is not only about moving the graphic objects into a cramped layout, but the essence of transmedia storytelling as well. Exploring a better way, either in graphic redefinition or in technological enhancement, is one of the focal point of unpacking the communication tensions in newsrooms.

Conclusion

My ethnographic work took place in different newsroom cultures, which clearly shaped the dominant views and discourses from mainly visual journalists' perspective. Tensions between

word-people and picture people, have long presented in the newsroom. During communications with visual journalists, tensions are inflamed when deadlines and logics challenge professional identities. For the 'hard news' journalists, the main value of news, no matter in print or in digital format, is the provision of story ideas and sources,[47] while in-house visual journalists are driven largely by both functional and aesthetic values.[48].

As a researcher who pays much attention to visual journalists, it has been provocative to work with them for a period and get insights from their communications in the newsrooms. I realize that divergences from the norms have formed due to the communication tensions, and I may have missed these complexities if my research had focused only on one newsroom. It is clear that communication tensions in the visual transformation from paper to digital provide the grounds for contesting the professionalism of visual journalists' work. However, converged newsrooms, apparently, have been looking for a more economic and efficient way for reportage. It leads to a significant emphasis on digital news empowerment and collaborative journalism, as a way not only to connect geographically distant journalists in different newsrooms but also to provide a sense of organizational culture as one team.

Nowadays, HS has also launched an advanced system to upload digital news for facilitating the editorial workflow. Both reporters and visual journalists get a corresponding html code from the technical team, so that they can directly embed either texts or images into the website. One of the information designers told me that it took visual journalists some time to engage in the new system and enable authentic story-telling, whilst reporters took even longer time to learn the new system. The situation is understandable as reporters' workflow is completely different from the style when they started their career in journalism. In the varying environments, it is challenging to look beyond the changes happening in newsrooms. But for each of the journalists working inside and see the 'general picture', the dominant trends and attitudes are revealing collaboration both in team members and between different newsrooms.

Notes

1. Souza, "Investigating Design Thinking," 1.
2. Bowen, Bowers and Wright, "The Value of Designer's Creative Practice," 175.
3. Cummings, "Knowledge Sharing," 356.
4. Deuze, *Media Work*, 42.
5. Xenakis and Arnellos, "Interaction Aesthetics and Affordances," 57–58.
6. Deuze, *Media Work*, 13.
7. Wilson, *Understanding Journalism,* 28.
8. Lehtisaari et al., *Media Convergence and Business Models*, 5.
9. Caple, *Photojournalism,* 142–73.
10. Kress and van Leeuwen, *Reading Images*, 183–6.
11. Ibid., 25–27.
12. Macken-Horarik, "Interacting with the Multimodal Text," 6.
13. Johnson, "Dewey's Bit Idea," 39.
14. Kress and van Leeuwen, *Multimodal Discourse,* 67.
15. Beck, *New World of Work*, 73–76.
16. Nonaka, "Organizational Knowledge Creation," 15.
17. Moen, *Newspaper Layout and Design*, 136.
18. Kress and van Leeuwen, *Multimodal Discourse,* 66.
19. Mitchelstein and Boczkowski, "Between Tradition and Change," 576.
20. Bowen, Bowers and Wright, "The Value of Designer's Creative Practice," 191–192.

21. Lawson, *How Designers Think,* 14–19; Johansson-Sköldberg, Woodilla, and Çetinkaya, "Design Thinking," 125–126.
22. Krippendorff, *The Semantic Turn*, 23–24.
23. Wylant, "Design Thinking," 228.
24. Paletz, Schunn, and Kim, "Conflict and Analogy," 1.
25. See note 12.
26. Christensen and Ball, "Dimensions of Creative Evaluation," 118.
27. Kress and van Leeuwen, *Reading Images*, 60–62; Caple, "Intermodal Relations," 125.
28. Nelson and Stolterman, *The Design Way,* 139–149.
29. Casakin and Kreitler, "Correspondences and Divergences," 668–669.
30. Kress, "Rhetorical Work," 141–142.
31. Kress and van Leeuwen, *Reading Images*, 79–86; Caple, "Intermodal Relations," 132.
32. Mullick et al., "The Basics of Ethnography," 894.
33. Crowley-Henry, "Ethnography," 38.
34. Hughes, "The Place of Field Work," iii.
35. Zha, "The Role of a Visualist," Chap. 3.
36. Gay y Blasco and Wardle, *How to Read Ethnography*, 1.
37. Ireland, "Qualitative Methods," 26.
38. Brannon, "Maximize the Medium," 100.
39. Brannon, "Maximize the Medium," 106.
40. Zha, "The Role of a Visualist," Chap. 2.
41. Paletz, Schunn, and Kim, "Conflict and Analogy," 2; Pelled, Eisenhardt and Xin, "Exploring the Black Box," 20–22.
42. von Engelhardt, "Graphic Objects," 23.
43. van Knippenberg, De Dreu and Homan, "Working Group Diversity," 1013–1015.
44. Barnhurst, "Newspapers Experiment Online," 5.
45. Bateman, Wildfeuer and Hiippala, *Multimodality,* 263.
46. Schwalbe, "Infographics and Interactivity," 432.
47. Williams, Jorgensen and Wardle, "A Multi-site Ethnography," 117.
48. See note 26.

Acknowledgements

The author thanks the visual journalists in Design Department of Helsingin Sanomat and Lapin Kansa for their support on the ethnographic research in this article.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This work was supported by Rector Grants by University of Lapland, Finland; and a State Scholarship Fund organized by the China Scholarship Council (CSC), which is a non-profit institution affiliated with the Ministry of Education of the PRC.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 183–202
https://doi.org/10.1080/20557132.2017.1398926

Routledge
Taylor & Francis Group

The graphic design workforce in Ghana: a case study of Asafo, Kumasi

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ABSTRACT

This article describes a qualitative case study of the graphic design workforce of non-formally trained graphic designers (NFTGD) on the graphic design industry in Asafo, Kumasi. Non-formal, in this case, means non-experts or non-professionals in the field of graphic design. The data collected from respondents were Ghanaians working professionally as graphic designers in Asafo, Kumasi. Ten participants were interviewed on the subject of graphic design. Based on these interviews, common themes such as, production, training of the designer, client relationships, and end-user themes emerge. The results show that NFTGDs now constitute about 82% of the graphic design workforce in Asafo. The results further suggest that the influence of these designers on the design industry at Asafo, Kumasi is due to cheap and affordable pricing, which has resulted in a shift toward an increased client-base for non-formally trained designers. In responses, this creates opportunities for graphic design education to focus on enhancing the abilities of the participants. The study's findings suggest that the high speed of working, in combination with very limited resources to develop new designs are the cause of copyright related issues. 'Borrowing inspiration' from internet resources needs to be addressed by both practice and education.

ARTICLE HISTORY
Received 13 April 2017
Accepted 14 October 2017

KEYWORDS
Graphic design; Asafo; Ghana; design education

Introduction: activities of non-formally trained graphic designers in Asafo, Kumasi

John McWade is a graphic designer, author and publisher of Before & After magazine. In one of his design videos titled: *Before & After: Things Every Designer Should Know,* McWade[1] says:

> Design is everywhere. From the time, you get up in the morning until you walk out the door, you have encountered a hundred designs, and maybe a thousand. From the logo on your alarm clock, to the label on your toothpaste tube, to the story on your cereal box, books, magazines, newspapers, your iPad, the internet.

A recent study by Ezio Manzini, an Italian design researcher, writer and educator has been carried out on "Design in a connected world" in 2014. Manzini[2] has categorized design into two modes, either *conventional or design mode*. The former, has accepted the normal or usual

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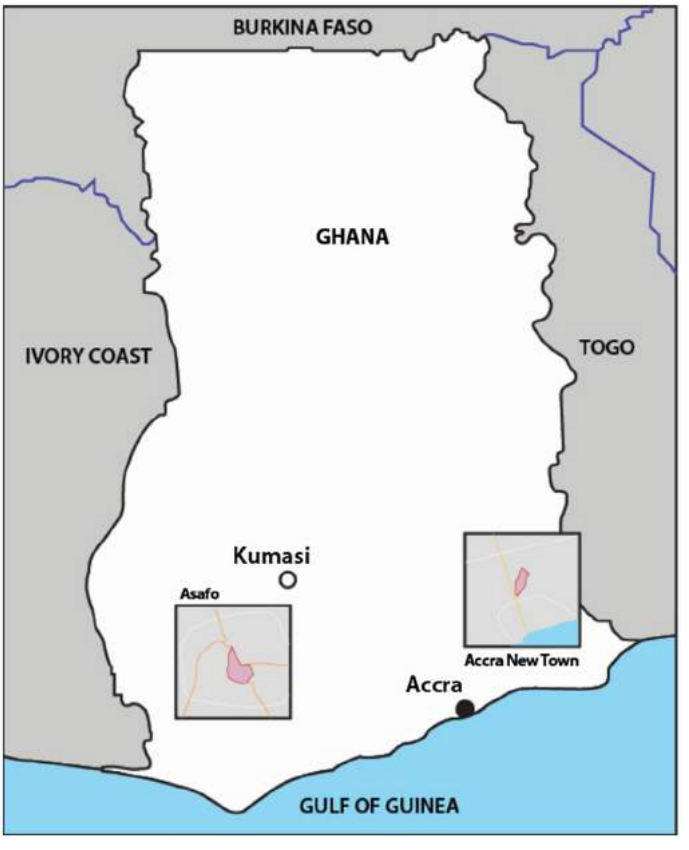
way of doing things, whereas the latter is a combination of three human gifts involving critical sense, creativity, and practical sense. Moreover, Manzini[3] explains: the *conventional mode* is guided by tradition in what we do, how we do it and why we do it. This could be applied to social conventions which affect those interested in an activity. *Design mode*, on the other hand, may embrace the possibility of creating something that is not there, but could have been there.[4] This is why Manzini thinks that everyone has been given some ability to design but not everyone will be a competent designer or even a professional designer. This thought of Manzini[5] known as 'expert design and diffuse design', is similar to what pertains to the graphic design industry in Ghana. Diffuse design is linked to non-experts having natural design ability, whereas expert design, comprises people trained to work competently as designers, presenting themselves as design professionals.[6]

The late Gabriel Kofi Kondoh, was a graphic design lecturer at the Department of Communication Design, KNUST, Kumasi, Ghana. Kondoh[7] provides a classic explanation of the graphic design industry in general. This description could be seen in the way graphic design businesses are operated in Ghana. He describes it as unique industry, having a variety of business enterprises linked to it. Kondoh observes:

> Graphic Arts is a means of communication which … give information by means of images printed on surfaces. It employs … tools and methods in producing professional graphic arts products. The main purpose … is to create products that communicate visually. This includes education, information and entertainment. The Graphic Arts industry also makes products that serve as supports and receptacle, such as paper bag, kitchen towels, paper and bottles. … Therefore, an industry that produces visual images that communicates is one that has a strong influence on society. For instance, our culture relies greatly on Graphic Arts products. A visit to the newsstand and bookshops will confirm the extent of this influence. Graphic Arts exist wherever there is civilisation. Day to day activities involve all kinds of graphic materials and activities such as magazines, clothes, labels and advertisement.[8]

Kondoh's[9] description on the industry indicates the extent to which the Graphic Arts industry is impacting greatly on society and its influence by what people perceive with their eyes. In addition, this description of the Graphic Arts industry is synonymous to the graphic design industry because similar activities are handled by some graphic designers. However, an Associate Professor of Visual Communication, Keith Tam, at the Hong Kong Polytechnic University is of the view that a broader term under which Graphic Design fits is Visual Communication or Communication Design. This point was emphasized by Tam[10] in his presentation on "How does visual communication work?" to his students at the Hong Kong Polytechnic University in China.

Although Ghana thrives with numerous graphic design studios across the nation, there are two key places which comes to mind when one wants to get a quick design service rendered at a relatively low fee as compared with design firms which charges high as a result of the quality of their designs and as well as their quality prints at the end of their design process. However, in Accra New Town (in Accra) and Asafo (in Kumasi) especially, these design studios are largely concentrated within about 50 metres range (thus in the Greater Accra and Ashanti regions respectively).[11]



However, at Asafo, design firms are adjacent or opposite to their competitors as well as to printing firms, book binding shops, and stationery shops. Asafo, for that reason, is considered mainly as the heart of the graphic design industry in Kumasi with a majority of their services being printing (offset or digital printing).

Anecdotal evidence and careful observations by the authors suggest that these designers are contributing to the graphic design industry at Asafo, Kumasi.[12] However, there is little information about their extent of influence and the commercial feasibility of their businesses.

The numbers of these design studios and its designers are unknown due to their multiplicity in aforementioned localities. Ellen Lupton is graphic designer, writer, curator, and educator, and Jennifer Cole Phillips is a designer, educator, and author. They[13] attribute this to universal access to image editing and design software, which has created the opportunity for those not in the profession of graphic design to practice as such.

Available literature supporting the services of non-formally trained graphic designers (NFTGD) is limited, but Robin Patricia Williams, an American educator and graphic designer; the author of the *Non-Designers Design Book*, provides an indepth of the main principles needed in every successful design piece. Williams'[14] extensive work on '*non-designers*' points out four design principles which should be fundamental in every successful design outcome. The principles are: contrast, repetition, alignment, and proximity which are frequently

abbreviated ironically as CRAP. To support Williams[15] point, expert designers take into consideration these principles, thereby making their graphics communicate effectively.

The purpose of this article is to explore the activities of NFTGDs in Asafo, Kumasi. I ask the questions:

1. *How do NFTGDs provide their services?*
2. *What competences are required of NFTGDs in pre-production as it relates to the ideation process?*
3. *How do NFTGDs perceive client management and client satisfaction?*

Method

The research was divided into two steps, namely: the data collection process and the data analysis process.

The first step aimed to determine the number of graphic design firms in Asafo, Kumasi. The researcher went into the field and counted the number of design firms visible in the vicinity. The number of design firms were over 50. This made it possible to determine the number of NFTGDs in the locality as opposed to those who are formally trained graphic designers (FTGD). The number of graphic design firms in the vicinity was determined using a similar method adopted by Karel van der Waarde, a graphic design researcher based in Belgium. van der Waarde[16] investigated the number of firms in Breda, a small city in the Netherlands. He[17] says he initially made a list of design firms provided via websites, phone directories, Yellow Pages and so on, and found over 100 design studios in a city of 140,000 people.[18]

In a similar vein, the population for NFTGDs in Asafo was initially unknown. However, an indicator of their number was determined in the field through interactions with graphic designers in the vicinity, and also by counting the number of design firms visible along the streets of Asafo, Kumasi. The number of designers as at the time of the study is estimated to number 49 *NFTGD* and 11 *FTGD*.[19]

The second step consisted of 10 qualitative interviews comprised of nine males and one female. A snowball sampling technique was employed for this step. Snowball sampling refers to a sampling technique where, after a participant had been interviewed, he or she recommends others who should also be interviewed because of the knowledge they have on the subject of the research.[20] Jack R. Fraenkel is a Professor of Interdisciplinary Studies in Education and Norman E. Wallen is Professor Emeritus of Interdisciplinary Studies in Education. This choice of collecting qualitative interview data from participants was necessary to provide an in-depth understanding on the subject rather than providing a generalized view; hence, an interpretive approach was suitable to reflect the phenomenon under study. The study was related to a social phenomenon (the sites used by NFTGDs) in their natural environments. Respondents which included designers, printers, managers, and owners, were interviewed rather than the designed objects they produced. In these interviews, the respondents were taking a position in order for the author to understand their social world, and their point of view as designers.

The disadvantage of using this technique is that participants recommend people who share a similar view on the subject, which could potentially weaken the richness of the responses to the questions posed by the researcher.

Additionally, a snowball sampling method was adopted because it required no special qualities on the part of the respondents, which made no one respondent more preferable than the other. The sample size of the respondents was determined as a result of reaching the saturation point. A saturation point is the state where one feels data collected via interviews with participants are almost similar to responses from other participants. The author realized that the responses of the designers were very similar, so based on the experience of his supervisors and upon consultation with them, he decided to end the interviews after interviewing 10 designers. The interview protocol consisted of a list of a semi-structured questionnaire pertaining to the services of NFTGDs in Asafo, Kumasi.

This study also captured data from FTGDs within selected graphic design studios in Asafo, Kumasi in the Ashanti Region of Ghana. The design studios the researcher was able to count in the geographical region numbered over 50. Participants for the study worked for design firms or studios as printers, designers, apprentices, managers or owners. Amongst them, the researcher considered their employers to be beneficial to the discussions of the study. Moreover, permission was sought from employers and in cases where employers were unavailable, permission was sought from their managers. The choice of NFTGDs was appropriate because at Asafo, several graphic design firms have been established. However, the questions posed to these participants did not require any specific expertise on the part of the participants in order to answer the interview questions. It is noteworthy that the graphic designers sampled worked under supervision of professionals and identified themselves as 'graphic designers'.

Typically, the data for the study was collected using structured questions. The same set of questions were asked of all participants in an interview format.

The interview questions were as follows:

1. What is your occupation in the company?
2. How did you obtain your training? What is your educational background?
3. What is your production process?
4. What are the activities that go on daily in the company?
5. Can you estimate the quantity of jobs done in a year?
6. What makes you different from other graphic design firms?
7. How competent do you think you are in the services you provide for clients? Explain with examples.
8. Can you explain in detail the processes involved in a project, e.g. funeral programme, wedding programme, etc. with respect to:
   a. Problem; b. Ideation; c. Selection; d. Presentation/Delivery; e. Estimation; f. Costing
9. What are the reasons behind your competitiveness in the graphic design business?
10. Who are your target group?
11. What challenges do you face in your graphic design business?

Interviews with participants were conducted by the author for five days between 9 and 23 May, 2014. Some respondents were interviewed in the morning; others arranged for the interview to be conducted in the afternoon. Each interview required a face-to-face interaction with a participant on the activities of NFTGDs that makes them competitive in the graphic design industry at Asafo, Kumasi. The interview setting was arranged in an informal manner where the author made use of the participants non-working hours available during the working week.

All research work required that ethical issues be given due consideration, and this study complied. The author obtained a permission letter to enable easy access to participants. That letter served as consent for the participants to freely participate in the study. The letter detailed the purpose and the reason for the study.

Upon arriving at the field, the participants consent was sought from their immediate supervisors and further explanations were given as to whom could partake in the study. Graphic designers who served as employees of the firms were informed that, this study was solely for academic purposes, and hence, the information given would be treated as confidential.

Moreover, respondents were assured that confidentiality would be adhered to in the study; hence in the final submission of the document, their identities would be concealed. Each interview with the respondents lasted about 21 minutes on average.

From the beginning of this study, the research question has been: "What are the activities of NFTGDs that make them competitive in the design industry within the Kumasi Metropolis?" The next section looks at the results and discussions of the findings for the study.

Results

Respondents' demography

Table 1 shows some details of the respondents' demography. Pseudonyms are used to protect the identities of the respondents.

The ages of respondents range from 25 to 32 years. The implication is that many young people are in the field of graphic design. There are older people working in the field but due to the sampling approach used, respondents referred the researcher to colleagues of similar age ranges who could participate in this study. Furthermore, the table shows that the graphic design profession is male dominated. A critical look at the same table shows that the educational level of respondents range from people with Junior High School certificates to bachelor's degrees. However, it is important to note that those with degrees were not degrees in the field of graphic design.

Results of the interviews

Results from the study are categorized and interpreted based on emerging themes. The themes are connected with a similar study conducted in Canada by Karen Hodgson (2010),

Table 1. Respondents' demography on NFTGD.

Pseudonyms	Age (years)	Sex	Educational Level
Joejo	28	Male	SSSCE
Fiifi	30	Male	HND
Akwasi (Akwasi)	28	Male	HND
Kwame (Kwame)	32	Male	Degree
Kofi	25	Male	SHS
Jeff	32	Male	JHS
Simon	30	Male	HND
Yaw	33	Male	SSSCE
Mike	30	Male	Degree
Aba	32	Female	JHS

Notes: HND – Higher National Diploma; SSSCE – Senior Secondary School Certificate Examination; SHS – Senior High School; JHS – Junior High School.

Table 2. Analysis from participants' responses.

Labels	Minor Themes	Major Themes
Work, junior high school, senior high school, computer school, tertiary education, occupation, very competent	Educational level Formal and informal training Competence level	Training of the designer
Artworks, problem, ideation, selection, presentation/ delivery, estimation, costing, job quantity	Design process Production process Activities and estimates number of Jobs	Production
Services rendered, design, loss of unsaved artworks, undercutting prices, inability to spot errors, light out, buying of fuel, machine breaks down	Design competition Target group Client satisfaction Challenges facing design studios	Client relationship and end user

a professor of graphic design at the Vancouver Island University, titled Graphic Design Practice: Business Survival Skills and Behaviours. The interview transcripts were developed into codes in order to identify specific pieces of data corresponding to different themes. These codes for analysis were later grouped into labels, then further grouped into minor themes and finally, assembled into major themes.[21]

The themes were discussed based on the link it had with the various labels and minor themes in the transcriptions and its relation to various theories, concepts, or similar studies conducted elsewhere by other researchers. Table 2 presents the findings in three major themes and their respective minor themes.

Below are the discussions of the findings, which begin with a major theme and then proceeds to the minor themes. The first major theme to consider is: 'Training of the Designer'.

Training of the designer

Under the first theme of Educational Level, the researcher identified that all 10 participants have had some level of education, thus, either junior high school level or tertiary level. Michael Erlhoff is a German design expert, art theoretician and author, whiles Timothy Marshall is a design researcher and design educator. They[22] comment that design education is important and could be acquired through many levels, either from senior high school, universities or organizations that train designers in the field of graphic design.

One participant, Kofi stated that he 'read visual arts at the senior high school'. Another designer (Aba) explained she 'went to a graphic design school for a year and then worked with the firm she is currently in'. Other designers, like Simon and Fiifi, said they had read graphic design and art respectively from polytechnics that they had attended. Mike, Kwame and Akwasi said they have bachelor's degrees but not in the field of art. Sheldon= thinks that:

> Employers expect graphic designers and graphic artist to be familiar and proficient with computer graphics and design software. Graphic designers must continually keep up to date with the latest development of updated software, usually either on their own or through software training programs.[23]

In addition to training and education, the author agrees with the view of George Sheldon, who is an American freelance writer, journalist and author, on the notion that graphic designers must be creative in their ability to communicate ideas in visuals, or by verbal means and

also in writing.[24] Shel Perkins is a graphic designer, management consultant, and educator. Perkins[25] says that there are five essential skills that every professional designer should possess namely talent, methodology, technical skills, people skills and business skills.

The following were the three minor themes from the findings. The first minor theme to consider for discussion is respondent's educational level.

a) Educational level

All participants were educated to an extent, some having had education up to, at least junior high school, as in the case of an interviewee (Jeff) who said, 'I had my education up to Junior High School' and at most a tertiary degree in the case Kwame (an interviewee) who claims he has 'a degree in Information Technology (IT)'. Three respondents are Higher National Diploma (HND) holders, another three are Senior Secondary School Certificate Examination (SSSCE) graduates. Two respondents are degree holders and another two are JHS graduates. Eight respondents had education up to the SHS level and then started practicing as Graphic Designers.

b) Formal and informal training

Eight respondents are NFTGD and two are FTGDs. One participant (Joejo) mentioned that he has been to 'Kessben Computer School'. This school does not exist now upon a further revelation by the interviewee. Aba said she 'attended a graphic design school for a year …' Furthermore, another participant said he 'learnt design at IPMC by pursuing Desktop Publishing'. For this study's sample, the number of non-formally trained was substantially larger than the formally trained sample. The views expressed by each designer indicate that education helps considerably since whatever that the designer must communicate to the public must first be understood by the designer. For instance, when a designer is asked to design a poster for a religious activity, he or she should understand what a poster is and be able to communicate the required details to the client who will in turn give the necessary details appropriate for the poster design. In another example, when a designer is asked to design an envelope, he or she knows that the format for an envelope is landscape, so he ensures that the design is executed in that format.

c) Competence level

Competence is one of the key traits in any field; and for a profession that demands a lot of skills working collaboratively to achieve a specific goal, it is important that the NFTGD must be competent in all his or her dealings whether with clients or in the execution of his or her creative design works. One of the designers (Akwasi) said, 'we will satisfy your design needs once you come here for our services'. Another designer, who was named Kwame, also said

> I am very competent and the time I give to my client, I am able to meet that deadline. Even if there is a light out, I take the job home and work on my laptop to meet that deadline.

