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Analogue processes for digitally native design students

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George Hajian is an artist and a graphic designer. His practice is situated between Fine Arts, Graphic Design, and Advertising. He has been a design practitioner for more than 20 years and created work for many corporate, government, and non-government organisations in New Zealand and abroad. George's main area of research focuses on the concept of masculine embodiment and its relationship with globalisation, technology, and popular culture. Using complex analogue methods, he brings together screen-printing, mark-making, and collage, to create a diverse body of works.

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Abstract *Although fresh intakes of communication design students have grown up with constant digital connectivity and social media, they grapple to comprehend the relationship between communication, legibility, and usability of an analogue, printed publication. New intakes of communication design undergraduates, lack aesthetic sensitivity and formal appreciation of printed type. They are at ease when exploring work digitally, or manipulating forms or text on the computer, but when it comes to design for print, and transcribing text onto non-scalable media e.g., paper, they struggle with basic notions of typography, like weight, size, legibility, and hierarchy of information. Consequently, two analogue, tactile studio activities were developed to complement teaching and learning, and assist students to increase their formal and aesthetic perception of type, typography, and communication design. This qualitative research takes a closer look at the two workshops, and considers its impact on the work produced by students.*

Keywords *Design education, tactile activity, analogue type, legibility, non-scalable text.*

Processos analógicos para alunos de design digitalmente nativos

Resumo Embora novos ingressos de estudantes de design de comunicação tenham crescido com a conectividade digital constante e as mídias sociais, eles também se esforçam para compreender a relação entre comunicação, legibilidade e usabilidade de uma publicação impressa. Para alunos ingressantes na graduação em Design de Comunicação, falta sensibilidade estética e apreciação formal da mídia física, como o impresso. Eles ficam à vontade ao explorar o trabalho digitalmente ou manipular formulários ou texto no computador, mas quando se trata de design para impressão em uma mídia não escalonável, por exemplo, o papel, eles sofrem com noções básicas de tipografia, como peso, tamanho, legibilidade e hierarquia das informações. Consequentemente, duas atividades analógicas foram desenvolvidas para aplicação no estúdio de design, com explorações táteis para complementar o ensino, a aprendizagem e também para ajudar os alunos a aumentar a percepção formal e estética relacionadas a tipografia e ao design de comunicação. Este artigo apresenta duas oficinas desenvolvidas com o intuito de abordar a questão da materialidade no estudo de design, e considera seu impacto no trabalho produzido pelos alunos.

Palavras chave Educação de design, Atividade tátil, Tipografia analógica, Legibilidade, Texto não escalonável.

Procesos analógicos para estudiantes de diseño digitalmente nativos

Resumen Aunque las nuevas entradas de estudiantes de diseño de comunicación han crecido con la conectividad digital constante y las redes sociales, también se esfuerzan por comprender la relación entre la comunicación, la legibilidad y la usabilidad de una publicación impresa. Para los estudiantes que ingresan al curso de pregrado en Diseño de la Comunicación, carecen de sensibilidad estética y apreciación formal de los medios físicos, como la impresión. Se sienten cómodos explorando digitalmente o manipulando formas o texto en la computadora, pero cuando se trata de diseño para imprimir en medios no escalables, por ejemplo, papel, adolecen de nociones básicas de tipografía, como peso, tamaño, legibilidad y jerarquía de información. En consecuencia, se desarrollaron dos actividades analógicas para su aplicación en el estudio de diseño, con exploraciones táctiles para complementar la enseñanza, el aprendizaje y también para ayudar a los estudiantes a aumentar la percepción formal y estética relacionada con la tipografía y el diseño de la comunicación. Este artículo presenta dos talleres desarrollados con el fin de abordar el tema de la materialidad en el estudio del diseño y considera su impacto en el trabajo producido por los estudiantes.

Palabras clave Educación en diseño, Actividad tátil, Tipografía analógica, Legibilidad, Texto no escalable.

Introduction

With a looming global pandemic, online learning and content creation complications, to studio facilitation and group learning, educators and teachers worldwide are constantly faced with diverse educational concerns and pedagogical considerations (Hajian, 2020). The events, especially this year, has in a way proved the fact that we live in a very “liquid,” fast changing world (Bauman, 2000), thanks to fast and advanced cultural exchanges, computers, connectivity, mobile devices, and diverse content production and distribution. As media becomes richer and more complex, so does the information we put together as graphic designers, to be consumed.