Kofi stated, 'for some customers, if I am not present in the firm, the customer will wait for me to come to work …' One other participant, Simon, said 'when it comes to design … anything about design, I am able to do it'.

Figures 1–7 provide some examples of visual design by NFTGDs in Asafo, Kumasi.

Figure 1. Sticker design for "NANA ERNEST COMPANY" (Artwork: Kofi, 2014).

Figure 2. Banner design for J Doll Make Up (Artwork: Akwasi, 2014).

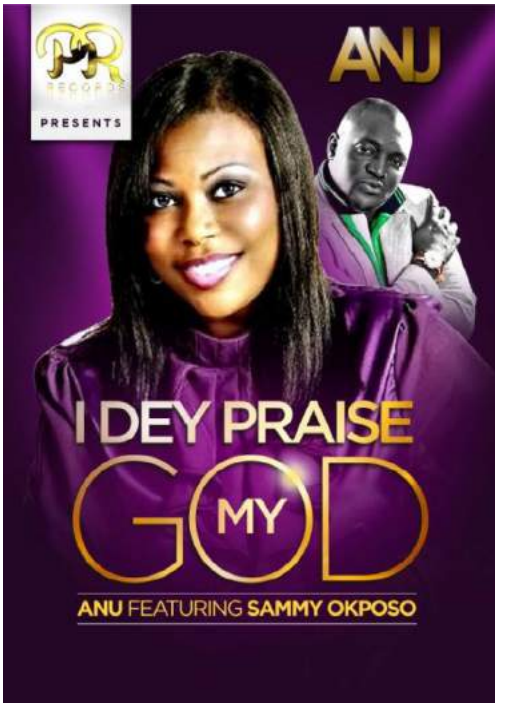


Figure 3. Poster design for I DEY PRAISE MY GOD (Artwork: Mike, 2014).

Figure 4. One Week Observation Poster (Artwork: Yaw, 2014).

Figure 5. Banner design for Young People's Week (Artwork: Kofi, 2014).

Production

Production is defined as turning a design into a finished piece of work, through a number of processes, for example 'selecting the print method to be used, preparing the artwork for print and selecting the stock that is to be printed on ….'[26] A number of participants (during the interview sessions) had varied opinions about how the production process is carried out within their firm. One of the participants (Jeff) explained, 'the client brings the information and then I picture how the artwork will be produced with respect to the placement of images and text'. Mike, another participant said, 'from the design stage, the artwork goes to separation room where the artwork is transferred unto a film with the help of an image setter'.

Figure 6. Poster for God's Fire International Ministry (Artwork: Akwasi, 2014).

Mike continued, 'plate-making is the next stage, and then the other processes continue'. Aba also suggested, 'if it is a poster, the arrangement of text must be considered and the photographs must also be placed at their appropriate places based on the layout'. With regards to the design process, the responses of participants varied from one firm to another. Concerning estimates on the number of jobs completed in one year, Kwame had this to say: '… it will be more than 1000 works in a year'.

Most designers were rather able to tell the number of works completed in a day. One participant (Fiifi) said, 'on a daily basis, we are fifteen designers and each designer can do at least fifteen works'. But another participant (Joejo), in the same firm said, 'we can render design services to almost 100 customers a day. We are fifteen designers working here'.

Information on activities that goes on in the firm includes 'funeral programmes' as stated by one of the participants, (Joejo); Fiifi said, 'Poster designs, banner designs, billboard designs, etc.' includes the activities that go on in the firm he is employed in. Simon, another participant said, 'we do a lot of works … we do Identity Cards (ID), name tags, t-shirt printing, cup printing, laminations, and anything that has to do with digital printing'.

a) Design process

On issues pertaining to the design process, several of the participants were able to give tangible reasons to justify the process that they go through. Concerning the problem stage, one designer (Aba) has this to say, '… go through the text to ensure I can read

Figure 7. Poster for Unique Qaan Enterprise (Artwork: Akwasi, 2014).

everything and minimise the errors'. Another designer (Fiifi) said, 'when the work is brought, the designer must sit down and analyse the work'. Akwasi, another participant attested to the fact that, 'we type the script and make the corrections, then creativity starts'.

In relation to how ideation is carried out by the NFTGDs, Simon states 'I may pick up an idea from the internet or as I walk down the road …'. Aba expresses that 'designers may pick ideas from other designs'. Akwasi comments that: 'For the designs, the ideas are in our head but if something is not clear, we visit the internet for clarification.'

Regarding how selection is done, various NFTGDs had mixed opinions. One respondent (Akwasi) said, '[because of] the time factor, we do not execute many design options for the client'. Another respondent (Jeff) has this to say,

> I design one artwork for my client if I have limited time, but when there is ample time, either two or three design options are presented, with each background being on a different layer, so that I can show and hide one background layer after the other.

Simon thinks that: 'Selection is based on the kind of work. Maybe when I am designing a banner for a church, I must determine what goes into the banner design. Certain images used in the artwork will speak for what it stands for.'

With presentation and delivery, the NFTGDs expressed various ways in which their clients are presented with the works that they execute. One of such ways is what Simon

summarizes as 'upon completing the design stage for a project, the client is called to view the final artwork, and tell us if it's okay.' Yaw on the other hand, expressed a similar view by saying 'I usually print three designs on an A4 sheet and present them to the client for selection and approval before the final artwork is printed and delivered to him.'

Mike also stresses that 'I print a black and white version of the artwork for the client to go through it and see if there are any errors in the artwork. After that, the final artwork is printed and submitted to the client.' In relation to costing and pricing, Akwasi says 'one worker… does the estimation.' 'That same worker does the costing,' he adds. Similarly, Joejo says, 'Estimation … over here, the customers already know the cost. The prices are displayed for all customers to see.'

b) Production process

Production processes form a part of the bigger umbrella under which the design process is found. Respondents attest that production is a major intention of every design, be it poster, banner, funeral programme and many others. Joejo says a 'customer comes to the firm … the artwork is designed … delivered to the customer'. Another remark about their production process: '… we have some customers who bring us design jobs. At other times, we go out to gather the jobs from the customers ourselves'. Furthermore, another designer (Kofi) says '… when the client brings the work and I read through the information given to me, I sit down and think about the design in my mind and the task accompanying it'. This could imply that their designs may be viewed as intellectually tasked activity.

c) Activities and estimates of number of jobs

The question regarding the activities that go on in the company were answered by most participants. One designer (Fiifi) said, 'Poster designs, banner designs, billboard designs …' Another designer (Joejo) from the same firm also said, 'we can get funeral programmes for the whole week'. Jeff, another interviewee, also said, 'we have some works which we do. Someone may bring us a designed job to print.' Yaw, another participant, has this to say, 'we do a lot of works over here, like poster designs and invitation cards'. With the estimate number of jobs done in a year, most participants could not give the number of jobs done with the exception of one designer (Kwame), who said 'Oh … it will be more than one thousand works in a year.' The statement by this participant (Kwame), suggests that some of these NFTGD do not keep records of such details in mind, hence a speculative figure is given.

Client relationship and the end-user

John Shaver is a graphic designer in the US. A good client relationship is part of what all successful graphic designers do by educating the client about what happens in the design industry.[27] He[28] advises designers, 'Working with clients is a joint effort, so don't just do things because they ask or tell you to. You are the expert in your field, so if something they are requesting is not making sense, let them know.'

Design is solely targeted to the end-user and must satisfy both the requirement agreed upon by the design brief, from the discussions with the client, and must satisfy also the needs

of the intended audience (target group). This attitude must be emulated by the NFTGDs to be successful in their relationship with their clients. One of the participants (Simon) reflected:

> Upon completing the design stage for a project, the client is called to view the final artwork, and tell us if it's okay. Certain parts or details which the client may not understand are clarified by the designer before the printing is done.

Concerning the target group of the designers, almost each participant had something to say about them. One of the interviewees (Joejo) said something very interesting that 'printers without designing section also come to us to design for their clients'. With reference to how customers are satisfied, Mike (a participant) said, 'My customers trust me and that is why they keep coming to me for graphic design projects.' Akwasi, another interviewee added: 'Let us say you are a customer … we will satisfy your design needs once you come here for our services.'

a) Design competition should not lead to lower prices

Competition amongst designers should be healthy, but Akwasi protests: '… in terms of pricing, when all design and printing firms have agreed upon a fixed fee for a graphic design-related service, one firm may decide to charge lower than the current agreed fee, by other design firms'. Joejo claims that, 'Excellent work' is the reason behind their competitiveness. Fiifi adds that, '… how we talk to our customers and interacts with the customers is crucial. … In everything, the costumer comes first'' A respondent, Mike, when asked about the reason behind their competitiveness express that: 'we have laid down rules to help us meet the target for the month or the year'. Additionally, Simon believes that 'how dedicated he is to his work makes him unique from … [other] designers'. Simon further adds that he is 'always changing what [he] does' and also 'add new dimensions to my graphic designs'. These views from Simon seems to suggest that he keeps improving upon what he has already created when executing another project.

To conclude, NFTGDs should embrace healthy design competition among their competitors. Because some of their competitors undercut prices, others have developed a strategy of not charging for design at all, but rather factor that into the printing cost without the client's knowledge. It is worth noting that clients who do not make requests for printing services, may need to see design firms that do designs without printing the final artwork at a lower fee or slightly above the normal (GHS 5.00 is approximately 1.26 USD/ 1.13 euro [December 2016]) fee.

b) Target group

Joejo testifies that '... a lot of our customers come from outside with jobs to be executed for their customers. Printers without designing section also come to us to design for their clients'. Joejo further adds that 'We usually cherish our customers''' Simon states that 'we work for some government workers …'. Mike indicates that 'Companies into movie posters production and hospital staff are among the clients we usually render services for.' Kofi adds that '… we work for everyone … big companies and building contractors …'. Jeff proclaims they work '… for companies and individual clients'.

c) Client satisfaction

FTGDs can understudy the customer relations techniques adopted by NFTGDs by factoring their design cost into the printing cost for the total price of a particular design service. One respondent, Kwame, adds that 'he is able to meet his client's deadlines and

even when there is a black out, he takes the work home to complete it'. For that reason, he sees himself as competent. It is clear, giving the sheer volume of clients, that NFTGDs attract more clients per day. It is significant that these clients come from diverse backgrounds with varying financial fortunes. As such, what FTGDs might do is to relate in a friendlier way to their clients, knowing that without clients, their business will not survive. According to designer David Airey, 'a man without a smiling face must not open a shop'.[29]

d) Challenges facing design studios

For the question on challenges, eight respondents did not accept that intermittent supply of electricity was a challenge, but some, like Jeff and Fiifi, openly admitted that 'it is a challenge to us'. Four respondents said, 'machine maintenance is a challenge'. Another three respondents said their inability to spot typographical errors is a challenge. Also, two complained about undercutting of prices. Two respondents claimed to charge extra fees when there is power outage. Buying of fuel to fire plants is also another challenge of which two respondents said they cannot transfer the cost unto clients. These challenges infer that the graphic design industry in Asafo has its own difficulties.

Discussion of the findings

The summary discloses the influence that NFTGDs have on the graphic design industry. Most activities are based on contractual agreement between the client and the design firm. However, individuals may also contract the design firm for a design service. This implies that any time a contract comes to the company, designers are busily working on the design phase of the project.

Two respondents acknowledge that they get referrals to do work for other clients. However, the fact that the remaining nine participants do not mention in the interview that they get others being referred to their studios as a result of their designs does not mean that they do not get referrals.

These referrals imply that, NFTGDs usually get the chance to work on numerous projects. This evidence supports the idea that, the quality of the services carried out by these designers, may be sub-standard as compared to their counterpart, the formally trained designers. This attitude of some NFTGDs is what Perkins[30] describes as trade-offs for the client being 'fast, cheap, good – pick two'.

Visual examples are picked from the internet and tweaked. Other times, respondents work on templates for use in their future artwork during their spare time. For selection, it is either the client's choice or designer's choice which wins. This is sometimes due to the client's background or the kind of work the target group undertakes. In contrast, the attitude of taking ideas or images from the internet could mean closure of the design firm as this is a serious legal offence. Eileen MacAvery Kane is an art educator, design and photographer and she thinks that breaching copyright law results in legal consequences.[31]

Presentation and estimation

Presentation and delivery is the very last stage in the process for NFTGD. NFTGDs do their best in how they present their works to clients to avoid major typographical errors. But if a typographic error occurs as a result of a grammatical error or incorrect spelling on the part

of a designer, that work could be refused by a client or perhaps the design firm may be silent on it realizing the error, unless the client is quick to point it out to the firm that this sentence or that word has an error in its construction. In a firm where the owner, manager or designer is a well-educated person who can read, write and spot typos in written works, the situation could be averted due to the number of revisions and proofreadings' undertaken by the firm in ensuring that the text is clean and free of errors.

Costing estimations are done by personnel of the firm or the manager. This shows that once a client approaches the firm, one of the staff may need to be available to offer assistance to clients in need of estimates. Costing is also widely known by NFTGDs. Some NFTGDs put the two, costings and estimates together, but usually they refer to costings as estimates. This implies the words 'costings or estimates' may be used interchangeably.

Some NFTGDs claimed that the quality of their works distinguishes them from other design firms and also good customer relations are the reasons for what differentiates them from their competitors.

Quality work is a major reason for competitiveness in the design business in Asafo, Kumasi. The participants' thoughts of quality work on their part as designers was a major reason for competition might be true in some instances. So, it stands to reason that what participants claim to be quality may be question by professionals who have a higher standard of what they refer to as a quality work. There are many design agencies in Asafo, and therefore the quality of design work is quite high and there is a fairly fierce competition. Other reasons given by designers include excellent works, professionalism, self-improvement upon previous artworks done for clients, customer satisfaction, and customer acceptance of designers, loves criticism and accepts challenges, honesty with clients and meeting targets set by the firm's management.

The main aim of this study was to find out the activities of NFTGDs and find out what makes them competitive in the industry. Below are the answers based on the research undertaken to the three main questions that this study set out to address.

Answers to the questions

a) How do the NFTGDs provide their services?

NFTGDs work on contractual agreements with either individual clients or an organizational body. The works that they provide usually is priced at a relatively cheap fee as compared to that of FTGDs. Estimates may be calculated for free and also these designers have quick delivery service and deliver on time. However, the majority of the services (artworks) considered are not up to standard by the FTGDs.

b) What are the competencies required of NFTGDs in pre-production as it relates to the ideation process?

NFTGDs have practical knowledge on the job competencies in design and may have excellent design skills. Some of the works presented to clients have a professional feel. One respondent claims to have improved upon their previous artworks.

Customer satisfaction and customer acceptance were strengths that some NFTGD claim to possess. Engaging with criticism and accepting challenges were also posited as strengths of some of the respondents. Ideas come from the internet or from creative practice, and the selection may be the client's choice or the designer's choice. Finally, a

respondent mentioned that s/he is able to meet targets set by the design firm. However, another client expresses that the firm s/he works with has laid down rules which helps them to meet the firm's targets.

c) How do NFTGDs perceive client management and client satisfaction?

Clients usually perceive that respondents work in their interest; thus, NFTGDs keep increasing in their client base. Quality work is a major reason for design competition among the design industry of Asafo, where a substantial majority of the designers are NFTGDs. Some respondents claim to provide excellent work and as such, this is the reason for their perceived client management and client satisfaction.

Conclusion

Based on the results of the data gathered through interviews, NFTGDs may work for numerous clients and also work in their client's interest. NFTGDs offer cheap and affordable design services. Their estimates are usually calculated for free. They also render quick design services and normally deliver on-time. These strengths of NFTGDs, especially the cheap pricing style, sets them apart from the professional graphic designers. Nonetheless, their way of working 'at a fast pace' also presents some negative effects on the final outcome of their designs and may ultimately be seen in their printed works. Additionally, this does not rule out the fact that professional designers also deliver on time, too, judging by the nature of the profession.

NFTGDs have knowledge on the practical aspects (like how to calculate for the number of sheets to purchase for a book design, printing choices for a client who is not willing to pay huge sums of money) of the finished design project, but a lack of knowledge in certain design qualities may be deficient in the way works are presented to their clients. Graduates who consider themselves as professionals may need to go for further training to build the requisite design skills and critical thinking to match-up with the knowledge and technical skills acquired by some NFTGDs. This is primarily so due to the lack of exposure to the graphic design industry standards practice.

Design thinking, which forms part of the processes by which professional designers create their artworks, may be lacking in the artworks of these designers. Repetition could be taken for granted as some aspect of the design elements which are repeated elsewhere in a design could be averted if non-formally trained designers think deeply – by asking the question, of what importance is this element to the artwork in question? That is, only if they look at the design elements in such a manner before presenting it to their clients.

In summary, it seems that NFTGDs are very entrepreneurial in Asafo, Kumasi, given the number of designers involved in the various design firms the researcher visited. It is noteworthy that the ratio of 49 non-experts or non-professional designers to 11 professional designers is not an exhaustive number. However, if the researcher was able to visit every design firm, it is possible that the designers without formal training might outnumber those with formal training in the field. NFTGDs now constitute a substantial majority of design workforce in Asafo, Kumasi. The degree of penetration by NFTGDs is high considering the number of FTGDs with opportunity and capacity to establish themselves as designers in Asafo, Kumasi as against that of NFTGDs.

Recommendations

There is the need for design education for NFTGDs on the basic elements and principles of design with a practical application of how these elements and principles work. Such design education will help the respondents participate, improve and finally boost the services they render as graphic designers. A more immediate action might also be to introduce sandwiched training programmes in graphic design and regular workshops organized by the Department of Communication Design (KNUST) in Kumasi, to help designers overcome some of the challenges they face with regards to the profession.

Recommendations also include the establishment of a regulatory body with an overall responsibility for regulating the graphic design industry. This regulatory body should have an oversight responsibility of the performances of design firms across the country with regards to professionalism and design ethics. The regulatory body should sanction members of the association who flouts the laws that sees to the operations of design firms and its related industry. Moreover, copyright education should be intensified in the industry to help prevent issues that could arise with the use of internet ideas which have been copyrighted to prevent the misuse of such ideas or images.

Entrepreneurial training could be incorporated in the syllabi of graphic design programmes across the country. These entrepreneurial skills will assist many graphic design graduates in their ability to set-up their own design businesses which would compete with that of NFTGD as a way of bringing some dignity to the industry through the design work. Graphic design departments and institutions should be tasked to teach the curricula because of the benefits it will offer their graphic design students. Moreover, graphic design graduates will be gainfully self-employed and could possibly employ other graphic designers. This will help graduates contribute to the national development of the nation with their creative and design abilities.

A further study could be commissioned on the field to reveal the deficiencies of the NFTGDs. Postgraduate students in the field of communication design or any related field could be tasked by the Department of Communication Design to team up with their colleagues. These groups could write research papers on issues pertaining to NFTGDs. This would help support a proposal to offer a tailored sandwich programme which might be delivered in the KNUST vacation period.

It is clear from the qualitative data that 10 designers might be inappropriate to draw general conclusions about the influence of graphic design practice in the design landscape at Asafo, Kumasi. As such, a national study should be conducted to enable a proper evaluation of the influence (impact) of the designers as early as possible. Moreover, it is imperative to state that this study has helped to revealed key issues in the field.

This study has provided a greater understanding for the academic community and the design profession in terms of working together to strengthen a sense of professionalism and ways of supporting design education.

Notes

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2. Manzini, "Design, in a Connected World."
3. Ibid.
4. Ibid.

5. Ibid.
6. Ibid.
7. Kondoh, "Graphic Design Production" (Lecture Notes).
8. Ibid., 1.
9. Ibid.
10. Tam, "How Does Visual Communication Work?"
11. Okyere, 2015.
12. Ibid.
13. Lupton and Phillips, *Graphic Design: The New Basics*.
14. Williams, *The Non-designer's Design Book*.
15. Ibid.
16. van der Waarde, "Graphic Design and Research."
17. Ibid.
18. Ibid.
19. Okyere, "The Degree of Penetration of Non-Formally Trained Graphic Designers into the Graphic Design Industry."
20. Fraenkel and Wallen, *How to Design and Evaluate Research in Education*.
21. Miles and Huberman, *Qualitative Data Analysis*
22. Erihoff and Marshall, *Design Dictionary.*
23. Sheldon, *Start Your Own Graphic Design Business*.
24. Ibid.
25. Perkins, *Talent is Not Enough.*
26. Ambrose and Harris, *The Production Manual*.
27. Shaver, *The 101 Dos and Dont's of a Successful Graphic Designer.*
28. Ibid.
29. Airey, "Work for Money, Design for Love."
30. Perkins, *Talent is Not Enough.*
31. Kane, "Ethics: A Graphic Designer's Field Guide."

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 203–223
https://doi.org/10.1080/20557132.2017.1385252

Routledge
Taylor & Francis Group

Graphic design as an instrument of identity assertion for indigenous peoples: the case of the Tapiskwan project

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ABSTRACT

This study examines the potential contribution of graphic design practice to the assertion of the cultural identity of indigenous peoples. A graphic design intervention may be about increasing the power of self-representation of 'invisible' or misrepresented groups, enabling them to convey a recognizable identity, particularly through the use of visual symbols. We argue that this is not a matter of Western designers co-creating logos with indigenous stakeholders. A graphic design approach should encourage a collective reflection about the essential features that mark the identity of an indigenous community – in order to align contemporary representations with their cultural heritage and aspirations. This paper presents a five-year collaboration between designers and members of the Atikamekw Nation (Quebec, Canada). In this project, named *Tapiskwan*, we developed a methodology of graphic design workshops to enable Atikamekw artisans and youth to discover the value of their traditional symbols as meaningful forms of representation in the contemporary world.

ARTICLE HISTORY
Received 26 February 2017
Accepted 17 September 2017

KEYWORDS
Graphic design; indigenous cultures; identity assertion; representation; visual symbols; Atikamekw Nation; workshops

Introduction

This article explores the potential contribution of graphic design to the assertion of cultural identity and the self-determination of indigenous peoples. Graphic design is frequently seen as cosmetic activity or as an instrument of marketing. In the last decades, numerous graphic designers have wondered how to put their skills to worthwhile use and to participate in addressing complex social problems.[1] We suggest that a graphic design intervention can contribute to the construction and assertion of a positive identity to peoples who have been marginalized and/or suffered harsh assimilation processes.

Globalization has brought a wide variety of cultures to interact on a global scale as never before. A problem that arises is the capacity of specific cultural identities to communicate with each other and be recognized by one another.[2] There is a notorious difficulty of pluralistic societies to recognize the cultural identities of minorities.[3] Frequently, groups with distinct cultural identities are put under the same stereotyped label – a good example is the label 'indigenous' or 'native.' These terms are used to refer to the descendants of the original

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†All the participants signed an informed consent to participate in the study and a separate informed consent for the publication of photos taken during the workshops.

inhabitants of colonized countries. Inside this label, there are numerous different peoples with different histories, languages, assets and struggles. Stereotyped labels limit the visibility of actual indigenous communities and the roles they can play in the global society.

As they are relatively powerless, indigenous groups do not control the representations of their cultures that circulate through mainstream media. The media shape our perceptions and opinions about the 'others' through oversimplified and stereotyped representations. UNESCO[4] affirms that 'in an environment increasingly saturated by visual communication, imagery has the propensity to maintain, confirm and re-create such problematic representations of "others" ad infinitum'.[5] Being the activity that organizes visual communication in society,[6] graphic design plays an important role in this process of oversimplification.

Notwithstanding, this same activity that produces stereotyped representations can produce representations that assert the cultural identity of indigenous groups and may change common misperceptions of wider audiences.[7] A graphic design intervention might allow 'invisible' indigenous groups to convey a recognizable identity, particularly through the use of visual symbols. The use of symbols refers to the capacity to represent ourselves and to become recognizable by others. Indigenous populations have used visual symbols to mark their identifications for thousands of years.[8]

As stated by Moss, representations encompass processes of identification that include **assertion** (how I see myself) and **ascription** (how others see me).[9] We propose that traditional symbols are powerful markers of cultural identity that can be used to mobilize a process of identity assertion by members of indigenous communities. In this study, we aimed to reactivate the use of an indigenous graphic heritage – from the Atikamekw Nation – as a meaningful form of representation in the contemporary world.

Our project was conducted in collaboration with members of the Atikamekw Nation – one of the 10 First Nations in Quebec, Canada. This article presents a five-year collaboration between a design team of the University of Montréal and Atikamekw stakeholders (accomplished artisans, artists, cultural stewards and entrepreneurs) to develop an approach consisting of design workshops aiming to enable the creative development, empowerment and identity assertion of Atikamekw artisans and youth – the Tapiskwan project.

Even though this project was developed in a specific context to address specific local problems, we were dealing with issues that may be meaningful to several indigenous communities worldwide. Several issues related to representation and identity assertion concern visual communication, and tell us about the importance of research in graphic design in indigenous contexts. Therefore, we will first present an interdisciplinary literature review, and then our context-based project.

Indigenous identities

Indigenous peoples around the world share the legacy of European colonization, and they have faced problems such as dispossession of their lands, forced assimilation, discrimination, high levels of poverty, as well as lack of control over their own ways of life.[10] In the last century, numerous native populations have experienced drastic changes in their conditions of life caused by postcolonial assimilatory policies. For Kirmayer, Tait and Simpson, 'these profound transformations have been linked to high rates of depression, alcoholism, violence, and suicide in many communities, with the most dramatic impact on youth'.[11] Furthermore,

assimilation and ill-conceived development programs have deepened their disempowerment and their dependency on external resources to meet material needs.[12]

At this moment, indigenous activists worldwide are striving to shape a better life for themselves and their children, while underscoring their right to self-determination and their desire to maintain and celebrate their distinct cultural identities and ways of life.[13]

Cultural products and stereotypes

As globalization has given rise to an intensified flow of cultural products, the increasing interest for indigenous crafts has created opportunities to promote economic development in impoverished communities. The marketing of native crafts, entails several challenges, since artisans have to produce objects for clients with whom they do not have direct contact and do not share the same lifestyle.[14]

One of the biggest challenges is to communicate contemporary features of the producing community, because most urban clients are expecting to see peoples frozen in the past. Christen explains that indigenous artisans are inserted in a market that wants them to be traditional and authentic.[15] Paradoxically, the 'authentic' has to resemble the imagined portrayals constructed through the media – i.e. the 'authentic' is what conforms to the stereotypes.[16] A dominant stereotype associates authenticity 'with the past "primitive Other" articulated in opposition to modernity'.[17] Consequently, an authentic object is not contaminated by modernity. Nevertheless, corresponding to the consumers' ideas of the 'authentic' can threaten to fossilize cultures as images from the past, impeding their creative evolution and adaptation to a changing environment.[18] To please the global and touristic markets, indigenous artisans reproduce the same objects and motifs from the past, but stripped of their original function and meaning, because this is what the customers are looking for.[19] Even with good intentions, this nostalgia for the 'authentic' can be seen as a form of cultural imposition from outsiders.[20]

Furthermore, these ideas about 'authenticity' reflect some outdated notions, revealing a lack of knowledge that 'culture' refers to both continuation and transformation.[21] Until the late twentieth century, there was a tendency to see cultures as essentially fixed, unchanging, rigidly bound and separate entities, with their content being transmitted between generations through a variety of channels.[22] '**A current consensus regards cultures as systems that continually evolve through internal processes and in contact with the environment and other cultures**'.[23] UNESCO also suggests that we understand culture in terms of a creative process: 'a process whereby societies evolve along pathways that are specific to them'.[24]

The construction of cultural identity

Arjun Appadurai argues that the most important feature of the concept of culture is the concept of difference:

> … there are many kinds of differences in the world and only some of them are cultural. … I suggest that we regard as cultural only those differences that either express, or set the ground for, the mobilization of group identities.[25]

We are talking about the differences that separate human groups and create solidarity within each group. Appadurai stresses that culture does not refer to the possession of certain attributes by a group but **the consciousness of these attributes and their mobilization to**

articulate a group identity. Those markers of difference – such as practices, beliefs, aesthetics, language or territory – must be recognized as meaningful and mobilized to enable the construction of a cultural identity.

UNESCO explains that cultures are not isolated and static – on the contrary, they exist in relation to one another, influence one another and mutually define one another.[26] Since cultures are permeable, we can visualize the markers of cultural difference as a screen: it establishes boundaries between one group and the others, but it allows other attributes to interact and hybridize. Furthermore, the attributes chosen to mark difference are relative to the other groups with which we interact. For instance:

> …there was no Native American identity prior to contact with Europeans. … Before contact, indigenous people identified themselves as distinct from other indigenous people and constructed their identities in this way'.[27]

Identity and power

There is a huge difference of power between Western societies and indigenous groups, and so their identity is constructed inside a context of domination and oppression. In such contexts, Manuel Castells conceptualizes three forms of collective identities:

> *Legitimizing identity*: introduced by the dominant institutions of society to extend and rationalize their domination vis-à-vis social actors.[28]

In this process, demeaning attributes are ascribed to the less powerful groups, constraining the range of choices open to them and relegating them to situations of inferiority.[29]

> *Resistance identity*: generated by those actors who are in positions/conditions devalued and/or stigmatized by the logic of domination, thus building trenches of resistance and survival on the basis of principles different from, or opposed to, those permeating the institutions of society.[30]

Resistance identity, for Castells, is a defensive identity. Often, native people are stereotyped as unable to integrate into modernity, but their behavior can be understood as resistance against assimilation. The construction of resistance identities, however, may entail some problems. Toomey suggests that it may reinforce the disempowerment of marginalized communities by fixating them as the 'others' of oppressing and dominant structures.[31] For instance, Weaver describes the process of resisting assimilation as often a resistance of 'goodness' as framed by white people.[32] She gives an example: doing well in school is defined as important by the white community, so North American indigenous youth often drop out, 'not because they are "bad" or incapable of school success but as a way of defying the dominant society'.[33] Therefore, those aspects of their identity are constructed by countering that which is defined as 'good' and 'ideal' by the dominant society – and not by projecting that which is good and ideal for themselves. How can they define goodness in their own terms?

> *Project identity*: when social actors, on the basis of whatever cultural materials are available to them, build a new identity that redefines their position in society and, by doing so, seek the transformation of overall social structure.[34]

Project identity aims to change society by creating and introducing new sets of values and ideals. Castells argues that identities that establish themselves in resistance may give rise to proactive projects. 'In this case, the building of identity is a project of a different life, perhaps on the basis of an oppressed identity, but expanding toward the transformation of society as the prolongation of this project of identity'.[35] Therefore, project identities refer to

self-determination. Castell argues that the construction and assertion of project identities are pivotal levers of social change.

Representations and visual communication

According to Moss, cultural identities are articulated in relation to representations, through processes that include **avowal** or **assertion** – how I see myself – and **ascription** – how others see me.[36] Image is a particularly important form of representation. 'There are a number of complex processes that constitute how people shape and enact their identities, including individuals' avowing self-image and/or accepting or rejecting ascribed images'.[37]

Groups that are relatively powerless tend to receive negative and/or limiting ascriptions from the dominant society.[38] Negative stereotypes have depicted indigenous peoples as 'primitive,''idle' or unable to come to terms with modernity. Nowadays positive stereotypes idealize these cultures as ecologically and spiritually noble by New Age and anti-capitalist movements. The effects of both types of stereotypes are damaging, as they both do not recognize actual indigenous cultures. As philosopher Charles Taylor argues, 'nonrecognition or misrecognition can inflict harm, can be a form of oppression, imprisoning someone in a false, distorted, and reduced mode of being'.[39] Moreover, when negative ascriptions are internalized they become potent instruments of disempowerment.[40]

The process of constructing project identities involves creating positive images to which community members can identify and relate. Moss argues that identification may take place 'with and through forms of representations, including signs, symbols, and artistic styles'.[41] Those images also have the goal of countering stereotyped depictions and social exclusion by embodying how they want to be seen by others and who they want to become. Therefore, they deeply relate to the aspirations of the community and to forward thinking. For instance, Sahlins states that the current image of Maori people was constructed based on appealing attributes in order to enhance their power in New Zealand's society.[42]

Several indigenous and marginalized communities have taken the opportunities offered by the increased flow of cultural products to disseminate new representations.[43] At issue here is how to make consumers' quest for authenticity work to the advantage of indigenous artists and artisans. Communication tools – such as labels, posters, packaging and websites – are not only marketing tools, they can act as resources to educate nonindigenous audiences about the features of the community where the product was made. In the long term, designing the visual communication attached to cultural products can be a means to make minorities' identities recognizable to outsiders through the attributes chosen by the community.

At the same time, it is an opportunity for artisans to tell their own stories and create new representations of themselves. Therefore, creating visual communication is an instrument of identity assertion that can contribute to the (re)construction of identity of artisans and their communities.[44]

Visual symbols

This study focused on one specific form of representation: visual symbols. **We propose that visual symbols are powerful markers of cultural identity that can be used to mobilize identity avowal.** Saki Mafundikwa (a Zimbabwean graphic artist) and Piers Carey (a design

educator in South Africa) have important studies about indigenous African systems of symbols from a graphic design perspective. Their works have inspired our study.

Every society has symbols that are used to create identification. The systematic use of visual symbols enables groups of people to convey a recognizable identity. Currently, the use of visual symbols – as an element of branding – allows the identification of companies, organizations, causes and even nations. Indigenous populations have used visual symbols to mark their identifications for thousands of years.[45] Their systems of marks 'might have been inscribed on wood (carvings), the ground (sand diagrams), cloth, or the human body (as body painting, tattooing, or scarification)'.[46] For Mafundikwa, Westerners often do not understand that indigenous graphic symbols are not only decorative, in fact, they had an important communication role:

> In my view, there is not a single Afrikan society without a system, however rudimentary, to preserve the oral communication of certain messages. The support of this common memory and the material of coded communication are essential for group cohesion, collective identity, and permanence, and for contact with other societies.[47]

Carey argues that systems of graphic marks 'could be "read" by the "literate" in the given society, and so could communicate effectively according to their design'.[48] Thus he proposes a non-Eurocentric definition of graphic design:

> … the set of visual and technical skills required to render these [graphic] marks both attractive and effective as communication in the society concerned. Using this definition, the history of graphic design should expand to cover all such mark systems, visual and technical skills, and relevant modes of communication throughout human history.[49]

In a world where visual communication becomes increasingly important for indigenous people, how can they develop graphic design skills? Carey and Mafundikwa suggest they should start by studying the history of graphic design within their own culture. This process of developing a 'visual literacy' can be compared to Paulo Freire's emancipatory approach for adult literacy.[50] Freire argued that teachers often use didactic materials with little relation to the learners' lives. In contrast, in Freire's approach, students learn to read and write based on words that are familiar to them. Accordingly, in the process of developing visual communication skills, the system of symbols of each society should constitute the basic 'vocabulary' for the articulation of new representative images. Mastering their graphic traditions may become an important means of developing skills for visual communication and, ultimately, asserting their cultural identity.

A partnership between designers and Atikamekw artisans

Atikamekw is one of Canada's First Nations, whose ancestral territory corresponded to central Quebec. Currently there are approximately 6700 Atikamekws; close to 85% of them live in three reserves: Manawan, Opitciwan and Wemotaci.[51] Atikamekws are known as 'the people of the bark' because of their skill in crafting birch bark objects, such as canoes and baskets.

Atikamekw maintained a semi-nomadic way of life before the 1970s, when they began to live on a permanent basis in three reserves. The reserves correspond to tiny portions of their ancestral territory, contrasting with the amount of land that they occupied previously.[52] Furthermore, over the last century, they have seen their material circumstances change drastically due to changes in the territory, sedentarization in reserves, and several

assimilation policies. The mandatory residential school system was a prime example of those policies. In the 1960s and 1970s, Atikamekw children were removed from their communities to be sent to distant catholic schools, where they were forbidden to speak their native language and practice their traditions.[53] The residential schools 'created a breach in the local processes of handing down knowledge, skills, and practices to younger generations'.[54] Consequently, there are three generational groups in Atikamekw communities: the elder's – who were raised in the forest camps before sedentarization–, the generation sent to the residential schools, and the youth – who were raised in a reserve.

Those drastic transformations provoked an identity crisis and made them increasingly dependent on governmental aid and money transfers. At the present time, Atikamekws face a challenging socio-economic reality with particularly low levels of income, education, and employment.[55]

To tackle the economic and identity crisis, many Atikamekw are currently involved in the endeavor for self-determination and cultural revitalization.[56]

Atikamekw crafts

As part of those initiatives, in 2010, the Atikamekw Nation Council (Conseil de la Nation Atikamekw [CNA]) decided to foster craftsmanship as a means to generate income within the communities, to promote collective entrepreneurship, and to revitalize Atikamekw cultural practices. Atikamekw leadership saw the market of cultural goods as a potential means to promote socio-economic development.

Craft had a major importance to the construction of Atikamekw identity, as the denomination 'people of the bark' reveals. In the seminomadic way of life, crafting objects was an essential element of the adaptation into their land and the survival in their climate conditions. Today, within the reserves, producing crafts is not crucial to their livelihood anymore and Atikamekw artisans face numerous challenges to produce and market their products. Nevertheless, there are many active artisans within the communities, showing that craftsmanship is still a significant cultural practice.[57]

To address the challenges of producing and marketing Atikamekw crafts today, artisans and cultural stewards established a partnership with our design team in 2011. The instigator of this partnership was Christian Coocoo, cultural representative of the CNA.

At the beginning, our partners identified two main problems affecting Atikamekw artisans: (1) a perceived loss of cultural identity; and (2) scarce supply of birch bark and moose hide – the two most important raw materials of Atikamekw craft. It is noticeable that these two problems are inextricable, since Atikamekw's relationship with the natural resources found in the territory constitutes the core of their cultural identity.

Our collaboration has focused on developing training strategies to enhance Atikamekw artisans' capacity to innovate – and so, most of the activities has consisted in giving design workshops to Atikamekw artisans and youth. It was through two years of collaboration and several joint-actions that we developed a clearer understanding of the complexity of the challenges Atikamekw artisans face – and, ultimately, to conceive the Tapiskwan project.[58]

Markers of cultural identity

What defines Atikamekw identity today? Our proposal was *to reveal attributes of Atikamekw cultural heritage that embody the essence of their society, but have been neglected – in other words, to mobilize new markers of identity*.

Appadurai suggested that cultural identity is articulated by the awareness and mobilization of some attributes that mark the difference between a human group and the others.[59] Sedentarization, assimilation and changes in territory have debilitated important markers of Atikamekw cultural identity. Furthermore, Canada's First Nations are often characterized by their lacks and problems – negative markers. In this situation, we need to identify positive markers that can be mobilized for the construction of a contemporary identity: attributes that incite pride and self-esteem.

Blankenship points out that the discovery of an identity is not a simple task: 'the difficulty lies in the recognition and understanding of fundamental characteristics that communicate the essence of a people and a place, not the senseless repetition of hollow motifs'. [60]

It is difficult for individuals to identify a defining but overlooked feature of their culture, because it is too familiar to them. It is like asking a fish to describe the essence of the water. For that reason, intercultural dialogue is important. Different views on the community may enable the recognition of something that has been seen every day – and remained unnoticed – as a precious asset.

However, outsiders cannot ascribe an identity to the community – 'as "the" identity to be offered to artisans, to be taken as their own'.[61] As Borges explains, 'something an "outsider" considers as identity may not be felt or lived in the same way by an "insider".[62] Therefore, outsiders may facilitate the process of recognition and discovery of features that capture the essence of a people and a place. But it is the role of local people to affirm how they see themselves and to exercise their singularity.

Youth, tradition and innovation

Youth corresponds to more than 60% of the Atikamekw population and they are the most affected by both identity and economic crisis – presenting high rates of unemployment and lack of professional opportunities.[63] They receive mostly negative ascriptions from the rest of the community, being seen as potential 'problems,' due to inactivity and drug abuse. Therefore, it is crucial that youth produce positive representations and engage in a process of identity assertion.

Youth, however, do not master the traditional techniques of representation – i.e. the practices that had characterized Atikamekw visual art. Life in reserves has reduced the occasions in which youth can learn with elders, since most activities of intergenerational transmission of heritage used to take place in the forest. Moreover, they have to deal with the lack of traditional raw material. Consequently, youth have the challenge to develop new modes of representation and self-expression, without losing their identification as Atikamekw.

Christian Coocoo remarked that youth had a tendency to reproduce clichés, instead of being rooted in tradition in order to create something new. Coocoo has stated his desire that our design workshops could create the conditions for a return to the sources of Atikamekw culture. He expressed his hypothesis: with a solid base, youth would be able to better develop their creativity and means of expression – thus, strong roots could facilitate innovation.

Therefore, in our design workshops, we aimed to create the conditions for youth to understand the value and the meaning of their cultural resources in order to enhance their capacity to innovate.

Atikamekw traditional graphic system

Atikamekw have a tradition of engraving birch bark, which can be observed on their magnificent baskets and canoes (Figure 1). Since the beginning of our project, we were charmed by the beauty of traditional Atikamekw iconography. The objects had a very distinctive visual language that involved a style of representation, a graphic system of symbols, and some principles of composition.

We noticed, however, a gap between contemporary visual communication and the traditional visual language – they do not use the same symbols. Contemporary posters, websites, and signage often use clichés of indigeneity – such as feathers or dream catchers – with little or no connection to Atikamekw heritage. And frequently, we see symbols from other native nations, such as Haïda or Navajo – who are more visible in the media.

On one hand, using "general" symbols (or clichés) has allowed Atikamekws to mark their belonging to an Indigenous Nation, in contrast with the White society. As mentioned, identity is, to a certain degree, constructed through the contrast between 'us' and 'them' – in this case, natives vs whites.

On the other hand, the fact that contemporary visual communication often uses stereotypes – or symbols from the First Nations of Western Canada or the US – denotes how invisible the Atikamekw Nation is. We can argue that using symbols from the few First Nations who are represented in the media is a form of conforming to the ascribed Western stereotype of how native visual communication should look like.

Coocoo wondered why Atikamekws need to use symbols from other nations if they have their own graphic heritage. It seemed that Atikamekws had not yet realized that they could use their visual language and system of symbols to produce contemporary visual art and cultural products. In other words, most Atikamekws were not conscious of the value and potential uses of their system of symbols – e.g. they could use their own symbols to represent themselves, assert their identity as a Nation, and make their identity more visible and recognizable to outsiders.

From this reflection, in 2013, we created a project that received the name 'Tapiskwan.'

Figure 1. Birch bark baskets. Source: McCord Museum. Retrieved from http://collections.musee-mccord.qc.ca/.

Tapiskwan: symbols as vehicles for identity avowal

Despite the scarcity of raw material hindering Atikamekw craft practices, the system of symbols engraved on their objects constitutes by itself a rich cultural heritage. Our proposal was to dissociate the material and the symbolic aspects of Atikamekw craft.

Both aspects of craftsmanship can be mobilized as markers of cultural identity. Nevertheless, the material aspect – including the practices of extraction and treatment of raw material and the making of objects – has had prevalence to the construction of Atikamekw identity. And it is precisely this aspect that has been debilitated by the changes in the territory and in the ways of life. The symbolic aspect, on the other hand, does not depend on material conditions, but has been overlooked as a marker of identity.

We proposed that traditional symbols could be documented and used to create new products (such as textiles) and communication tools. The systematic use of symbols could create a recognizable identity for Atikamekw cultural products, increasing the appreciation of Atikamekw crafts by customers.

As the participants learn and teach the meaning, stories and knowledge recorded in the traditional symbols, it could allow a return to the roots of Atikamekw culture. Therefore, using traditional symbols could enable artisans to tell their stories to their families and community, asserting their affiliation to their Nation.

Developing a Tapiskwan approach

One thing is to propose that symbols can be used to encourage identity assertion and to bypass the lack of traditional raw material. Another is to create a methodology of design workshops that enables Atikamekw artisans to (re)discover their graphic heritage and to integrate it in their creative production. On a practical level, our challenge was to develop an empowering approach of design workshops that could enhance the participants' creativity, and, at the same time, reactivate the use of their system of symbols as a meaningful form of representation.

We developed the Tapiskwan approach from 2013 to 2015. In each summer (2013, 2014 and 2015), we held one or two weeks of design workshops for Atikamekw youth and adult artisans. Atikamekw partners (members of the CNA, accomplished artists and entrepreneurs) took part in the definition of the goals and objectives, the planning of activities, the definition of criteria to select the participants of the workshops, and the evaluation of the results of each cycle of workshops. Each step of the project has been discussed with them. Their opinion has had major importance to set the goals of the workshops, to fine-tune activities and methods, and to plan follow-up actions.

The participants of the design workshops were youth with interest and/or a natural aptitude for visual arts and artisans who wanted to learn new skills. During and after the workshops, they were interviewed to allow us to assess the results and make some adjustments in our methods.

Even if we were constantly open to readjustments, we reached a stable strategy for the Tapiskwan workshops in 2015. In this section, we present the main issues and principles that guided the development of our approach.

Recognizing the value and meaning of their graphic heritage

Although there are several approaches of design interventions using local iconography to revitalize traditional crafts, several approaches do not allow for the emancipation and creative development of local craftspeople.[64] Borges argues that if the inventory of local symbols is made by outsiders, artists and artisans might not be able to recognize themselves in those symbols or integrate them in their creative work.[65] Therefore, the 'discovery' of the iconography is a process that must be experienced by the participants, based on the meaning that artisans and the community attribute to their symbols.

In the Tapiskwan workshops, this discovery is made through exchanges between cultural stewards, elders, artists, artisans and youth. We dedicate two days for intergenerational exchanges – which are held in Atikamekw language – creating a space where different generations use ancestral symbols to share their stories and to reconnect with the history of their people. As a result, Atikamekw traditional symbols are used to facilitate intergenerational dialogue.

Mafundikwa argued that certain African peoples used symbols to preserve part of the collective memory of their oral tradition.[66] Therefore symbols may act as supports for oral communication, allowing stories to be told around them.

Mentorship

In the workshops, three of the major Atikamekw artists – Jacques Newashish, Christiane Biroté and Eruoma Awashish – work as mentors of young participants. The mentors guide other participants through the tasks and serve as role models.

Since they are accomplished artists who use traditional elements of Atikamekw culture in their contemporary production, they are able to act as mediators between different generations, realities and knowledges. On one hand, they are responsible for making the knowledge and techniques brought by the design team accessible to the participants. On the other hand, the mentors are responsible for making the elders' cultural knowledge applicable to the youth's creative work.

Challenging goals

In each edition of Tapiskwan workshops we work for one or two weeks towards a precise goal – for example, producing a series of bandanas and bags to be sold at the Pow Wow of Wemotaci (in 2013) or producing a collection of textiles (in 2015). The goal is always challenging: we have limited time and resources to accomplish it. This approach aims to enhance the participants' motivation and self-confidence. Since very often members of indigenous communities are treated as incapable by the dominant population, we challenge them to discover how skillful, talented and knowledgeable they can be.

The use of limited external resources forces the participants to recognize the resources they already have. Foreign elements (e.g. drawing, visual composition and printing techniques) are gradually introduced to help the participants create the responses to the challenge.

Tapiskwan workshops: step-by-step

Even if the approach of Tapiskwan workshops is based on complex concepts, we believe that the method itself has to be very straightforward. Our goal is to enable Atikamekw artists, artisans and educators to reproduce the recipe independently in the future. In this section, we briefly describe our step-by-step formula – based on the 2015 workshops.

a) What is graphic heritage? Examples from other indigenous cultures
We explain the goals of the workshops by showing examples of visual languages from several indigenous cultures. We show how traditional symbols are applied in contemporary products and how the use of the graphic heritage has enabled several native peoples to convey a recognizable identity.

The design team also brings many photos of Atikamekw traditional crafts, so the participants can look at the collection and realize that Atikamekw objects have a distinctive visual language: a style of representation and a system of symbols.

b) Cultural immersion
In this phase, cultural stewards present the meaning, stories and knowledge registered in Atikamekw symbols (Figure 2(a)). And doing so, they present part of the history of their people through Atikamekw traditional iconography. Their presentations were followed by discussions between adults and youth.
After the discussions, the participants take part in drawing exercises based on elements of Atikamekw iconography (Figure 2(b)).

c) Visual composition
The participants are introduced to principles of visual composition. They are led to understand that meaning is not solely conveyed by the symbols themselves, but also by their arrangement in space.

In the exercises, the participants arrange a set of four of the most important Atikamekw symbols into original compositions (Figure 3). The goal of the exercises is to make them aware of the possibility of creating a great diversity of compositions with a few symbols.

Figure 2. (a) Christian Coocoo gives a presentation on Atikamekw history and iconography; (b) Participants take part in drawing exercises.

Figure 3. (a) Faith Boivin, Christiane Biroté and (b) Kellyna Coocoo take part in visual composition exercises.

Figure 4. (a) Kellyna Coocoo reinterprets traditional motifs; (b) Pattern designed by Noat Boivin.

d) Motif and pattern
In this phase, the participants choose one meaningful symbol and reinterpret it to create a personal motif (Figure 4(a)). Afterwards, they experiment with repetitions of their motifs to create patterns (Figure 4(b)).

e) Artisanal printing
The participants are introduced to artisanal printing techniques: hand block, stencil, and silk-screen printing. Using stencils and blocks, the motifs developed in the previous phase are printed on fabric and paper (Figures 5 and 6). The design team introduced those techniques because they could enable low-cost reproduction.

f) Products
The participants use the printed samples to create prototypes – such as bags, cushion covers, and booklets.

g) Interviews as moments of reflection
Since our approach is project-based and hands-on, we realized that participants needed quiet moments of reflection in order to integrate what they learned. In 2014, we noticed that individual interviews were not only moments to collect data, those discussions with members of the design team enabled the participants to become more confident about

Figure 5. (a) Jacques Newashish tries hand block printing; (b) Noat Boivin uses a stencil to print her fabric.

Figure 6. Patterns created by Christiane Biroté, Jacques Newashish and Michel Biroté.

Figure 7. (a) Kellyna Coocoo explains to Lucie Leroux the inspiration for her motifs; (b) Her final product. Source: photos taken by Tapiskwan design team.

their progression. And so, individual interviews with one or two members of the research team are important steps, in which they are encouraged to make sense of what they are learning, experiencing and creating (Figure 7).

Findings

The third edition of Tapiskwan workshops took place in the summer of 2015 (13–24 July), in the community of Wemotaci. It mobilized 10 participants (youth and adults). Three accomplished artists acted as mentors (Jacques Newashish, Christiane Biroté and Eruoma Awashish). Two cultural stewards (Christian Coocoo and Charles Coocoo) gave presentations about the meaning of Atikamekw graphic heritage.

During the workshops, the research team made two individual interviews with each participant and mentor. Two months later (12–14 September), we interviewed participants, mentors and partners to learn their feedback about the workshops and their plans for the future.

Here are some of the participants' comments, grouped by themes:[67]

Reconnecting with the symbols and Atikamekw cultural heritage

All the participants stated that they appreciated what they learned about the meaning and stories related to traditional symbols with the two cultural stewards. Even the mentors found that knowledge very meaningful. For Christiane Biroté, collaborating in the project meant a reconnection with her culture. And so, she was able to better appreciate the symbolic content of her creative work. Eruoma Awashish, another mentor, chose the symbol that she currently uses as her personal logo in a Tapiskwan workshop. And so, the project helped her to brand her production.

Some participants were surprised to learn that Atikamekw iconography presented no feathers until recently (after sedentarization).

Christian Coocoo, explained that some symbols – such as Indian heads – started to be depicted in Atikamekw crafts to please or ironize the expectations of the tourists. Those depictions were an answer to the stereotypes ascribed to the First Nations.

Being visible

After the 2015 workshops, several participants stated that they started to notice symbols everywhere. As a result, they became aware of the importance of visual symbols for communicating identity.

Jacques Newashish and Dominic Boivin identified an important issue. The Atikamekw ancestral territory corresponds to central Quebec. Presently there are numerous fishing and hunting outfitters in the area, which receive a considerable number of tourists from Europe every year. We do not see Atikamekw symbols in any touristic establishment. For them, it is time to see Atikamekw symbols spread across their territory, marking their presence and asserting their identity.

For them and Christian Coocoo, presenting their cultural identity through the marketing of their products is a means to gain recognition, making themselves known by outsiders.

Using symbols as vehicles to represent their stories

Charles Coocoo, an Atikamekw spiritual leader, argues that as important as creating images with the symbols is being able to talk about them. For Jacques Newashish, there is a story

and a meaning behind what an artist creates, and it is important to develop the capacity to put them in words and tell them to several people.

The design team created many opportunities – especially during the interviews – in which the participants were invited to verbalize the reasons for choosing a specific symbol and the inspiration for their personal motif. Many times, the symbols were related to the stories of their family, sometimes they were related to recurrent visions and dreams, and sometimes they were important to Atikamekw Nation. All the participants had something meaningful to tell about their personal motif.

Learning artisanal printing

During the interviews, we realized something unexpected: Atikamekw elders had a tradition of reproducing motifs on their moccasins (and other objects made of moose hide), using a technique that was similar to stencil. Jeannette Boivin told us how the elders used to trace the motifs through their handmade stencils and then embroider over the outline. Atikamekw traditional motifs were reproduced on several objects, and each family had a collection of stencils that was handed down across generations.

In Western graphic design schools, at first, we usually learn artisanal printing techniques, and then we learn how they evolved into industrial techniques. We realized that we could make a similar link. In Tapiskwan workshops, learning artisanal printing is also an opportunity to tell the stories about the ways Atikamekw elders used to reproduce their symbols.

Visual composition

The visual composition exercises were very limiting (each participant received the same set of four symbols) in order to force them to use their creativity and imagine new ways of arranging the symbols on a surface. Despite the limitations, we received some surprisingly positive feedback.

After the workshops, the design team prepared some silkscreens with the personal motif created by each participant. The mentors asked us to also make screens with the 'generic' motifs created during the composition exercises. In the subsequent textile printing workshop – held in October 2015 – some participants even preferred printing the 'generic' motifs than their own personal motif. We can estimate that some artisans found it very meaningful to use the basic traditional symbols as an 'alphabet' or a basic 'vocabulary' to create a variety of compositions and patterns.

Atikamekw graphic heritage seems to be a system of symbols that are meant to be continuously rearranged and recombined.

Bridging tradition and innovation

In May 2013, our partner Christian Coocoo stated his hypothesis: with a solid base, youth would be able to better develop their creativity. He considered that several products conceived in the first two workshops (in 2013 and 2014) were not satisfactory: they seemed 'folkloric,' reproducing clichés and not looking contemporary.

In 2015, we strived to develop an approach that could effectively bridge tradition and innovation. First, we enhanced the phase of cultural immersion. Second, we added the phase

of visual composition. In the two previous editions, after the discussion with the cultural steward, participants were asked to reinterpret the traditional symbols. In 2015, after the cultural immersion, we asked the participants to create compositions with the traditional symbols themselves. It seems that this exercise enabled the participants to integrate their graphic heritage into their creative work.

Looking at the textiles and products created in 2015, Coocoo was very satisfied with the results. For him, his hypothesis was confirmed: being rooted enables creativity. Most images and products were original and, at the same time, exuded Atikamekw identity.

Further steps

Ideally, Atikamekw youth and artists would be responsible for documenting their traditional iconography and its meaning. However, in the beginning of the project, most Atikamekws were not aware of the value of their graphic heritage and its potential uses. Why should they document something that they did not yet recognize as beneficial? Thus, we established an initial goal: to make participants recognize graphic heritage as a valuable asset. From this recognition, in a subsequent phase, we could undertake the collaborative documentation.

The workshops created the conditions for the participants to understand the value, meaning and potential uses of traditional symbols. Our next goal is to undertake an extensive documentation of the Atikamekw graphic heritage. Until this moment, we have worked with a small set of symbols, collected by the design team. We aim to integrate Atikamekw youth in the process of documentation, creating an inventory of the traditional symbols and the meaning and stories associated to them that can be accessed by Atikamekw artists and artisans. The challenge here consists in developing a collaborative approach for the process of documentation.

Another further step is to produce a guide for this methodology (or a toolkit), with the goal of enabling Atikamekw art educators of the three communities to give Tapiskwan workshops independently in the future. We hope that, in a few years, Atikamekw youth will learn to use their system of symbols at school.

Conclusion

Presenting the case of Tapiskwan project, we hope to illustrate a potential contribution of graphic design to the assertion of the cultural identity of indigenous peoples. One aspect of graphic design activity involves the creation and/or communication of a recognizable and distinctive identity. As Charles Taylor argues: 'due recognition is not just a courtesy we owe people. It is a vital human need.'[68] In this sense, graphic design refers to an essential human power: the power to create representation in order to assert who you are and to influence how you are perceived by others.

A graphic design intervention may be about increasing the power of self-representation of 'invisible' or misrepresented groups. We argue, however, that a collaboration between graphic designers and indigenous artisans should not be only a matter of co-creating logos and marketing tools to support the commercialization of cultural products. We argue that a graphic design approach should create the conditions for the community to embark on a

process of identity assertion – allowing them to become aware of the specific features of their visual representations that can be mobilized as markers of identity.

Collaborations between graphic designers and members of indigenous communities should encourage a collective reflection about that which is essential to their self-image, that which can make them recognizable by others and that which has been ascribed to them. These collaborations, therefore, should enable indigenous graphic designers and visual artists to create contemporary representations affirming who they are, how they want to be seen, and who they want to become. And, by affirming their identity, this process may allow indigenous communities to redefine their position in society.

Notes

1. Poynor, "First Things First."
2. Castells, *Power of Identity*, 37.
3. Gutman, "Introduction," 3–4.
4. UNESCO (United Nations Educational, Scientific and Cultural Organization) is a specialized agency of the United Nations responsible for coordinating international cooperation in education, science, culture and communication (https://en.unesco.org).
5. UNESCO, *Cultural Diversity*, 141.
6. Frascara, "Graphic Design."
7. Tyler, "Shaping Belief."
8. Mafundikwa, *Afrikan Alphabets*.
9. Moss, "Cultural Representation," 375.
10. UN, *Indigenous People*.
11. Kirmayer et al., "Mental Health," 3.
12. Guindon, "Technology, Material Culture."
13. Salazar, "Self-Determination"; Willow, "Cultural Revitalization."
14. Vencatachellum, *Designers Meet Artisans*.
15. Christen, "Tracking Properness."
16. Wang, "Rethinking Authenticity"; Yang, "Ethnic Tourism."
17. Cole. "Beyond Authenticity," 944.
18. Borges, *Design + Artesanato*; Hill, "Indigenous Culture"; UNESCO, *Cultural Diversity*.
19. Bousquet, "Tourisme, Patrimoine et Culture."
20. Hill, "Indigenous Culture"; Yang, "Ethnic Tourism."
21. Cunha, "*Culture" and Culture*.
22. Sahlins, "Anthropological Enlightenment."
23. UNESCO, *Cultural Diversity*, 8.
24. Ibid., 5.
25. Appadurai, *Modernity at Large*, 13.
26. UNESCO, *Cultural Diversity*, 39.
27. Weaver, "Indigenous Identity," 242.
28. Castells, *Power of Identity*, 8.
29. Moss, "Cultural Representation"; UNESCO, *Cultural Diversity*.
30. Castells, *Power of Identity*, 8.
31. Toomey, "Empowerment and Disempowerment."
32. Weaver, "Indigenous Identity," 244.
33. Idem.
34. Castells, *Power of Identity*, 8.
35. Ibid., 10.
36. Moss, "Cultural Representation," 375.
37. Ibid., 390.
38. Taylor, "Politics of Recognition."

39. Ibid., 25.
40. Freire, *Pedagogia do Oprimido*; UNESCO, *Cultural Diversity.*
41. Moss, "Cultural Representation," 375.
42. Sahlins, "Two or Three Things," 402.
43. Santo, "Inuit Media"; Simonard, « Je me présente ».
44. Simonard, « Je me présente ».
45. Mafundikwa, *Afrikan Alphabets*.
46. Carey, "From the Outside," 56.
47. Mafundikwa, *Afrikan Alphabets,* 9.
48. Carey, "From the Outside," 58.
49. Ibid., 57.
50. Freire, *Pedagogia do Oprimido.*
51. Awashish, "Economie sociale."
52. Poirier, "The Atikamekw."
53. Jérôme, "Jeunesse, musique et rituels."
54. Poirier, "The Atikamekw," 135.
55. Awashish, "Economie sociale."
56. Jérôme, "Jeunesse, musique et rituels"; Poirier, "Change, Resistance."
57. Awashish, "Economie sociale."
58. Three articles present the evolution of our collaboration with Atikamekw artisans and cultural stewards and the development of Tapiskwan approach: Marchand & Leitao (2014) "Design as a Means of Empowerment in Native Communities"; Leitao, Marchand & Sportes, "Constructing a Collaborative Project"; and Leitao et al., "Tapiskwan Project."
59. Appadurai, *Modernity at Large.*
60. Blankenship, "Outside the Center," 26–27.
61. Borges, *Design + Artesanato*, 145.
62. Ibid., 143.
63. Awashish, "Economie sociale."
64. Borges, *Design + Artesanato,* 144; Thomas, "Design, Poverty," 54–56.
65. Borges, *Design + Artesanato*, 143.
66. Mafundikwa, *Afrikan Alphabets.*
67. The original interviews were in French.
68. Taylor, "Politics of Recognition," 26.

Funding

This work was supported by the Social Sciences and Humanities Research Council of Canada (SSHRC); and the Fonds de Recherche du Québec – Société et Culture (FRQSC).

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 224–239
https://doi.org/10.1080/20557132.2017.1385253

Routledge
Taylor & Francis Group

The Australian indigenous design charter: communication design. The development of a guide for respectful professional practice

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ABSTRACT

This article reports on the *Australian Indigenous Design Charter: Communication Design* (the Charter), exploring the needs and motivations behind the development of this document and the growing demand for designers to understand and apply ethical practices when working on projects involving the representation of Aboriginal and Torres Strait Island culture. This best practice guide presents a concise, workable set of protocols for communication designers to follow. In this instance, the focus sits squarely on design practitioners to develop respectful processes of communication, consultation and collaboration whenever Australian indigenous culture is referenced in commercial applications. This article reflects on the impetus and objectives of a practice document, framed to accommodate past and present ontologies that speak to all stakeholders. The concept of an open document is espoused as a key feature of the Charter, whereby opinions and comments will be gathered, analysed and used to inform future, periodical iterations of the Charter.

ARTICLE HISTORY
Received 28 February 2017
Accepted 24 September 2017

KEYWORDS
Relationality; respect; collaboration; indigenous-led; shared knowledge; stakeholder theory

1. Introduction

This article presents the process related to the development of the cross-cultural practice document for communication design practitioners (non-indigenous and indigenous), the *Australian Indigenous Design Charter: Communication Design* (the Charter).[1] Conversations of authentic indigenous representation, specifically related to the practice of visual communication design, are rarely discussed in literature. In most instances, these conversations are positioned within the visual arts, social sciences and museology. Certain literature from these associated fields do provide aligned guidance but usually lack specificity required for communication designers seeking guidance on how to engage with indigenous knowledge and how to appropriately represent culture in their practice.[2]

The Charter was produced as the inaugural project of an Indigenous Design Alliance established between Deakin University School of Communication and Creative Arts (SCCA), Deakin University Institute of Koorie Education (IKE), Indigenous Architecture and Design

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Victoria (IADV) and the Design Institute of Australia (DIA). The above-mentioned parties signed an Indigenous Design Memorandum of Understanding at the Koorie Heritage Trust, Federation Square, Melbourne on 25 May 2016. From conception to today the development of the Charter can be tracked as an eight-year process. It was built on an extensive framework of interviews, workshops, lectures, conference papers, academic papers, and community meetings with indigenous and non-indigenous peoples working in the space of indigenous representation in design. In addition, consultations were conducted with elders and academics from IKE and IADV (the only Aboriginal Design Association in Australia) who also contributed to the wording and framework of the Charter. The Charter has been developed in response to a call from the Australian Government and professional design associations to better understand indigenous cultural representation in design practice. It is an open document that encourages ongoing feedback and contributions from stakeholders; the Charter will be reviewed and refined on an ongoing basis. On 30 August 2016, the first draft of the document[3] was published by the DIA in the practice notes section of its website. The DIA has a comprehensive reference set of practice notes, which act as a resource to assist designers in their professional practice. Including the Charter added Australian indigenous design practice protocols to a repository of practice notes covering contracts, tendering, administration, the legal business environment, fees, salaries, and intellectual property.

Tailored specifically for the communication design profession, the Charter expands on the research findings of Kennedy's PhD thesis.[4] As acknowledged in the references of Kennedy's thesis, the Charter also builds on foundations set by existing protocol documents and writings with an aligned purpose such as Oxfam's Aboriginal and Torres Strait Islander Cultural Protocols document[5] and the work of intellectual property lawyer Terri Janke.[6]

The Charter identifies sensibilities and ontologies associated with sharing indigenous knowledge including respectful exchange, open thinking, deep listening and a genuine commitment to learning. The Charter attests indigenous stakeholders as active participants in the design process of relevant projects. Sharing indigenous knowledge requires a commitment to learning based on relationality, the state or condition of two or more connected cultures. Relationality aims to ensure that respectful and ethical practices are established and maintained through a relationship built on trust and inter-connectedness. In this context of the Charter, indigenous stakeholders are active participants in the design process. Bouwen[7] makes a social constructionist observation, which indicates the potential of relationality to foster outputs that represent a new relationship and identity:

> … foster outputs that represent a new relationship and identity when he states: Relational processes are considered to be instrumental to connect inputs to achieve outcomes.[8]

The establishment of cultural protocols and engagement processes for communication designers represents an important step towards understanding, respecting and representing Aboriginal and Torres Strait Islander views with an aim to encourage culturally appropriate working practices that value cultural diversity, motivate others and enrich a continually evolving Australian identity. The cultural protocols included in the Charter recognize the diverse cultures and traditions that make up Aboriginal and Torres Strait Islander communities in Australia. The Charter acknowledges diversity but also recognizes the need in some cases to make a unified (Aboriginal and Torres Strait Islander) statement.

However, the Charter, as well as this article, does not claim to provide the answers to appropriate indigenous representation. In a pragmatic attempt to start a conversation, the Charter is presented as an open document, which outlines the processes required for

designers to represent indigenous culture in a respectful and ethical manner. Miles and Huberman defended the pragmatic aspects of qualitative research and its associated methods when they argue that, 'epistemological purity doesn't get research done'.[9]

This article positions indigenous representation within an historical context by emphasising insensitive and disrespectful past practices of designers working with cultural imagery and iconography. Conversely it also identifies more recent, successful efforts by leading Australian designers who have developed cultural knowledge sharing methods through experiential learning in their professional practice. Analysing these and other case studies, together with an asserted need to challenge associated anxiety, distorted perceptions and commercial dynamics embedded with this issue, highlights the need for this best practice document which acknowledges traditional knowledge systems and provides guidance to communication designers on protocols for respectful engagement with indigenous cultures. In a shift from previous extractive methods of research, the Charter recognizes the principles of stakeholder theory, and encourages collaborative community engagement for the accurate and respectful representation of indigenous knowledge in commercial design practices.

2. Design professions' need for the Australian indigenous design charter

The primary aim of the Charter is to encourage designers to consider the broader implications of their design ideas when referencing indigenous knowledge. Although issues surrounding Australian Aboriginal and Torres Strait Islander representation are complex, the Charter suggests that design solutions can be found through the simple mantra of common courtesy, respect, fair, and balanced communication.

The Charter asserts that designers need to understand the multilayered issues that are the residual effect of colonization and Australian history. Since colonization, Australian Aboriginal and Torres Strait Islander peoples have borne the brunt of extreme prejudice, discrimination and misunderstanding.[10] Australian designers have historically identified Aboriginal visual culture as offering a unique point of difference in their communication strategies however working with indigenous knowledge presents unique challenges. The fact that the interests, rights and concerns of indigenous Australians have in the past been dismissed or ignored reinforces the need for an indigenous-led process for cultural representation. Finding the balance of purpose and narrative can be difficult because diversity extends beyond community and language groups. Political positioning, mixed heritage identity and an urban, regional dynamic add additional layers of complexity for communication designers (non-indigenous and indigenous). Journalist Stan Grant, a Wiradjuri man,[11] highlights difficulty in finding consensus of opinion when he recognizes that 'people may be united in a sense of shared identity, but like any population, we are lacerated by divisions'.[12]

This article asserts that cultural knowledge and understanding is rarely sought, and positive and respectful representation has seldom been achieved. Historically, systems of engagement were ad hoc, if at all; research was often superficial; and the development and process methods hardly involved consultation. However, a knowledge gap has always existed regarding guidance in the appropriate representation of Aboriginal iconography, and although identified by Willis that 'there is no singular mechanism that controls the overall appropriation and flow of Aboriginal imagery',[13] the issue of application and appropriateness

of representation remains greatly unresolved to this day. Australian history is sadly littered with inappropriate examples of indigenous representation. What was considered acceptable in the past is now viewed as completely obscene and distasteful as evident in the branding strategies referencing Australian indigenous culture such as those presented below (Figures 1 and 2).

Although there were clear racist overtones in the past, some designers of the period did celebrate Aboriginal culture as a key component of an emerging Australian identity. Australian designers such as Estonian-born immigrant Gert Sellheim, and his clients, appreciated the emergence of a new aesthetic that made a stylistic connection between modernism and Aboriginal imagery. Sellheim, designer of the original Qantas Flying Kangaroo logo,[14] was an early explorer of an Australian Identity that incorporated Aboriginal graphical representation. Although having deep appreciation of Aboriginal art, designers like Sellheim had little understanding of the cultural context or meaning behind the work, which was often appropriated or created by him in an 'Aboriginal' style. This can be seen in the example of Sellheim's 1948 Australian Stamp celebrating Aboriginal art[15] and his 1957 poster for the Australian National Travel Association.[16]

A high-profile example of inappropriate practice occurred in 1964 when Gordon Andrews, a much-celebrated Australian graphic and industrial designer, incorporated David Malangi's artwork *Gunmirringu Funeral Scene* (1963) on one side of the Australian one-dollar note (Figure 3). He did so without asking permission. Malangi was not aware of this until he saw the note after it was printed in 1966.[17] The Reserve Bank later recognized his copyright and awarded him compensation, yet, to feature an image (funeral scene) on a national bank note without asking permission, or even understanding its meaning, was and is regarded as both ignorant and disrespectful. This copyright case was a milestone event in the recognition of Aboriginal art in Australia, but it also left a legacy of uncertainty for many years about the use of indigenous imagery.

This example demonstrates the necessity for designers to appreciate indigenous iconography and consider the meaning of the imagery, not just aesthetic qualities. The Charter has a number of points that provide guidance to designers to achieve this.[18] It states the need to respect for the rights of indigenous peoples to oversee representation creation of their

Figure 1. Abo Brand. Paint Manufacturer 1921, Designer unknown. Copyright: Mimmo Cozzolino 1980, 2000. Source: Cozzolino and Rutherford, Symbols of Australia, 45.

Figure 2. Various Australian Aboriginal themed trademarks 1892–1954, Designer unknown. Copyright: Mimmo Cozzolino 1980, 2000. Source: Cozzolino and Rutherford, Symbols of Australia, 46–47.

Figure 3. *Australian One Dollar Note, Gordon Andrews, 1964*. Source: Russell Kennedy. Own image, 2017.

culture in design practice (addressed in point 2 of the Charter); always consider the reception and implications of all designs so that they are respectful to indigenous culture (addressed in point 5); develop and implement respectful methods for all levels of engagement and sharing of indigenous knowledge (collaboration, co-creation, procurement) (addressed in point 7); demonstrate respect, and honour cultural ownership and intellectual property rights, including moral rights, and obtain appropriate permissions where required (addressed in point 8). The Charter addresses the need to take a respectful approach to working with indigenous knowledge and provides guidance to avoid inappropriate use of indigenous iconography.

Much of this questionable work engaging with indigenous imagery was produced during the first half of the twentieth century. To understand the context, one needs to consider the shameful period of Australian history when Aborigines did not have the right to vote until 1962 and were only included in the national census after a referendum held to change the Australian Constitution in 1967. 'The referendum campaign effectively focused public attention on the fact that Aboriginal and Torres Strait Islander Australians were second class citizens with all sorts of limitations – legislative and social – on their lives'.[19] Many saw this change as recognition of Aborigines as full Australian citizens.

Historically, Australia has regarded Aboriginal visual culture as an adjunct to mainstream society. Today designers appear to be sympathetic to the issue but remain wary of referencing Aboriginal iconography because of the potential for inadvertent appropriation and the associated legal and ethical use issues. Representation of indigenous culture in Australia requires a dedicated and respectful approach to what is a diverse array of multi-cultures. In the late eighteenth century, there were between 350 and 750 distinct Aboriginal social groupings, and a similar number of languages or dialects.[20]

Design practice, like any research, requires an understanding of the social historical nuances associated with any brief. One of the challenges for designers, especially in the area of branding, is to simplify the message as a way to increase memorability. This is why, historically, designers have attempted to represent Aboriginal culture as a mono-culture. However, as illustrated by the AIATSIS map, created by Horton in 1996,[21] a generalized visual representation of Australian Indigenous culture is not a simple task. The AIATSIS map represents all of the language, tribal or nation groups of indigenous people of Australia. It indicates general locations of larger groupings of people although these areas may also include smaller groups such as clans, dialects or individual languages in a group. Dianne Hosking, a linguist at AIATSIS explains, 'the map shows Australians and the international community that this country was occupied everywhere with a diversity of indigenous people and their languages'.[22]

Grant, mentioned earlier in this article, elaborates on the point of diversity and speaks as an Aboriginal person when he explains:

> Indigenous people may be united in a sense of shared identity but like any population we are lacerated by divisions – economic, geographic, gender, political – we don't all agree, there is no common voice, nor should there be. But our voices – all of them – do need to be heard and we need to have the ability and the mechanisms to shape our destiny. Some see a future apart from Australia. There are those who choose to remain steadfast to their traditional lands and communities, some of which are remote, and there are challenges for the delivery of services and opportunities.[23]

The process of sharing cultural knowledge can be difficult however some case studies suggest that effective results can be achieved, if the motivations and objectives align with appropriate leadership and respectful methods of creation. One highly visible example of indigenous-led, traditionally inspired contemporary design is Balarinji's Qantas aircraft livery design called, *Wunala Dreaming*.[24] Both indigenous and non-indigenous designers regard this case study as a seminal step towards an authentic national identity. The Boeing 747–400 aircraft was launched in 1994 for a proposed three-month promotion, but it was so popular Qantas kept it flying until 2012, enjoying 17 years at the forefront of their identity. This design marked a pivotal point in cross-cultural design and national representation in Australia. It was a mature, confident, *indigenous-led* statement, which proudly celebrated Australia's rich

pre-colonial culture as a unique point of difference to the world.[25] Alison Page[26] a Walbanga-Wadi Wadi woman and highly respected interior designer said: 'The Balarinji-designed Qantas aircraft is a positive example and it's really visible. I think it is appropriate because Aboriginals designed it. It's authentic work.'[27] The Qantas design is a convincing example of how fresh thinking can have a major impact on perceptions and even inspire a paradigm shift in national representation.

The impact and historical significance of the Qantas design was no accident. Balarinji's design is a contemporary expression of an ancient culture that provides potential clues to the future expressions of Australian identity. Their design methodology is highly considered and strategically mapped. Their guiding principles of authenticity are always at the fore. They believe designers need to search from within, rather than defaulting to the insecure practice of following other countries. Founded by John and Ros Moriarty,[28] Balarinji Studio have demonstrated an ability to diplomatically challenge firmly established, post-colonial conventions relating to the representation of Australian identity. By exploring a new relationship between Australia's indigenous and colonial histories they continue to forge a convergent pathway of cultural hybridity. Although clearing the path for other indigenous and non-indigenous designers, Ros Moriarty cautions practitioners that the journey is not an easy one and that guidance is required. 'Cultural education and guidance would provide strategic opportunities for non-indigenous companies,' she claims. 'They would start to feel that there is a pathway where they can access some of this imagery and knowledge in a good way, and therefore create work that's more uniquely Australian.'[29]

Cato[30] made the following comments, noting the historical significance of the Balarinji Studio Qantas design and relevance of over 40,000 years of indigenous design knowledge in regard to the search for an Australian style:

> If you're a designer, the one thing you're chasing is something different, and yet we ignore thousands of years of history because we feel we've got to fit in while at the same time pretending to stand out. If you think about it, Australia could have adopted elements of Aboriginality that maybe would've seen Australian design have a personality on a world stage. I don't think Australian design actually does have that stronger recognition factor, you know, for example, we recognise Swiss design but we don't recognise Australian design. … I think it was a good thing that it happened and I think it bought indigenous culture to the forefront and that probably propagated the acceptance of Aboriginal style a bit more.[31]

The Balarinji Studio has navigated this difficult cultural space by demonstrating a bold but sensitive approach, which combines broad accessibility objectives with cultural integrity imperatives, the principles also employed in the Charter. These examples provide assurance the ten points of the Charter offers strong guidance for those who engage with Australian indigenous knowledge. Both the Charter and the work of Balarinji Studio demonstrate a rigorous commitment to research that respects cultural diversity and ensures compliance with associated engagement protocols.

3. Respectful sharing of knowledge

This article asserts that understanding protocols for respectful engagement with indigenous knowledge should be a key competency for design practitioners. Designers need access to a shared knowledge base but the process by which this occurs must be led and supported by our indigenous communities. It is important that they are not only in control of their own

culture, but are also acknowledged to be in control. To do otherwise is merely to appropriate their rights, knowledge and status.

In the past, the process of research with indigenous communities has been acknowledged as extractive where researchers entered into a community, conducted their research engaging community members, and left to publish their findings, leaving little of the knowledge gathered in the hands of the community, benefitting the community. Linda Tuhiwai Smith[32] calls this the insider/outsider approach to indigenous research and acknowledges issues related to being a non-indigenous researcher working in this field. She describes the New Zealand experience, which can be compared to Australia:

> Years of research have frequently failed to improve the conditions of the people who are researched. This has led to many Maori people to believe the researchers are simply intent on taking or 'stealing' knowledge in a non-reciprocal and often underhanded way.[33]

The United Nations, Secretariat of the Permanent Forum on Indigenous Issues states:

> For centuries, indigenous peoples have readily shared their knowledge with non-indigenous people, seeing their knowledge not as private property to be protected, but as collective goods to be shared for the benefit of all. However, in more recent times, as they have seen how their traditional knowledge is being ever more used for profit, indigenous peoples increasingly demand that their traditional knowledge be protected and recognized.[34]

The Australian Indigenous Design Charter highlights a need within the broader global decolonization discussion. The respect – or rather, the lack of respect – accorded to indigenous peoples in terms of their identity and cultural expressions is an ongoing issue and an international concern. This is not an issue isolated to the Australian context. The idea that indigenous peoples 'own' their own cultures as well as the spiritual and cultural meanings of their lives and surroundings is an issue that many institutions and organizations are reluctant to concede. Previously, indigenous peoples' knowledge systems and cultural expressions were seen as the property of academics, governments, scientists, museums and art galleries. For example, many indigenous sites are today considered to have cultural and scientific as well as aesthetic and public value and therefore have the potential to become World Heritage sites that 'belong to all the peoples of the world, irrespective of the territory on which they are located'.[35] The connection and relationships between these sites and living indigenous communities who want to protect their cultural heritage and assert their custodianship, is still an issue that the wider society finds difficult to understand and accept.[36]

This has led to designers currently operating in a climate of avoidance and cultural separation and, as Kennedy[37] argues in his thesis, not sharing knowledge only increases the level of ignorance by practitioners and subsequently the receivers of design – that being the broader society. Taking a similar position, Hogg[38] explains that the natural reaction of people is to avoid rather than seek knowledge when presented with unfamiliar challenges, while Smith[39] points out that non-indigenous researchers need to be involved in the field, acknowledging the 'first strategy of avoidance may not be helpful to anyone'.

Improvements in the process of research and collaboration can be achieved through co-designing projects with communities and recognizing that local intent, processes, agendas, and solutions are best informed by the community. Within indigenous knowledge research, it is crucial to understand that we cannot 'have' another's life experiences. Therefore, in deep listening we seek the solutions that emerge from the whole environment. Deep listening by all participants also means that voices from the land, the spirit and the people

can be heard. These voices are not commonly acknowledged within the traditional Western research paradigm.[40]

Discourse involving the indigenous knowledge engagement by the non-indigenous involves issues of appropriate or inappropriate representation, and according to Ziff and Rao,[41] cultural appropriation involves a multifaceted dynamic web of forces including politics, power, degradation, and values. Australian branding expert, Richard Henderson[42] shared his thoughts on the awkward power dynamics surrounding indigenous representation in design practice when he explained:

> 'Ripped-off' is not the right word but the suggestion has been made that you're trying to take something, which is not yours, and pass it off as yours. I always find that a bit difficult because indigenous art is so authentic to Australia and it should be part of our broader identity, we just need to find a way to make it happen more often. When we did the Olympics, it was quite confrontational in that some people were asking: 'why are we using Aboriginal culture? Why do we have to use it? Why is the white man developing something with which we had no right to?' I think that attitude probably comes back to feeling, as I said, ripped-off. As Desmond Tutu said, 'When the missionaries came to Africa they had the Bible and we had the land. They said 'Let us pray.' We closed our eyes. When we opened them we had the Bible and they had the land.' It's that sense of being disenfranchised (ripped-off) because no one really fully explained what they're going to do with it'.[43]

Stakeholder theory is a frame of organizational management and business ethics that addresses morals and values in managing organizations. Traditional business practice is based around a competitive culture resulting in winners and losers; however, stakeholder theory aims to build a culture of mutual benefit. This business theory acknowledges the forces at play in business and addresses the strategies required to establish and maintain an ethical practice considerate of all participants.

Stakeholders are defined as those groups who have a stake in, or claim on, the firm, specifically including suppliers, customers, employees, stockholders, and the local community, as well as management in its role as agent for these groups.[44] As defined by Freeman a stakeholder is: 'any group or individual who can affect or is affected by the achievement of the organization's objectives'.[45] The principles of stakeholder theory propose that management is required to 'acknowledge and actively monitor the concerns of all legitimate stakeholders'[46] and must take the interests of the stakeholders into account in the decision-making processes. They must listen, communicate, and adopt processes sensitive to the concerns of the stakeholders. Managers should work cooperatively with their stakeholders, acknowledging the potential conflicts between their role and the legal and moral responsibility they hold for the interests of others, addressing these with open communication and appropriate reporting.[47]

Research into the practices of stakeholder theory provides insight into the process that could be utilized in design practice to circumvent some of the conflict commercial enterprise has had when using graphical depiction of indigenous culture and the impact this conflict has had on the balance of power. Stakeholder theory suggests that the firm should be managed for the benefit of its participants and that management has a fiduciary obligation to stakeholders to act as their agent. It takes the premise that shareholder, investors, and managers need to appreciate and understand that 'the 'social responsibility' of business, properly understood, is not an odd number of extraneous obligations of the businesses and corporations. It is the very point of their existence'.[48] The organizations that recognize the wants and needs of the stakeholders can greatly improve their future opportunities whereas

failure to recognize the impact of stakeholders on an organization can significantly impact on reputation.[49]

Based on an ethical business paradigm, stakeholder theory proclaims that in order to achieve sustainable success over time, companies must keep the interests of customers, suppliers, employees, communities, and shareholders allied and moving in the same direction. To have all stakeholders sharing a united vision is deemed more ethical and productive in the long-term. This theory is highly applicable for the research of the appropriate use of indigenous knowledge in design practice, given its professional practice position of success based on mutual respect. Traditionally, stakeholders in the cultural and design fields have worked in isolation of each other's interests, either deliberately or through ignorance. An aligned stakeholder approach can be of mutual benefit to all constituents, ultimately leading to a more ethical, respectful, and visible acknowledgement. Introducing these concepts to designers in professional design practice would assist awareness of the context they are working.

When designers work with indigenous knowledge, the stakeholder base grows to include the client, the designer, and a largely expanded community. The Charter, based on the principles of stakeholder theory, aims to equalize the power balances in the design process. Designers cannot, and should not, work in isolation; there must be mutual benefits for all stakeholders especially the cultural custodians.

Highly respected Australian designer David Lancashire[50] is a non-indigenous communication designer who has successfully navigated this complex stakeholder base in numerous commercial projects by persisting where others have found it too difficult. Lancashire understands the precarious relationship indigenous culture has with contemporary Australian design. Migrating to Australia from England as a 19-year-old, Lancashire was immediately struck by the unique qualities of Aboriginal art and believes strongly that it should have an elevated status within Australia's national identity.[51] He has developed his own processes of engagement that draw inspiration from indigenous culture without ever a suggestion of appropriation. Lancashire's Peace Roo poster for the Sydney Olympics 2000 demonstrates this ability.[52]

Lancashire articulates the need to reflect on the ability of design to help generate a cultural shift in the way in which we visually represent indigenous knowledge in contemporary communication design practice. In 2010, Lancashire produced the following call-to-action when briefing participants of Icograda's *INDIGO – Mother Tongue* exhibition.[53]

> We need a culture shift! Can design reconcile differences? Does it hold this power? If design has the power to market products and services that make consumers consume, then I am sure it can.[54]

4. Conclusion

The Charter does not claim to have the definitive answers to the issues of collective or diversified representation, but it will respond to feedback and be periodically up-dated. By declaring the Charter as an open document, the authors acknowledge the complexity of the challenge and accommodate the questions of uncertainty. It is a sensitive area where indigenous-led guidance is needed to assist companies, designers and communities to engage appropriately. The Charter is an indigenous-led initiative, which aims to assist both non-indigenous and indigenous designers working out of country. What the Charter provides

is a process that explains the need for a shared knowledge base to be led and supported by our indigenous communities. It is important that they are not only in control of their own culture, but also acknowledged to be in control. To do otherwise is to appropriate their rights, knowledge and status.

The Charter suggests that appropriate representation of Aboriginal and Torres Strait Islander peoples can ONLY be achieved when effective and respectful partnerships are established between relevant stakeholders. The Charter discourages generalizations and instead recognizes the unique circumstances, customs and status of Aboriginal and Torres Strait Islander peoples as the First Australians. It acknowledges the diversity of Aboriginal and Torres Strait Islander culture across Australia and the special relationship indigenous people have with their traditional lands. The Charter insists that designers (non-indigenous and indigenous) respect cultural ownership, adhere closely to customs and protocols, and gain appropriate individual and community permissions when required.

The Charter has been conceived and written in the spirit of inclusiveness; fostering cultural innovation through inclusiveness. It is intended to perform as an active agent of change and help facilitate the indigenous reconciliation process in Australian. This inclusive practice exemplar aims to dissipate ignorance through respectful and ethical knowledge sharing and increased visibility. It promotes the best practice, moral principles and engagement methods (collaboration, co-creation, permissions, procurement) required by designers to represent Australian Aboriginal and Torres Strait Islander culture authentically in their practice. As mentioned earlier, the Charter has been written for both non-indigenous designers and Australian Aboriginal and Torres Strait Islander designers working in and out of country and community.

This Charter has been drafted to complement existing laws, codes of ethics and best practice guidelines. It is based on a clear understanding of the rights established by leading ethical and legal organizations. The Charter respects the Indigenous Australian Art Commercial Code of Conduct[55] supporting existing policies, procedures and protocols that ensure the rights of Australian Aboriginal and Torres Strait Islander stakeholders, including their moral rights, intellectual property and copyrights. It also emphasizes the crucial right to fair and informed negotiation and remuneration. The Charter reinforces the rights of indigenous peoples to cultural self-determination as recognised by the United Nations in their Declaration on the Rights of Indigenous Peoples.[56] It aims to create awareness of the need for designers to respect indigenous cultural intellectual property in both the procurement and use of existing works but also in the creation of new designs. This knowledge is vital for indigenous designers and entrepreneurs who require Intellectual property protection of their designs for effective export and trade.

Indigenous representation is an issue for all Australians. It is becoming an increasingly important consideration for design practitioners as Australia steps closer to formally recognize its Aboriginal and Torres Strait Islander peoples in its constitution. This paradigm shift is already impacting designers as they are increasingly called on to visually represent Australia as home of the world's oldest continuous living cultures. This model for best practice aims to make a significant contribution to what is a challenging area of communication design practice to navigate. It does not claim to be a perfect solution to appropriation or inappropriate representation, however, acting as a cultural facilitation tool, offers insight into an agreed process of consultation and engagement. Through indigenous-led research, design advocacy and industry consultation the objective of the charter is to strengthen identity,

and by doing so build self-esteem, and a sense of place through cultural visibility. It is expected that design practitioners and companies that adopt the Charter actively support and fulfil the principles outlined in the document. These principles apply to all dealings with Australian Aboriginal and Torres Strait Islander representation, designs and works of art, indigenous designers and artists and their representatives and communities. The charter presents guidance to designers responding to the mantra that, *'if we change the way we look at things, then the things we look at will need to change'.*

Notes

1. Kennedy and Kelly, *Australian Indigenous Design Charter*.
2. Kennedy, *Designing with Indigenous Knowledge,* vii.
3. Kennedy and Kelly, *Australian Indigenous Design Charter*.
4. Kennedy, *Designing with Indigenous Knowledge.*
5. Oxfam Australia, *Aboriginal and Torres Strait Islander Cultural Protocols*.
6. Janke, *Our Culture: Our future*; *New Media Cultures*; *Writing Cultures*; and *Protocols for Producing Indigenous Australian Visual Arts*.
7. Bouwen, "Relational Construction of Meaning in Emerging Organization Contexts."
8. Ibid., 302.
9. Miles and Huberman, *Qualitative Data Analysis,* 21.
10. Oxfam Australia, *Aboriginal and Torres Strait Islander Cultural Protocols*.
11. Grant has media experience both locally and nationally having worked for Seven, an ABC television networks in Australia, and CNN in the US.
12. Grant, *I Don't Have all the Answers.*
13. Willis, *Illusions of Identity*, 124.
14. An image of the *Qantas Flying Kangaroo Logo* designed by Sellheim 1947, Accessed 13 February 2017. http://www.qantas.com/travel/airlines/history-kangaroo-. symbol/global/en.
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26. Alison Page (Design Institute of Australia Hall [DIA] of Fame 2015), a descendent of the Walbanga and Wadi Wadi people of the Yuin nation, is an award-winning creative at the forefront of contemporary Australian Aboriginal design.
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28. John Moriarty and Ros Moriarty (Design Institute of Australia [DIA] Hall of Fame 2013), co-founded Jumbana Group in 1983, an Australian indigenous design and strategy company. John

Moriarty AM is a full member of the Yanyuwa people of his birthplace, Borroloola, Northern Territory.

29. Kennedy, *Designing with Indigenous Knowledge*, 192.
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Acknowledgements

We would like to acknowledge the contribution of Deakin University School of Communication and Creative Arts (SCCA), Deakin University Institute of Koorie Education (IKE), Indigenous Architecture and Design Victoria (IADV) and the Design Institute of Australia (DIA).

Disclosure statement

No potential conflict of interest was reported by the authors.

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Meghan Kelly is a Senior Lecturer in Visual Communication Design at Deakin University and currently serves as the Associate Head of School for Teaching and Learning in the School of Communication and Creative Arts. Kelly's research explores issues surrounding identity creation and representation in a cross-cultural context with a focus on indigenous communities. Her passion for a global understanding of design extends into her teaching practice and continues to be explored in research projects and design opportunities. Together with Kennedy, Kelly has written the Australian Indigenous Design Charter: Communication Design and has travelled to Denmark, Greenland and Sweden to explore its transformation into the International Indigenous Design Charter. Kelly is a member of the Design Institute of Australia (DIA).

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 240–249
https://doi.org/10.1080/20557132.2017.1333281

Routledge
Taylor & Francis Group

wee go library

keywords

Little Free Library®
altered books
neighborhood
mapping
collage

Steven McCarthy
University of Minnesota

Wee Go Library is a custom-designed mobile storage unit that houses twenty-two books that were harvested from Little Free Library® containers in Minneapolis and St Paul, Minnesota, USA, and then altered into artworks using collage and assemblage techniques. The project critically examines the roles of books, non-institutional libraries and the notion of community in the age of the internet and digital communication.

These pedestrian-friendly mini-libraries – usually in residential neighborhoods – are painted boxes with a glass door and gabled roof, mounted on a wooden post, that freely offer used books. In the spirit of the organization's slogan – "take a book, leave a book" – McCarthy traded used novels for cookbooks, how-to manuals, children's books, adult pulp fiction, travel guides, evangelical Christian books, Booker T. Washington's *Up From Slavery* and a 1957

This is the house of Little Free Library founder Todd Bol in Hudson, Wisconsin, USA, which features two libraries. There are now over 36,000 libraries registered world-wide on the organization's website.

"Some [Little Free Library structures] replicate the architecture and color of the owner's house, some look like barns or birdhouses, and some are eclectic expressions of artistic abilities. For those with a critical architecture and design eye, most little free libraries would likely be considered kitsch." (McCarthy 2016, p. 219)


"Brown revitalizes the Western romance."
This marriage comes with more than one hitch...
SPECIAL LOW PRICE
New York Times and USA Today Bestselling Author
CAROLYN BROWN
One Hot Cowboy Wedding
wee go library
is small, mobile collection of diverse books


House
wee go
library

Picasso exhibition catalog from the Museum of Modern Art, among others.

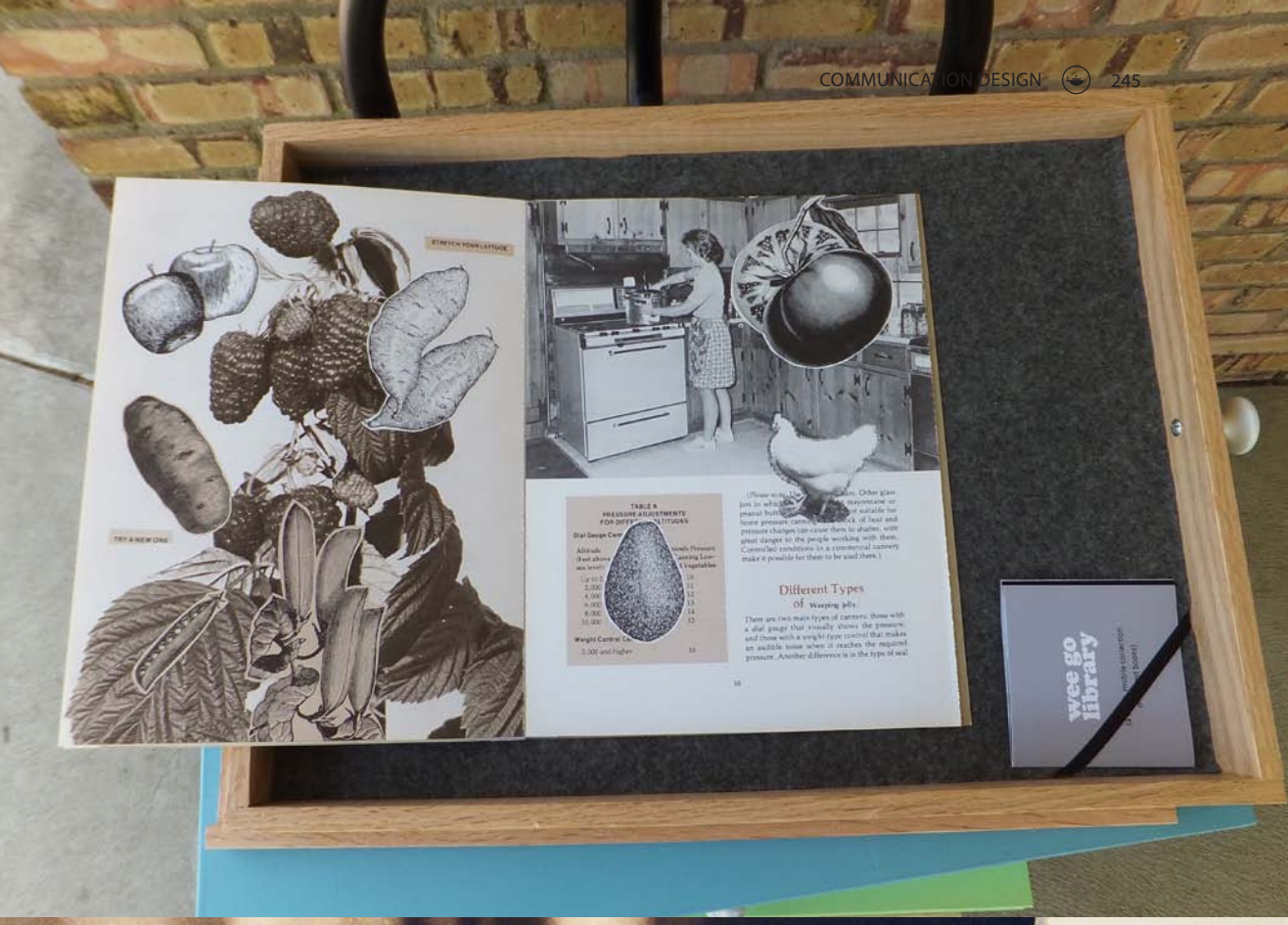
The Little Free Library enterprise was founded to encourage social interaction and increase literacy. "Little Free Library is a nonprofit organization that inspires a love of reading, builds community, and sparks creativity by fostering neighborhood book exchanges around the world." (littlefreelibrary.org, 2017) They also build and sell the library structures.

The Wee Go Library cabinet is handmade from pine and oak wood and is permanently mounted on a hand truck for ease of movement. The paint colors reference the bucolic palette of Twin Cities neighborhoods in the summertime. A laser-cut sign identifies the unit as compact, mobile and offering libraries' typical attributes: storage, protection, organization, access and possibly intrigue. Felt-lined drawers hold altered books and a small pamphlet.

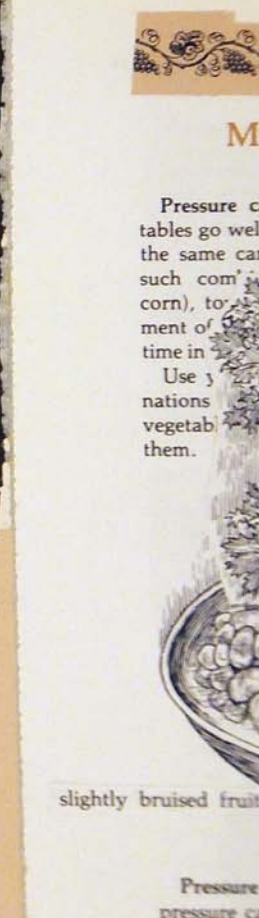
The project makes a critical commentary on books – their material and literary properties are exploited – and on the Little Free Library as an emergent, distributed network. With over 130,000,000 unique book titles in the world, and printed editions consisting of many thousands, what is the role of billions of books in the age of the internet? Wee Go Library also comments on vernacular design and on the idea of communities as socially, politically and environmentally constructed entities.

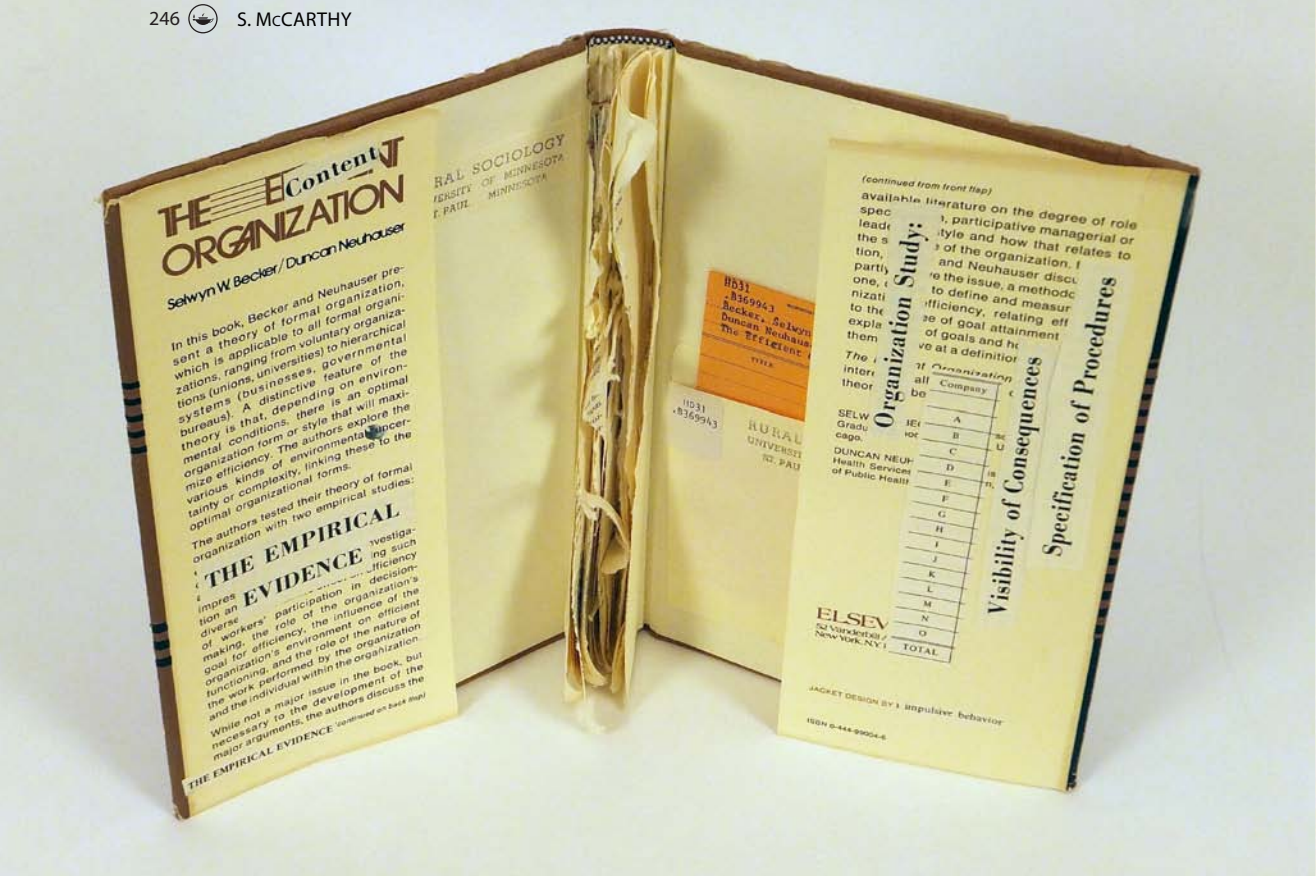
The Library Beyond the Book says: "The library is a product and critique of urban possibilities." (Schnapp & Battles, 2014, p. 28) The Wee Go Library project, illustrated over these pages, inverts this assertion by being an urban product that critiques libraries through artistic intervention. The resulting artworks question books' value by altering the narrative.

For Wee Go Library, McCarthy was awarded the 2017 Minnesota Book Artist Award.



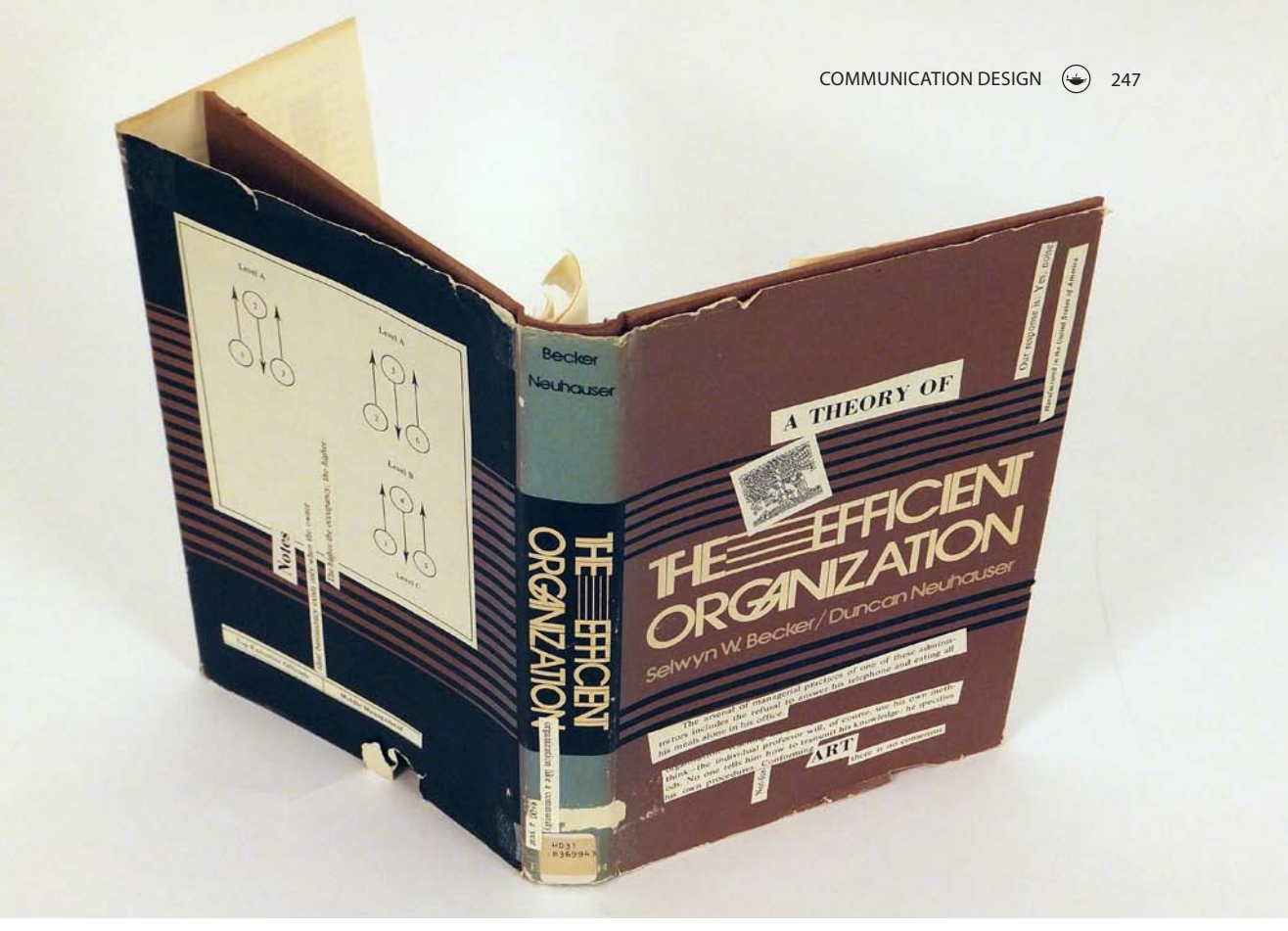
Detail of book above





This spread depicts the contents of a single Wee Go Library drawer and its source. *The Efficient Organization* – an unreturned University of Minnesota library book from 1975 – is now an altered book with torn pages and collage elements. A small pamphlet is included that depicts the donor Little Free Library, its sponsoring house, and a map pin-pointing its location.

This mid-century Modern house is in a neighborhood where protected status requires permission for exterior work: "The Lessor shall deny approval to proposed improvements which impair the aesthetic quality of the neighborhood. The Lessor shall give particular weight to the fact that the aesthetic quality of the Grove neighborhood depends upon maintaining openness and visual continuity..." (UM, 2014, B-1) Does this Little Free Library add visual continuity to the neighborhood?


Becker
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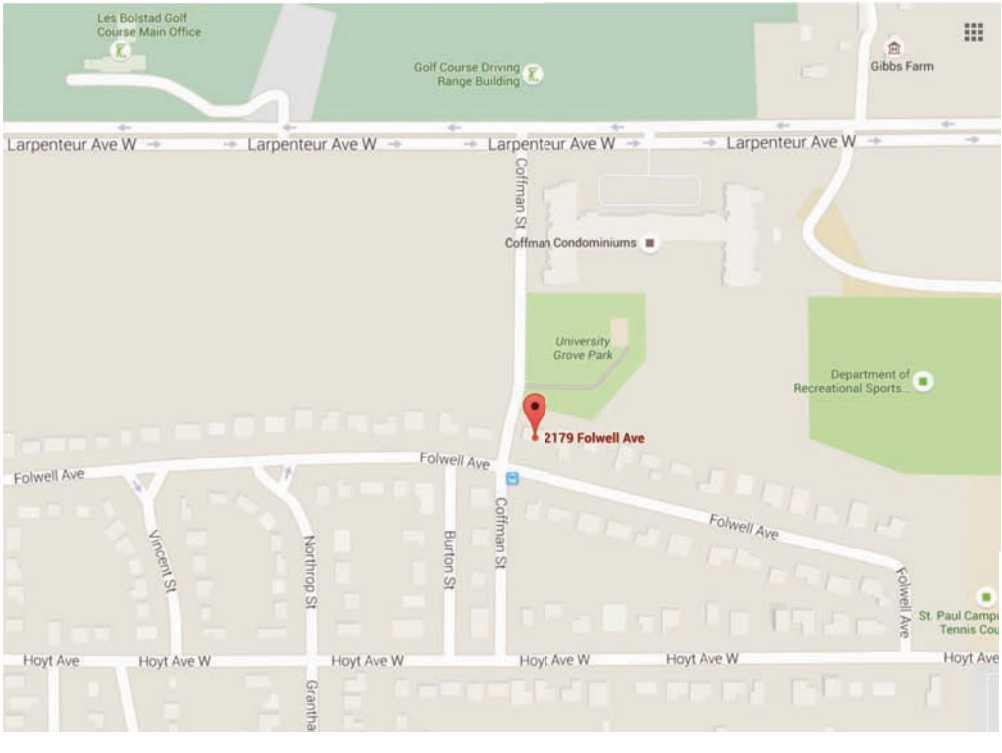
THE EFFICIENT ORGANIZATION


Les Bolstad Golf Course Main Office
Golf Course Driving Range Building
Gibbs Farm
Larpenteur Ave W
Larpenteur Ave W
Larpenteur Ave W
Larpenteur Ave W
Coffman St
Coffman Condominiums
University Grove Park
Department of Recreational Sports
2179 Folwell Ave
Folwell Ave
Folwell Ave
Folwell Ave
Folwell Ave
Vincent St
Northrop St
Burton St
Coffman St
Hoyt Ave
Hoyt Ave W
Hoyt Ave W
Hoyt Ave W
Hoyt Ave W
Hoyt Ave


THROOOOOOOOOOOOM!
It was a lot worse than that.
GUDDA-GUDDA-GUDDA-GOOOOOOM!
FWUUUUUUUUM!
KRRRAAAAAASH!
GRR-JUNT!


CHAPTER 40
CHAPTER 33
JESUS CAN PROTECT US
The attempts to kill Jesus
kill Jesus before that could happen.
After the astrologers visit Jesus, what warning does God give them that saves Jesus?
The most precious child
What things did Jesus suffer when he gave his life for us?

sources

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notes

"Altered books" are a type of artist's book, an art genre that uses books' material, spatial, visual, literal and temporal qualities for expression and communication.

The "Grove" neighborhood consists of 103 houses – many of which are architecturally significant – on University of Minnesota land. Homeowners lease the land for $100 per year. Exterior improvements are bound by a lease agreement that requires neighbors' approval and University permission.

The "Minnesota Book Artist Award" is given annually by the Minnesota Center for Book Arts and the Friends of the Saint Paul Public Library.

contributor

Steven McCarthy (MFA Design, Stanford University) is a professor of graphic design at the University of Minnesota. He has exhibited, presented, published and conducted grant-funded research on six continents. Learn more: http://faculty.design.umn.edu/mccarthy.

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 250–257
https://doi.org/10.1080/20557132.2017.1385221

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Taylor & Francis Group

Teresa Trevino
University of the Incarnate Word, USA

we, DESIGN.

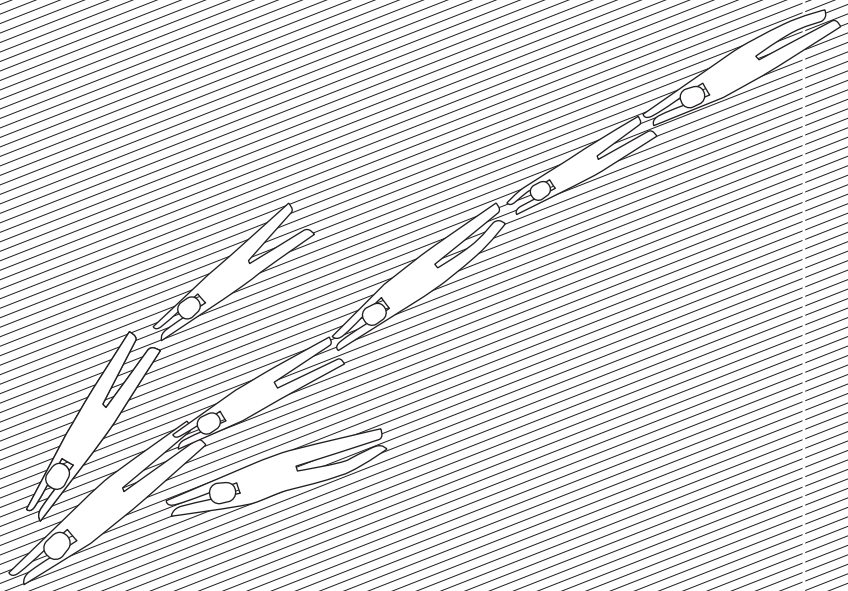
Collective efforts to inform, mourn and change the world.

Recent world events affecting communities and their well-being are pushing citizens to take a stand. The ways that many people respond to such events are changing, and as a consequence, design is expanding into new territories. Activism is more powerful than it has been in many years, and with or without the intervention of designers, collective visual messages of protest, hope, warning or pain are invading our environment. Groups of people with a common goal are using their bodies as a primary resource; they are transforming themselves into words, signs and symbols. Humans become the medium to evoke powerful messages for the world to see.

In the past ten years, drawing the human figure became a challenge for me. It is through practice, observation and patience that one can attempt to depict proportions accurately. However, my pursuit of accuracy came along with a broad interest of the human body as an energetic tool for expression and communication. The following spreads are examples of my human-body-focused practice.

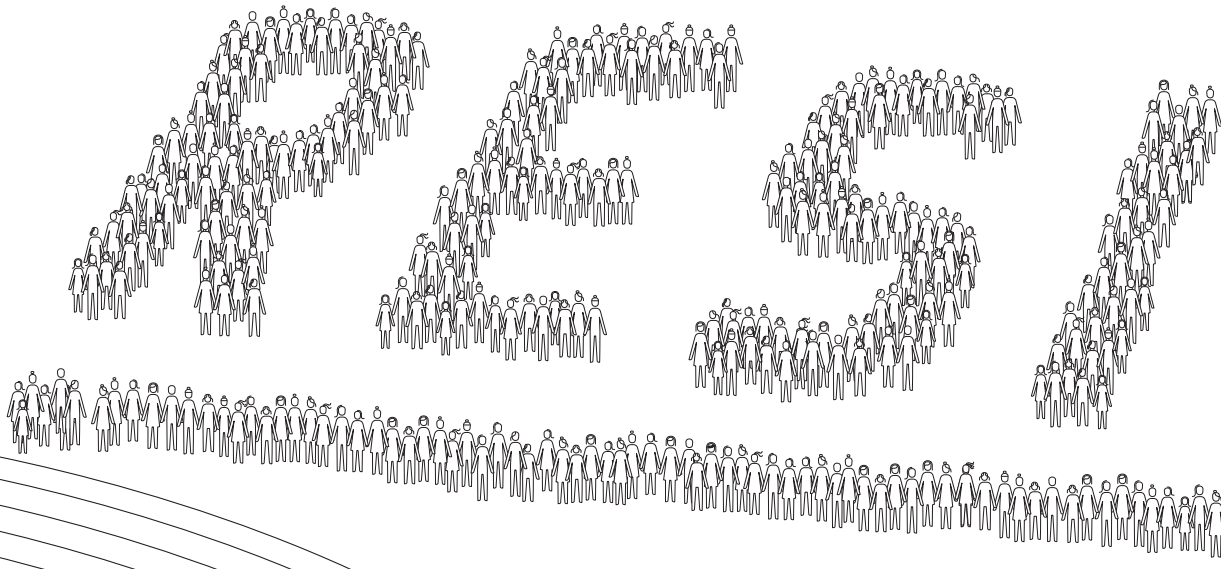
Documenting this process is a self-reminder to observe, reflect and design experiences that allow interaction and collaboration between designers and citizens; they are a reminder that collective efforts increase the chances for both designers and communities to move forward and evolve.

Key words
activism | collaboration | community | human body



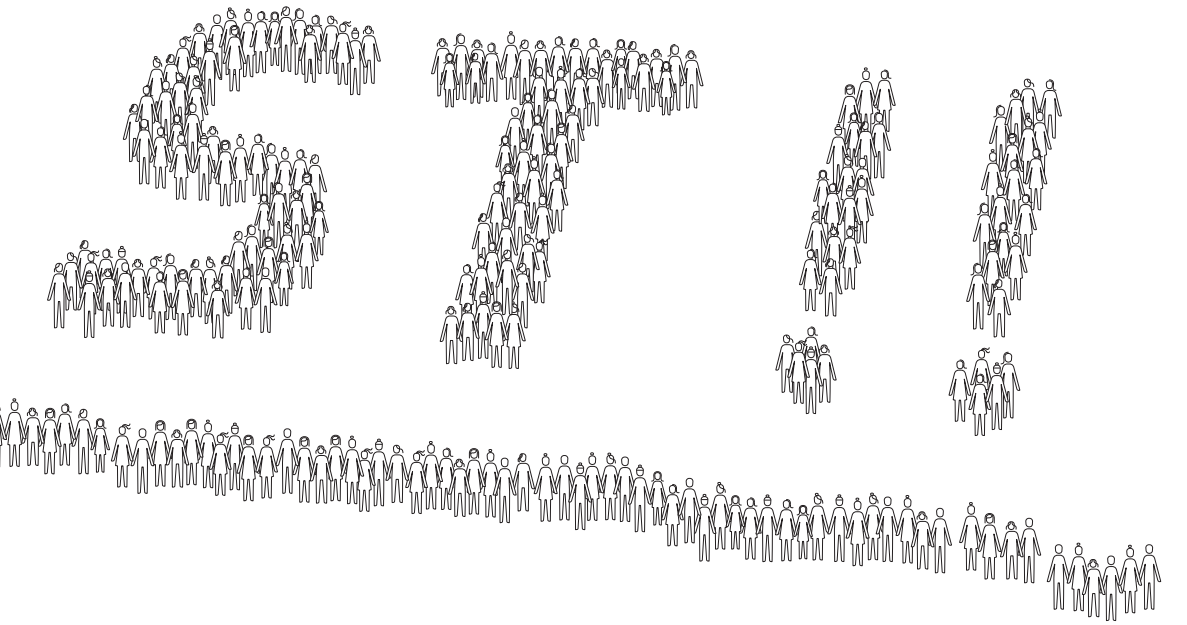
1 **HUMAN ARROW**
Capel, Surrey **03/25/2016**

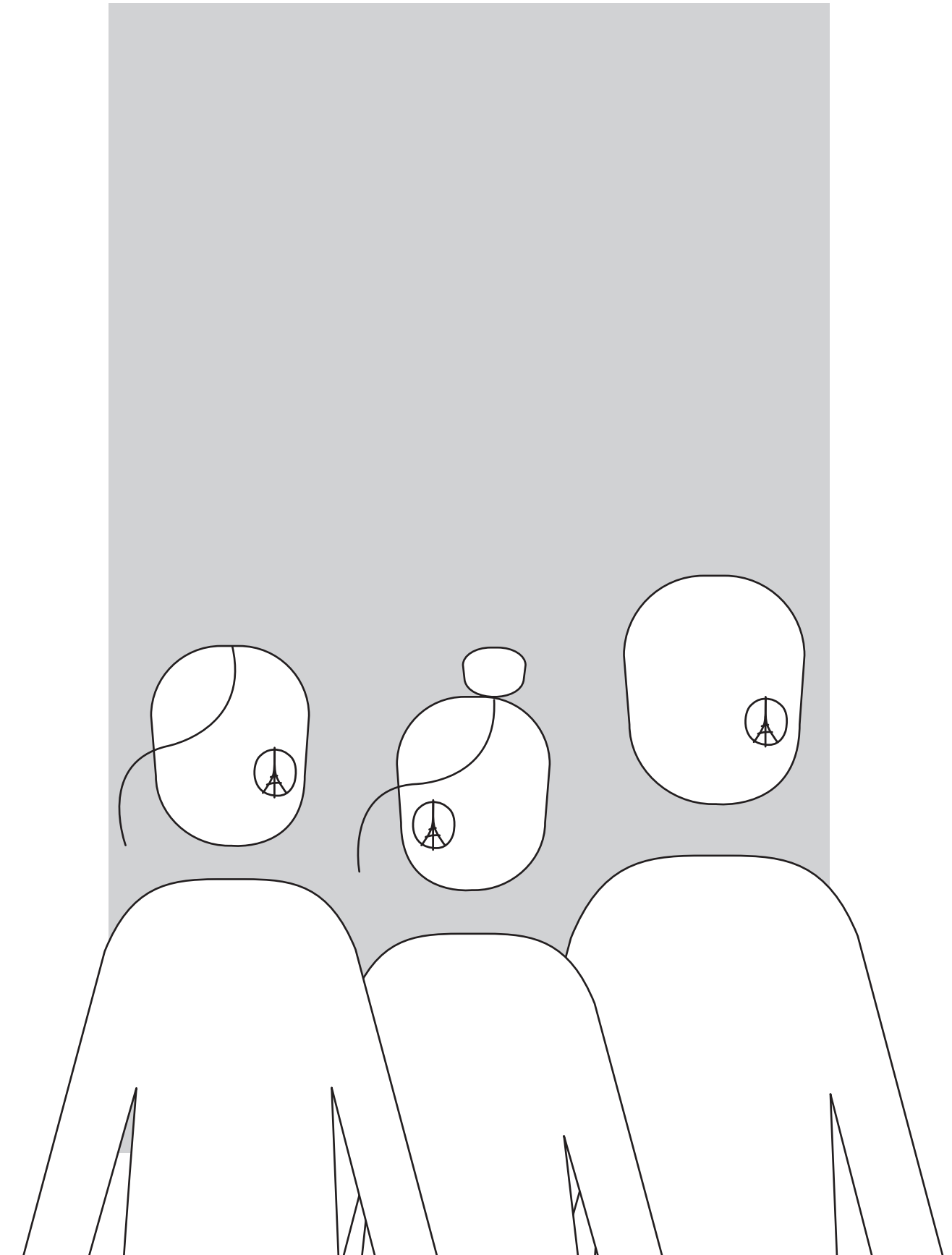
Eight kids guide a helicopter in the direction of two fleeing suspects by creating the most basic information design device: an arrow.

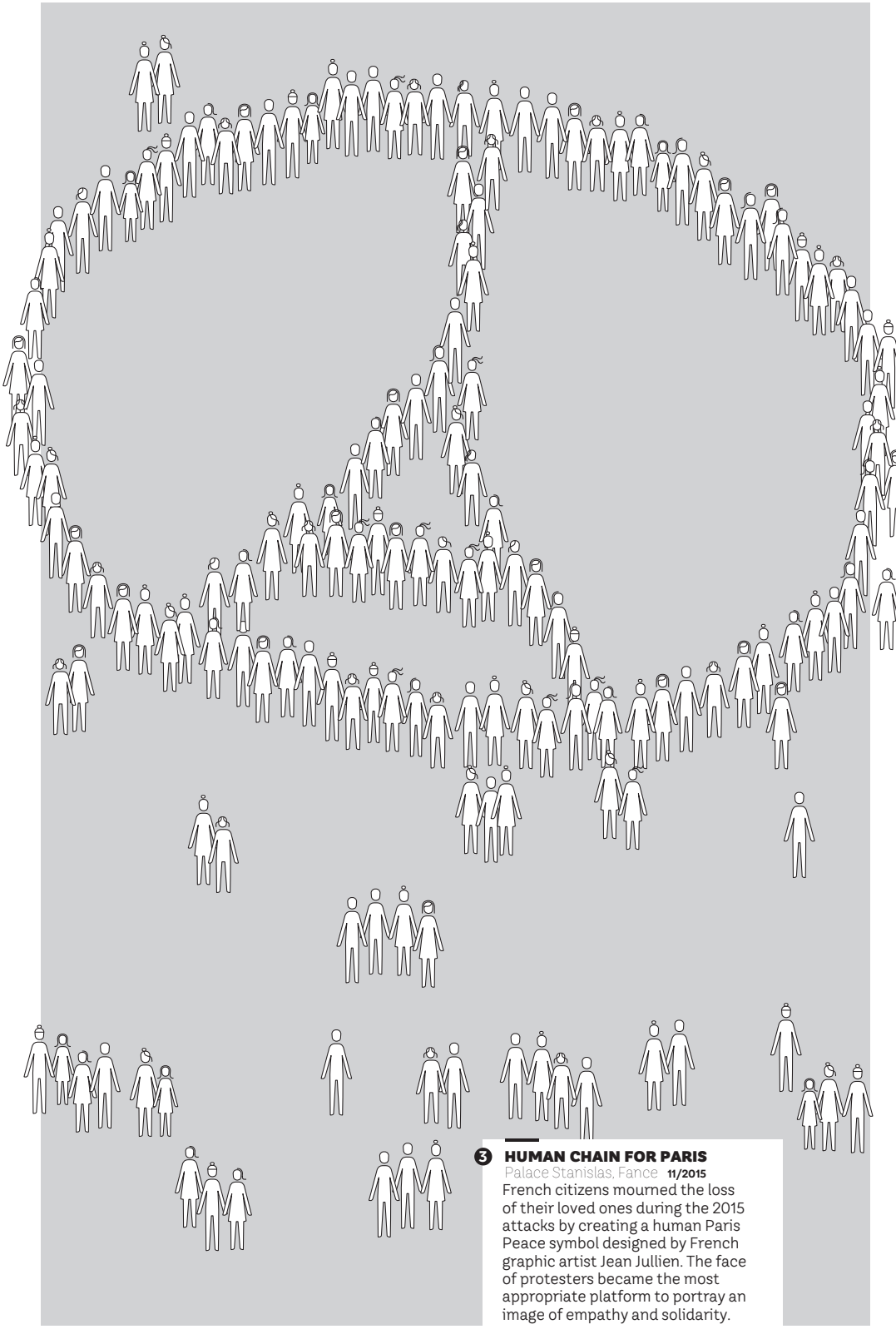


❷ **RESIST!!**
Ocean Beach, San Francisco **02/11/2017**

Organized by Brad Newsham from Oakland, California, more than 4000 citizens stood by Ocean Beach to create the word RESIST!





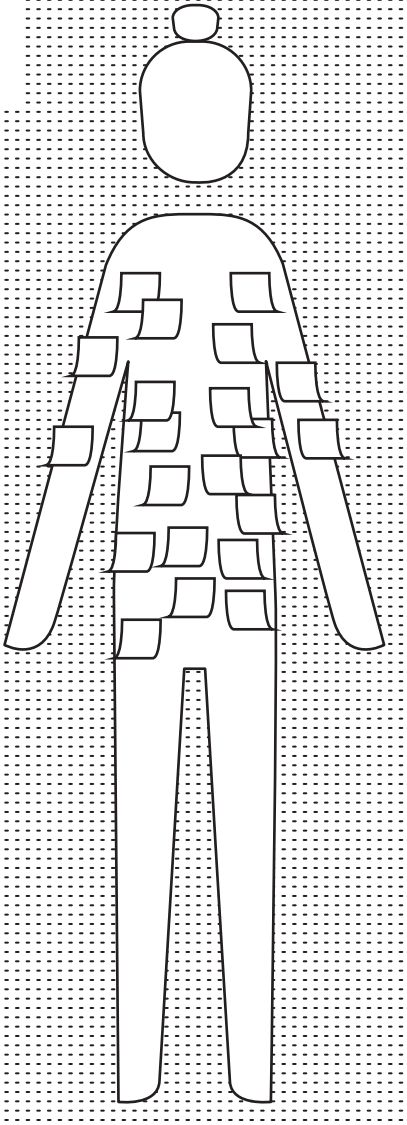


3 HUMAN CHAIN FOR PARIS
Palace Stanislas, Fance **11/2015**
French citizens mourned the loss of their loved ones during the 2015 attacks by creating a human Paris Peace symbol designed by French graphic artist Jean Jullien. The face of protesters became the most appropriate platform to portray an image of empathy and solidarity.

4 HAL AND JORDAN / HOPES, FEARS AND FOUR MORE YEARS

Washington, DC **01/21/2017**

Hal and Jordan traveled from Austin, Texas to Washington, D.C. on January 21st. to ask marchers about their fears about and hopes for the new Presidency. Answers were collected in cards and then stuck to their bodies for everyone to read.



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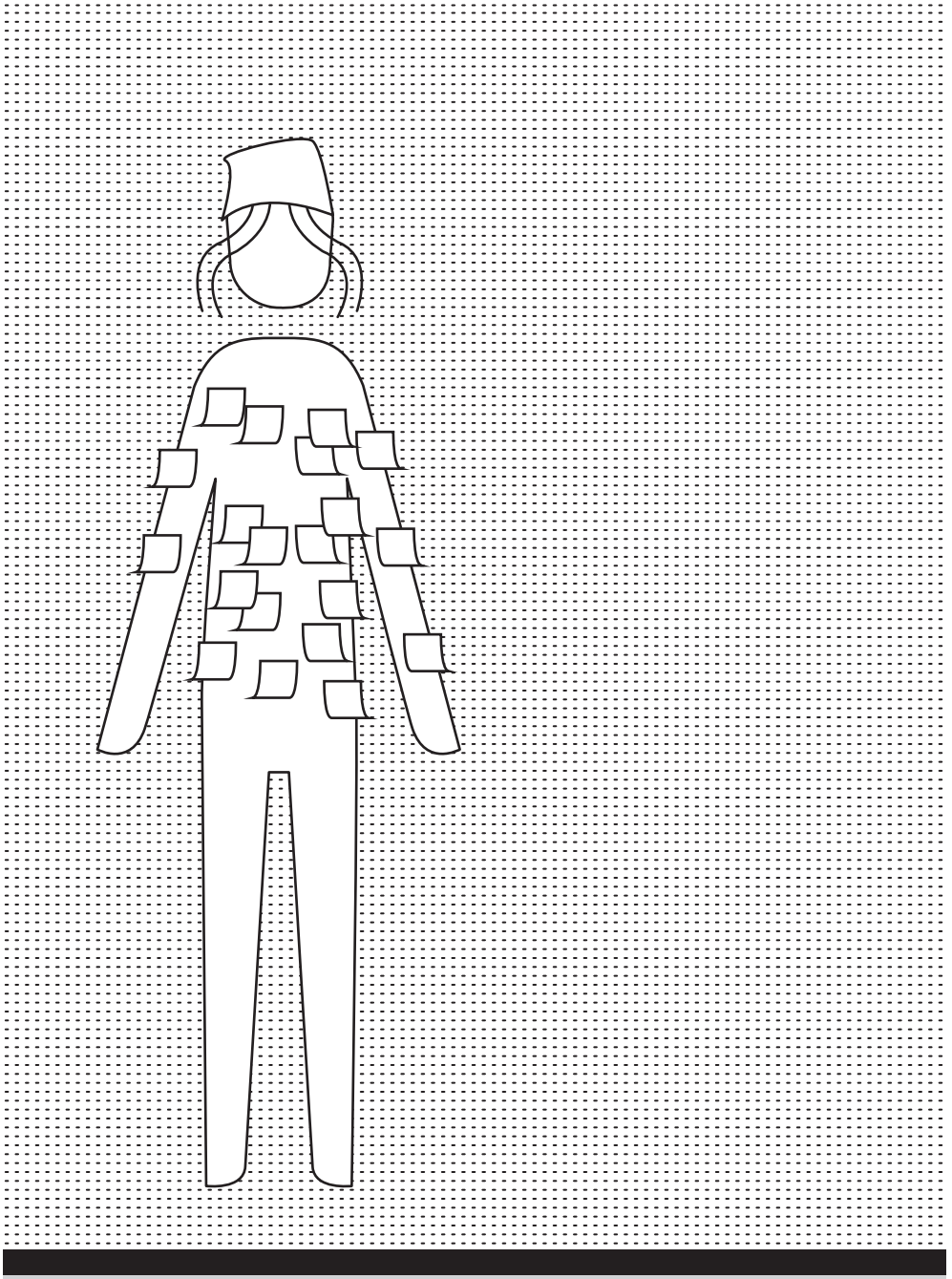

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 258–264
https://doi.org/10.1080/20557132.2017.1398952

Routledge
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Back to the classroom: the Central Saint Martins Museum & Study Collection and Central Lettering Record

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ABSTRACT
The Central Lettering Record at Central Saint Martins is a teaching collection begun at the Central School of Arts & Crafts in the 1960s but which draws much from a longer tradition of collecting 'teaching examples' at the school begun by its founding Principal W.R. Lethaby. The article describes the origin of the collection, and the role of key figures in its development: Nicholas Biddulph, Nicolete Gray, James Mosley and Alan Bartram, and the breadth of its holdings. It offers some reflection on the relevance and use of such a collection in today's Higher Education climate.

ARTICLE HISTORY
Received 17 October 2017
Accepted 18 October 2017

KEYWORDS
Lettering; typography; collections; 'object learning'; graphic design; education

The particular focus of this archive essay is a collection known as The Central Lettering Record (CLR), which forms part of the Central Saint Martins Museum & Study Collection. Distinct in both remit and through its current location within the Graphic Communication Design teaching programme, the CLR does though follow in a tradition of teaching collections at the college, which is worth contextualizing by way of introduction.

Central Saint Martins (a constituent college of the University of the Arts London) was formed in 1989 through the amalgamation of St Martins School of Art (founded 1856) and The Central School of Arts & Crafts (founded 1896) and its Museum collections reflect the very different 'personalities' of the two schools.

In 1896 the Technical Education Board of the London County Council gave W.R. Lethaby the task of building up a collection of 'teaching examples' for use by students of their art schools. From a graphic design perspective this early collection is important in that it contains manuscripts, incunabula and early printed books. Lethaby was the founding Principal of the Central, and when its new building on Southampton Row was completed in 1908, the collection moved there.

The CLR very much follows on in this very 'Central School' tradition of collecting materials for the enhancement of teaching and learning. The CLR was originated by then tutor Nicholas Biddulph in 1963 with two main aims – to broaden understanding of letters as forms, and to better delineate the practice of lettering from that of typography. At that time the UK was still firmly under the aesthetic spell of one very particular articulation of the Roman capital letterform, the Trajan Roman, which had come to dominate debate and practice. The CLR

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was Biddulph's counterpoint, through the collecting of images, 'to show the quality and variety of the Roman achievement.'[1] A set of photographs by typographic writer and historian James Mosley from a recent trip to Rome was the start (Figure 1), with a parallel set of images also housed at the University of Reading.

The revival in lettering and calligraphy so inspired by Edward Johnston's classes at the Central School had by the 1950s and early 1960s begun to give way to the concerns of the Continental modern movement in typography. However, as former CLR Research Fellow Eric Kindel sets out, there were others, 'For whom lettering and calligraphy remained an equally relevant foundation for teaching' and who, 'harboured concerns that in the trend towards typographic dominance in the art schools, lettering and its traditions would be dissipated and forgotten.'[2]

In 1965 the letterer and historian Nicolete Gray (1911–97) was invited to bring her very individual teaching sensibilities to the Central School and along with them came an expanded agenda for the scope of the CLR. Similarly frustrated by the sterility of Trajan monoculture in lettering practice and the aesthetic high-mindedness, which too often endorsed it, her contribution to diversification in terms of useful models for study came through an enthusiasm for the vernacular. Having written about vernacular letterforms in the context of public lettering and architectural practice for the Architectural Review since the 1950s she was keen to document lettering on buildings and especially that under threat of demolition). Her interest in the vernacular also extended to the typographic with work towards the 1976 re-publishing of her seminal 1938 book, *Nineteenth Century Ornamented Types and Title-pages*, adding a significant amount of material from the much over-looked trade catalogues to the CLR. Gray's other significant contribution to the CLR came through her consideration of lettering as art. She advocated the expressive potential in letterforms both historical and contemporary, recognizing and championing the unorthodoxy of work from practitioners such as Ralph Beyer, who as a German émigré engaged on a significant commission for Coventry Cathedral was, at first, far from warmly received.[3]

Figure 1. James Mosley, The Forum, Rome. Photographed *c*.1965. Source: James Mosley/Central Lettering Record.

In terms of its goals the CLR was certainly ambitious. Education was key, a primary objective being, 'to provide students in the Graphic Design Department, and those interested from any other department in the School, with material for study and inspiration, and the staff with visual teaching aids' (Figure 2). [4] More particularly, Biddulph and Gray were keen to promote scholarly engagement with the field of lettering, to improve standards and accessibility in research. Of particular concern within this 'context of art education' was 'bringing scholarly standards to a non-academic situation, presenting accurate information in an accessible form.' [5] In addition to their qualitative concerns, they saw the potential in the CLR as a research space able to engage scholars across the traditionally delimited academic disciplines where the epigrapher, the paleographer, the art historian and the numismatist might collectively participate in the generation and dissemination of knowledge concerning letterforms. As such it was originally intended that the CLR should eventually gain recognition as a resource and collection of national status and autonomy.[6]

The educational concerns of the CLR extended though beyond the academy, the collections, intended as much, or more, for the working designer as for the scholar. The agenda here was one of reinvigoration, as former Research Assistant Leonora Pearse makes clear:

> We live in an age of experiment in technology and materials, but this potential is, in the field of letter design, rather neglected. We lack standards and often turn to inferior models, thoughtlessly reproducing letters of the past in situations for which they were not intended. We tend to suffer from brash revivals, but an informed study of the past can provide inspiration for the present. There is a multiplicity of forms open to the contemporary designer, both to stimulate his imagination and to provide aesthetic standards for his own work. The CLR aims to broaden this vocabulary of letter design.[7]

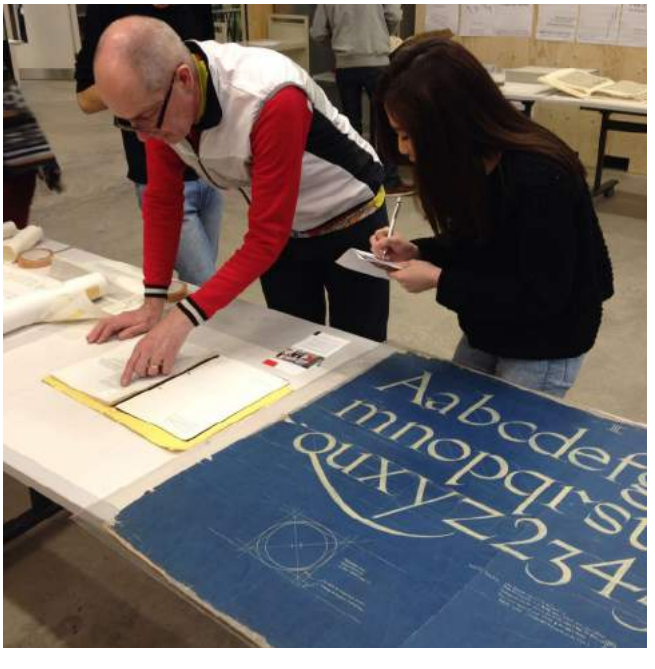

Figure 2. The Central School of Arts & Crafts had a strong tradition of using 'teaching examples' in the curriculum. The CLR is used together with the College's Museum and Study Collection for that same purpose today. Source: Catherine Dixon/Central Lettering Record.

Now

The CLR has since expanded from the original set of photographs to include actual examples including type specimens, books and reference materials, material to illustrate different type technologies such as hot-metal matrix cases and tools, actual lettering samples and signs (Figure 3). Material from the London Transport Museum is on permanent loan to us in order to better represent the achievements of Edward Johnston, who drew the original London Transport alphabet in 1916 and whose first teaching position was at The Central School from 1899. The CLR has also benefitted from generous if unusual gifts. Type designers such as Miles Newlyn and Jeremy Tankard, alumni of the graphics programmes have given developmental drawings and materials. Unable herself to take receipt of the full-scale reproduction of a UK motorway sign made for the Communicate exhibition at the Barbican (2004–5) the designer Margaret Calvert contacted the CLR. The sign is now on permanent display in communal areas of the Central Saint Martins' site along with many other examples of fascia lettering and boards that have been collected.[8] A rare lettering commission by designer and writer Peter Burnhill, who taught typography at the influential Staffordshire College was donated by Timothy Donaldson. Though perhaps the most significant recent addition to the collections has been the gifting by the lettering historian Alan Bartram (1932–2013), who donated his own extensive public lettering image collections (Figure 4).

Figure 3. Punched newscaster control strip for a multi-light text sign, the fore-runner of today's LED displays. Source: Phil Baines/Central Lettering Record.

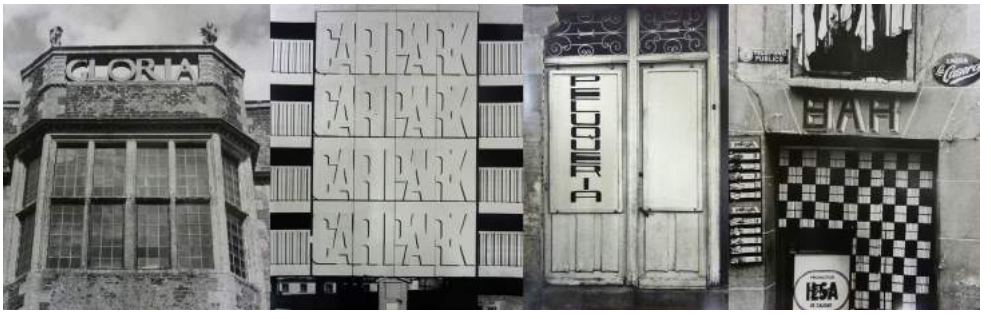

Figure 4. A selection of Alan Bartram's photographs from both the UK and Europe. Source: Alan Bartram/Central Lettering Record.

The majority of the material is housed within the Graphic Communication studios at CSM, allowing for easy access so we can continue to teach as Lethaby intended with actual examples. Lethaby's own teaching materials are also now the focus of design projects within the current curriculum with artefacts brought up to the studios from the main college Museum allowing students the benefit of direct engagement with the manuscripts, incunabula and other communication materials collected.

The CLR continues to be a focus for research. Conceived as a photographic collection and organized but with no catalogue, the collections have provided a focus for a digital archival research. An AHRC-funded research project *Creative Uses of Interface Design in Typographic Research* (1994–1998) itself generated a publication project *Typeform Dialogues* (1995–2001) traces of which still exist online though the final outcome was never realized owing in large part to the eclipse of CD-Rom technology.[9]

Smaller research projects have arguably faired more successfully. In 2000, tutor Phil Baines was funded to document the public lettering projects of two Catalan sculptors Joan Brossa and Subirachs in Barcelona with the visual records now kept in the CLR.[10] And in 2003, the designer Robin Fior used the CLR photographs of Lisbon lettering from the 1960s as a starting point for a research project to promote the preservation of extant examples in the city (Figure 5). Copies of the visual outcomes of the project are held in the CLR.[11]

Figure 5. The idea to record examples of vernacular lettering in danger of demolition was picked up in a project in collaboration with the Museu da Cidade in Lisbon in 2003. The sites of Nicolete Gray's photographs of lettering in the city from the 1960s were revisited to highlight the precariousness of its lettering riches. Source: Phil Baines & Catherine Dixon, and Nicolete Gray/Central Lettering Record.

The outward facing vision of the original CLR is clearly then still in place with the collections continuing to offer a resource for practitioners outside of formal education. Lettering designers and type designers alike have visited in search of quite particular letterform inspiration with the recent celebratory exhibition, Lettering: Objects, Examples, Practice (2014), curated by Phil Baines and the college's Museum & Study Collection, opening access of the collections to still new practice audiences.

Future

Yet, the benefits of such access bring complications. The rationale informing the original remit of the collections still holds. While the image-plundering capabilities of the Internet offer designers a daily diet of visual 'inspiration' there remains an acute lack of awareness of the breadth of lettering achievement in context. A collection such as the CLR offers that overview – the opportunity to make visual connections across materials, locations and times. A distinction between the practices of typography and lettering is perhaps less understood now than then. The academic studies of epigraphy, paleographer, art history and numismatics operate as silos of knowledge as much as they ever did. The documentation of overlooked vernacular forms under threat within the field of public lettering is certainly as valuable as it ever was. Further an emphasis on materiality in teaching and learning within contemporary communication design contexts seems vital as educational agendas shift towards an emphasis on design thinking and process over outcomes and workmanship.

However, the challenge within modern HE contexts is how to maintain access to such a resource, both physical and digital. The obvious constraint is financial though the more frustrating one is time, with increased demand on tutor time in teaching and learning delivery, allowing for less and less support for the CLR.

Strategic use here is key. Demonstrating the way that the collections improve the quality of visual communication, as well as enhancing the discussions about visual communication enhances the case for maintaining access to the CLR and fulfilling the remarkably prescient thinking of its initiators.

Notes

1. Biddulph, "The Central Lettering Record," 7.
2. Kindel, "The Central Lettering Record," 21.
3. Gray, "Lettering in Coventry Cathedral," 33–41.
4. Nicholas Biddulph et al. "The Central Lettering Record," folded-handout, n.d.
5. Pearse, "The Central Lettering Record," 13.
6. It should be noted that originally this national collection was to be built up in collaboration with the University of Reading.
7. Pearse, "The Central Lettering Record," 14.
8. Baines and Dixon, "Letters of Reference," 50–53.
9. Kindel, *Typeform Dialogues*, 3–48.
10. Baines, "Sculptured Letters and Public Poetry," 38–49.
11. Baines and Dixon, "Letter Rich Lisbon," 52–61.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Dr Catherine Dixon is a designer, writer and teacher. As a writer she has a particular interest in type design and the forms of letters more generally, co-authoring with Phil Baines the book *Signs: Lettering in the Environment*. She is a Senior Lecturer on the Graphic Communication Design Programme at Central Saint Martins in London. From 2011 to 2012 she was a Visiting Professor at the University of São Paulo in Brazil.

Professor Phil Baines is a graphic designer whose work has included identity & branding, publication design, type & lettering design. As an author his books have included *Signs: Lettering in the Environment* with Catherine Dixon, and *Penguin by Design: A Cover Story 1935–2005*. He also teaches at Central Saint Martins on the Graphic Communication Design programme.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 265–266
https://doi.org/10.1080/20557132.2017.1385261

Routledge
Taylor & Francis Group

Converge: Disciplinarities and Digital Scholarship*

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ARTICLE HISTORY Received 8 August 2017; Accepted 29 August 2017

There is no doubt that academics in nearly all disciplines are increasingly being encouraged to seek out and engage in collaborative endeavours that are both productive and innovative. For designers, it is especially important that such collaborations move beyond merely providing design efforts in service of the goals of other team members; rather, collaborations should result in valuable outcomes for the disciplines of all involved. This consideration was but one facet of the 'Converge: Disciplinarities and Digital Scholarship' AIGA Design Educators Community Conference, hosted 1–3 June 2017, by the School of Cinematic Arts at the University of Southern California in Los Angeles. Approximately 100 attendees participated in a carefully curated (and smoothly executed) schedule of workshops, panel discussions, keynotes, long papers, lightning rounds, and poster displays.

The conference organizers solicited contributions in response to questions such as: 'How can design converge with digital scholarship in more than a superficial way?' 'How might aspects of digital scholarship impact design research? What are the key questions at the intersection of design and the humanities?' While these questions do indeed represent important points of consideration that the conference content effectively responded to, it is perhaps more insightful to note the overarching themes that appeared to connect across the structured schedule (necessarily) imposed on the event. For example, Johanna Drucker, Breslauer Professor of Bibliography in the Department of Information Studies at the University of California Los Angeles, presented the first keynote of the conference, where she discussed a number of 'critical' issues that design and designers are currently facing, particularly those that relate to 'the role of design in a consumer-driven model of experience' and that 'challenge the terms of efficiency on which digital design is often premised'. Daniel Jasper, immediately following Drucker's keynote in one of the long paper sessions ('Practice and Process'), continued on with the topic of criticality, describing a context for situating 'critical' practice alongside traditional writing and research processes in a writing intensive graphic design course at the University of Minnesota. This theme carried throughout the entirety of the conference, including in one of the final long paper sessions ('Improving the Case for Designers'), where the presentations of Jeremy Swanston, Meta Newhouse, Patricia Murphey, and Audra Buck-Coleman implicitly prompted those attending to 'critically' examine the nature of the roles, responsibilities, and opportunities designers find themselves aligned with.

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*AIGA Design Educators Conference, June 1–3, 2017, Los Angeles, California, USA. http://converge.cci.kent.edu/

Another overarching theme for the conference recognized the importance of relationships in the work designers do. While this topic may not seem all that unanticipated coming from a conference both named 'Converge' and concerned with collaboration, the programming notably explored this theme from multiple perspectives. Indeed, several sessions directly dealt with collaborative and team-based relationships, including the long paper sessions 'Forming an Interdisciplinary Team' and 'On Collaboration'. However, this theme emerged in more unexpected ways as well. Two long paper sessions that took place the afternoon of 2 June, titled 'Print to Digital' and 'STEM / STEAM', explored notions of formal and disciplinary relationships, respectively, that contemporary designers often find themselves engaged with. In particular, presentations by Anne Burdick and Steven McCarthy (both in the 'Print to Digital' session) seemed to suggest the form and systems of books as points of reference for contemplating the nature of the contemporary designer. Yet another contribution, a poster titled 'Call and Response: A Visual Conversation Between a Printmaker and a Motion Designer' by Vanessa B. Cruz, considered relationships at the individual level and 'explain[ed] and explore[d] the experiences brought about when two colleagues began to discuss the differences between Fine Art and Design'.

Finally, as any truly enriching experience should, a number of programming contributions at 'Converge' encouraged those in attendance to open their minds to new possibilities and question the preconceived notions they might hold regarding designers and the work they do. In the long paper session titled 'Practice and Process', Jessica Parris Westbrook and Adam Trowbridge presented 'Visual Thinking Methods for Understanding Each Other', suggesting that 'the design and development of systems, including products, games, and experiences require the expertise of a wide range of creative people who need to share their ideas and communicate with each other'. In the final keynote, Casey Reas, an artist and educator based in Los Angeles, spoke about his 'software-based collages that manifest his personal confrontations with media'. Reas' work is particularly provocative in this context, as design and technology have long shared a dynamic relationship, and is furthered through his role as co-founder of the Processing Foundation, 'whose mission is to promote software literacy within the visual arts and visual literacy within technology-related fields – and to make these fields accessible to diverse communities'.

If design is to not only assert, but also expand, its influence within the scholarly setting, then designers must continue to engage in discussions around the types of prescient themes explored at 'Converge'. The next standalone AIGA Design Educators Community Conference is 'Make', scheduled for the late spring of 2018 at the Herron School of Art and Design at Indiana University – Purdue University Indianapolis in Indianapolis, Indiana.

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 267–268
https://doi.org/10.1080/20557132.2017.1385262

Routledge
Taylor & Francis Group

Information design research and practice, edited by Alison Black, Paul Luna, Ole Lund and Sue Walker, Foreword by Erik Spiekermann, London and New York, Routledge, 2017, 750 pp., $79.95 USD (paperback), ISBN 978-0-415-78632-4, $55.97 USD (ebook), ISBN 978-1-315-58568-0

> Identifying the problem and analyzing the context and audience before shaping the message: this used to be what information design was all about. And whatever the medium, substrate, or location, this is what we are still called upon to do. (Erik Spiekermann, p. x)

Since the 1980s when Richard Saul Wurman coined the term 'Information Architects' and as Spiekermann asserts, elevated the design fields that deal with large bodies of information (p. ix), there has been some tension about what information design really is. The work of self-described information designers runs the gamut from the management of immense amounts of content including long form text and forms, to the structuring of data bases for digital formats, to wayfinding signage, data journalism, and scientific visualizations, which are more recently benefiting from the attention of visual designers. However, there is no debate that information design is a broad term under which diverse disciplines converge to clarify, communicate and facilitate understanding in our information-overwhelmed world.

This new anthology, *Information Design Research and Practice*, a tome comprising an impressive range of authors, research and projects, conveys the sense of having finally arrived to clarify the state of the field. It is fitting that the four editors are current and former colleagues at University of Reading, widely known for its MA in Information Design, and for the Centre for Information Design Research.

The book's Foreword and Introduction succinctly contextualize the entire volume. In his foreword, German information designer Spiekermann provides a backstory, grounded in professional practice, of the turn in graphic designers' attitudes towards work that traditionally was not considered seductive enough for their attention. Then, as Wurman foretold, technologies converged and created a need for the particular set of practices that information designers had been engaged in long before the term labelled their work.

The editors' Introduction provides a brief literature review in which they acknowledge the key texts that informed their works, and that of many of the authors within. The discipline is young enough that several authors in this anthology were also included in those seminal volumes. The inclusion of recent graduates of MA and doctoral programmes provides new perspectives, and as the editors state, 'suggest that information design is both relevant to today's problems and sustainable as an academic discipline'. (p. xii)

The diversity of approaches to practice and scholarship in information design are divided into four parts that together create a framework to display the interdisciplinary nature of the field and allow history, theory and cognition to coexist in the same volume. The first part, Historical Perspectives, contains 10 chapters that bring together formerly disparate topics for visual designers: historical timelines, early statistical visualizations, navigational tools and cartography. Similar to other historical overviews of information technologies, several chapters span from very early examples to their contemporary counterparts, reinforcing the importance of always considering information design in context. Finally, Alberto Cairo discusses the ethical role of information design artifacts throughout history.

The seven chapters in Part 2: Theoretical Approaches span a discussion of several aspects of graphic design, from layout as a structural device to visual rhetoric, the science of reading, and consideration of social and cultural aspects of visual conventions. It is refreshing that this section builds its theoretical basis with graphic design fundamentals, the efficacy of which are explored through contributions from other disciplines. This section then functions as a topical link to the next section.

Part 3, Cognitive Principles comprises 13 chapters that discuss in technical detail how information design works, from symbol design to parts of diagrams to colour palettes. With chapters on Gestalt principles and research methods sitting side by side, this Part reiterates again, the breadth of influences on the field.

There are 19 cases featured in Part 4: Practical Applications. Although dominated by wayfinding and health care, the projects place information design in a variety of public contexts with the concerns of users at the heart of their intentions.

With a thorough index and extensive bibliographies accompanying each chapter, this impressive collection will be an important resource for students, researchers and practitioners alike. Taken as a whole, the anthology effectively makes the case for the need of interdisciplinary perspectives to tackle design problems in the midst of overwhelming amounts of information. It demonstrates ways information design as both interdisciplinary practice and visual artifact, is equipped for the task, while reminding readers, that a solid basis in graphic design skills and concepts continues to be essential for effective information design.

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https://doi.org/10.1080/20557132.2017.1385262

COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 269–272
https://doi.org/10.1080/20557132.2017.1398945

Routledge
Taylor & Francis Group

II Bau Design Forum Barcelona. New perspectives in design and visual communication

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ABSTRACT

There has been a marked increase in conferences promoted by design schools aiming to provide opportunities for creating forums for debate about the social capabilities of design. Bau Design Forum Barcelona intends to draw on the work of different groups, including designers and theorists, to investigate new areas where design and visual communication acquire a clear social and political commitment creating new forms of praxis that aim to solve complex social problems through participation and collective work. Encouraging these types of meetings within universities and design schools is vital in order to educate students and equip them with tools that help them to practice their profession in a more conscious way, seeing the impact that their work has on the lives of many people.

ARTICLE HISTORY
Received 28 January 2017
Accepted 19 October 2017

KEYWORDS
Design education; social innovation; graphic design; visual communication

The discourse of social transformation through design seems to be permeating design schools in Spain – there is a proliferation of congresses and events organized around the subject. Thanks to these, we have the opportunity to listen, learn and share ideas with professionals and theorists who have understood that design is a very valuable tool to promote social change.

'Bau Design Forum Barcelona. II Jornadas Interdisciplinares de Diseño y Comunicación' (Bau Design Forum Barcelona. II Interdisciplinary Conference on Design and Communication) organized by 'Bau Centro Universitario de Diseño de Barcelona,' is an example of the different areas of dialogue that are being created to share reflections on the role of design as a tool for social change (Figure 1). On September 29–30, the forum hosted professionals, students and theorists who shared their experiences and bought a new view of design from different perspectives.

On Thursday 29, professionals like 'Zuloark'[1] showed us a variety of ways of practicing design from this emergent area. This is a space where citizen participation converges, knowledge is shared (open source), and solutions are provided from a critical approach that helps establish a wider discussion on social issues. These areas of 'citizen empowerment' generate collaborative networks and produce 'aesthetics of confidence'; spaces that have strong

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Figure 1. Bau Design Forum Barcelona.

Figure 2. Ezio Manzini lecture.

political repercussions upon where the city is constructed through the conflicts and controversies that are typical of it.

Thursday ended with a presentation by 'Enmedio',[2] a group that has specialized in action oriented graphic activist communication. Their work has been vital in the construction of the aesthetics of social movements such as the 15-M or the anti-eviction groups in the city of Barcelona. Their visual communication processes are eminently participatory, giving voice to citizens through the creation of social networks that help to visualize conflicts. The 'Enmedio' group (a space that is situated in no place, or in all simultaneously) uses the new forms of guerrilla communication, articulating them to destabilize and interfere with the dominant discourse of the mass media.

On Friday 30, Joana Moll[3] used graphical visualizations to present many of the contemporary problems that are usually hidden and not dealt with by the mass media. Her work (which is closely related to Social Big Data) uses data and infographics to reveal the problems related to Internet use and the environmental impact of our daily traffic upon it. Some of her projects highlight the serious imbalance in energy consumption by companies like Google. Representing this data is a first step to becoming aware of the problem. Its forcefulness warns us of the need to change our habits with regard to using the Internet (and other electronic devices) if we really want to have a sustainable planet.

Aitor Méndez's presentation was revealing because it provided some very interesting ideas on *La política del lenguaje en el diseño gráfico*[4] (The politics of Language in Graphic Design). Méndez points out that capitalism has a greater capacity to create subjectivity than education or the design discipline, and is able to reduce the subject to consumer, user or voter. According to Méndez, the role of language in the production of subjectivity is vital, but thanks to capitalism it has imposed the paradigm of social control (reducing it). Méndez argues that contemporary societies have gradually lost their semantic richness as a result of an asymmetry in the mass media that causes, on the one hand, a loss of semantic repertoires, and on the other hand, the reification of the subject causing the objectification of the individual, turning it into an irrelevant subject across all social environments. The antithesis to this system would be that of symmetry in communication. This would lead to semantic enrichment and social empowerment through strategies to reverse the existing situation, that range from the collective construction of language (combating the asymmetry of language), to talking with the language of others (combating imposition).

Finally, Ezio Manzini, in his lecture *Design in the Age of Networks (and Sustainability)'* synthesized in broad terms the main ideas of his latest book[5]. Manzini talked (Figure 2) about emergent design, where complex social problems are solved through participatory processes that take into account the characteristics of the context, and design is no longer defined by its usual modes of production: those of products or services.

Ezio Manzini agrees that emergent design responds to a change in the social model that has been affected by numerous events over recent decades: economic crisis, immigration, social inequality, disaffection with the political class. He also argues that to face this situation design has to change its way of thinking in society.

The aim of the Bau Design Forum is to open a debate on the changes that are taking place in design discipline as a result of its self-questioning and move into crisis. Design is a cultural and social mediator with the responsibility of giving voice to all the subjectivities in our society. Design cannot remain anchored in the problem-solving paradigm of certain social

needs (mainly economic ones) and must take on a commitment to resolve the challenges posed by contemporary society.

Notes

1. Many of the projects presented at the conference can be found on their website: http://www.zuloark.com.
2. Most of the political graphic interventions developed by the collective can be consulted at: http://www.enmedio.info.
3. Some of the projects he presented at the conference, such as CO2GLE, The Virtual Watchers or DEFOOOOOOOOOOOOOOOOOOOOOOOOREST, can be found at: http://www.janavirgin.com.
4. Méndez, Aitor. "La política del lenguaje en el diseño gráfico." *451 diseño gráfico*. Available at: https://e451.net/app/uploads/2016/12/la-politica-del-lenguaje-en-el-diseno-grafico.pdf (accessed 14 January 2017). The papers and texts of Aitor Méndez can be accessed at: https://e451.net
5. Manzini, Ezio. *Design, When Everybody Designs*.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

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Review: II Bau Design Forum, Bau Centro Universitario de Diseño de Barcelona, 29–30 September 2016. Available at: http://www.baudesignforum.com.

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COMMUNICATION DESIGN, 2017
VOL. 5, NOS. 1–2, 273–277
https://doi.org/10.1080/20557132.2017.1403080

Routledge
Taylor & Francis Group

'Can Graphic Design Save Your Life?' Exhibition Wellcome Collection 7 September 2017–14 January 2018

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ARTICLE HISTORY Received 13 October 2017; Accepted 30 October 2017

'Can Graphic Design Save Your Life?' An outwardly simple question is the title of the latest free exhibition from 7 September 2017–14 January 2018 at the Wellcome Collection, London. However, this simple title in its inherent complexity acts as a vehicle to provoke viewer into thinking about the deeper meaning of Graphic design practice in the social context. Wellcome Collection is a free museum and library exploring health, life and our place in the world. Through exhibitions, collections, live programming, digital, broadcast and publishing, Wellcome Collection creates opportunities for people to think deeply about the connections between science, medicine, life and art.[1] Graphic designer Lucienne Roberts and design educator Rebecca Wright, founders of publishing house Graphic Design, & with Shamita Sharmacharja of Wellcome Collection, collaboratively curated this exhibition as an exploration of the relationship between graphic design and health sector. However, in actuality, the whole curated space, as a visual communication tool, reflects a much deeper undertone that emphasizes the significance of seemingly non-significant graphic design practice in our everyday life. Questioning the power of graphic design to save lives retrospectively generates the question of ability of Graphic design taking lives as part of the conversation catalyzed by this exhibition. Curator Wright commenting on the exhibition states 'Graphic design is all around us, all the time, in both positive and frustrating ways but we don't recognize the role that it plays.'[2]

We live in a predominantly visual world, a world that has now turned into global information overload. The political, economic and technological global transition in the postmodern world has had an impact on the role design can play systematically; the implication is strong specifically for graphic design as a visual based discipline. Graphic design with its visual power of engagement, persuasion, provocation, and education through diverse strategies can be a powerful tool for positive behaviour change (Figures 1 and 2). This is the theme skillfully projected in totality by 'Can graphic design save your life?' exhibition. The curated space exemplifies how even without being aware, our environment passively cultivates an impact on our perceptions, thoughts and consequently our actions.

From poster design, packaging, information graphics, spatial design, and pop-up books to shock- based digital and social awareness campaigns, the exhibition contests the common

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Figure 1. Street artist Stephen Doe paints an educational mural about Ebola in Liberia, 2014, CREDIT – Dominique Faget/AFP/Getty Images.

Figure 2. The Human Body app 2013. CREDIT – Artwork by Kelli Anderson for Tinybop.

construction around graphic design's identity as only a commercial medium. The thematic organization of space and curated projects as conversation pieces are a stark statement of how graphic design is much more than just means for mass production and distribution. The exhibition space takes on a new life as communication space with strength to persuade, provoke, and educate the visitors.

The exhibition as a whole is curated in six main sections: Persuasion, Education, Hospitalization; Medication; Contagion and Provocation. The persuasion section displays projects like Raymond Loewy's Lucky Strike cigarette packets (1916) illustrating how a simple switch of colour from green to white packets drove up cigarette sales in the US by 38%. Right next to it is placed Pentagram Design's ironic cartoon depiction of death as a skeleton in a top hat on Marlboro cigarette packets (2009), followed by Saatchi & Saatchi's daring campaign for Silk Cut cigarettes (1946). The campaign famous for employing a highly sexualized visual metaphor of purple silk as a representation of class and quality successfully intrigued the audience and increased sales. Moving on, visitors are again led to the opposing view of Australian research and design of cigarette packaging, highly successful in using an unattractive Pantone colour to purposefully prevent smoking, which resulted in sales drop of 108,000 in the year 2012 to 2015. The strategic juxtaposition of artefacts whilst generously accepts graphic design's commercial power to promote and sell simultaneously also draw attention to its impact as a prevention tool. The change of tone allows viewer to envision richness of the discipline and its power when engaged as a counter strategy to achieve positive behaviour change.

The narrative resumes in the education section of the exhibition. In this section, amongst others, Tobacco Atlas 2015 designed for the American Cancer Society, World Lung Foundation USA illustrates how simple representation of complex information effectively communicates facts about smoking and its impact on human body, making it easier for the readers to understand the dire implications. In addition, a collection of publication design using flaps, pop-ups and layers to mimic human body dissection, as interactive educational apparatus, helps understand human anatomy. A&E information and integrated signage systems as spatial graphics displayed in the exhibition demonstrate how graphic design can be a tool for place-making and public engagement. The Katta Civic Polyclinic project display depicts white linoleum floors inlaid with minimal but bold red signage as a clever way-finding tool for the public. Such graphic devices employed in the hospitals as effective communication tools helped avoid public violence in hospitals that has origins in (patients') frustration, anxiety and misinformation.

Finally, the exhibition identifies urgent public health warnings to revolutionize health awareness campaigns historically, from simple text-based Ebola awareness posters in Africa to Scottish government's digital campaigns 'Kill Jill' in 2009. The shock strategy in 'Kill Jill' and NHS blood and transplant augmented reality campaign (2016) as an empathy tool led to accelerate organ and blood donation respectively. 'Mind Journal' 2016 by designer Ollie Aplin was Kickstarter campaign designed to lower the suicide rate in young men in UK. Through careful testing and prototyping it was also available as a digital app to provide safe communication space for troubled young men.

The technological advancement in message communication comes with its own challenges. It is effective in its wider range engagement, but it faces ethical implications as well as censorship. The exhibition shows how the Swedish Cancer Society responded to Facebook's censorship of its breast cancer awareness video by banning it as inappropriate. According to them the circular images resembled breasts hence were offensive (Figure 3). Later the

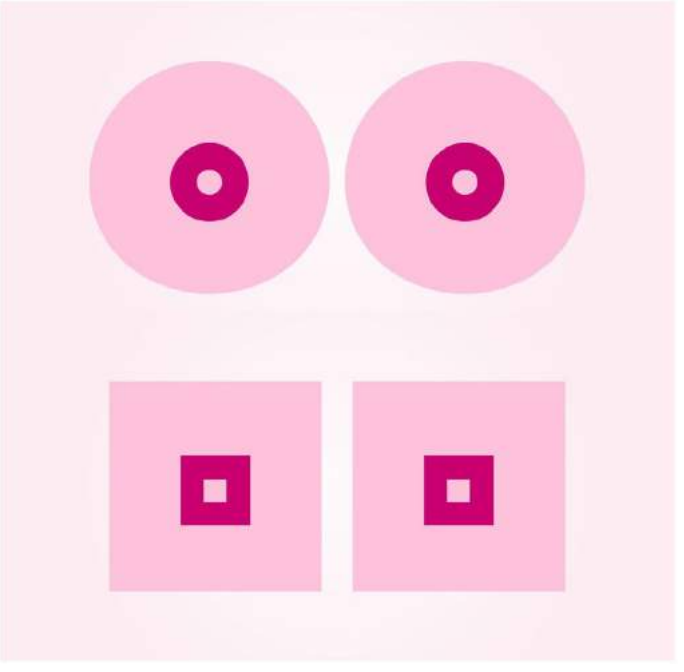

Figure 3. A pink triangle against a black backdrop with the words 'Silence=Death' representing an advertisement for The Silence=Death Project used by permission by ACT-UP, The AIDS Coalition To Unleash Power. Colour lithograph, 1987. CREDIT – Wellcome Library, London.

video was allowed on Facebook as the visual language was altered to square form such that didn't look like breasts anymore. However, the controversy resulted in increase in views. The exhibition as a whole invites viewers to enter the paradoxical space of graphic design evolution, innovation and ethics, which imminently confronts and questions graphic designers' time and again regarding decision-making dilemmas within graphic design practice.

Graphic design to sell cigarettes consequently demise, versus graphic design to prevent smoking hence saving life definitely calls attention to the paradox in an obvious sense. Health awareness campaigns as strong arguments contest the discipline's capitalistic character whilst highlighting its consummate impact as a social innovation tool in the health industry. However, the same principle becomes problematic when engaged for purpose that may be life threatening. Projects with corporate purpose, e.g. anti-environment endeavours, such as promoting clean water in plastic bottles or latest iPhones, can be argued as paradoxical ethical decisions graphic designers need to address. Nevertheless, the exhibition in entirety is a clever piece of graphic design designed to engage, persuade and impact viewer perception of how graphic design can save life. From unattractive cigarettes packaging to shock-based organ donation campaigns, graphic design has achieved what it set out to achieve: gain attention, change perception and generate impact.

Notes

1. https://wellcomecollection.org/what-we-do/about-wellcome-collection
2. http://blogs.arts.ac.uk/csm/2017/09/28/can-graphic-design-save-your-life/

3. Kock et al., "The Information Overload Paradox."
4. Hollis, *Swiss Graphic Design*.

Notes on contributor

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