Technology constitutes an essential part of the pedagogical environment in today’s design classroom. The argument about the advantages and the disadvantages of technology in the classroom is an ongoing one.¹

Current undergraduate students have grown with the internet, and as many social scientists have identified, they are comfortable and at the same time dependent on digital technologies (Prensky, 2001). They are also very comfortable in their interactions with type on digital screens, but when it comes to designing a page or a poster with text for print (ie: fixed on a substrate/paper), they struggle to comprehend the relationship between communication, legibility, and readability, making poor typographic choices. With constant digital connectivity, they lack aesthetic awareness and sensitivity to type size and scale, when designing specifically for print.

State of the Art

Born between mid-1990s and 2000s, almost all the undergraduates entering tertiary education are considered as Generation Z (Gen Z). A stereotypical Gen Z, or digital natives as they’re often called, are born into a heavily inter-connected, technological world (Turner, 2015; Rothman, 2016; Cilliers, 2017). They prefer collaborative projects and interactive games, in contrast to lectures or class discussions (Rothman, 2016). With constant direct digital interactions on Instagram, TikTok, Facebook, and ever-changing online platforms, “their brain responsible for visual ability is far more developed, making visual forms of learning more effective” (Rothman, 2016, para. 8). On the other hand, their technology preferences create barriers when it comes to design for print, simply because they’re not familiar with the printed medium. Their exposure to visual information and media, is mainly through digital platforms and mobile screens— not from print. When it comes to working with text for print, students usually set type at either a large point size, or too small—rendering it illegible— thus running into pitfalls of formal and functional awareness of layout, as in hierarchy, proximity, and audience.

With increased interactions on mobile touchscreens, Gen Z communication design undergraduates are accustomed to zoom in (pinch-out to zoom) and adjust image or text legibility with gestures on their preferred digital screen. Naturally, these gestures for enlarging or zooming-in are irrelevant when you're designing for print, where type size is fixed. Their encounters with long portions of printed text are scarce, and replaced by digital or online text which is dynamic and not fixed in size.

Legibility is essential when it comes to communication design. Type size is fundamental when legibility and readability are of concern (Legge & Bigelow, 2011), and it affects reading performance as well as fluency (reading speed). There have been many legibility studies throughout the late 19th and the 20th century,² and although legibility depends on the distance between the eye and the printed text being read, the consensus ranges between 4 to 40 points, depending on factors including typeface, spacing, weight, role, placement, audience, etc. (Legge & Bigelow, 2011). For reading large blocks of printed text (ie: textbooks, newspapers, etc.) an x-height³ of around 1.4-1.5mm, or a type size of 8.5-11 points is recommended (Bigelow, 2019). Of course, these concerns aren't an issue in a post-digital age.

Type on a digital or a mobile device screen can be zoomed in/re-sized to help with legibility and readability, and line lengths can be short because they are dependent on the width of the digital screen.

During studio observations and while designing for print, students generally start off working on a block of text or a page directly in a graphic design or layout application. While they concentrate on the structure of the overall page, legibility- including type size and scale, becomes influenced by the operating screen size and resolution- whether working on a laptop, or a desktop computer. Zooming in and out, students navigate through the structure of the designed area, and make design decisions accordingly- almost never printing a copy in real 100% size to check legibility or readability. Subsequently, as hand-in dates and deadlines approach, printing a test page becomes the least of their concerns. Eventually, students end up presenting illegible documents, with either very small type size, or long paragraphs set in large type size.

Methods

Communication design is "contingent on material circumstances," and exposure to diverse tactile media is crucial in teaching graphic design (Grigg, 2010, p.24). The concept of 'material literacy' is useful in this case to recognise the importance of the material itself- in this case paper, and its implications when designing for print.⁴

Consequently, to remedy the problem and while working towards a three-week Type Specimen Project,⁵ two consecutive analogue activities were devised in order to familiarise and introduce students to fixed (printed) type limitations, and initiate studio discussions and reflections on leg-

ibility and readability, as well as audience. These activities are a means to help students work out the constraints and limitations, but at the same time expand their analytical thinking and create small group tangent discussions, to help them analyse, synthesise, and become more familiar with the material itself. To follow is a brief description of the two activities/workshops: NeueGlyph and Cut & Place.

1. NeueGlyph

Materials needed:

- Printed A3 sheets of different typefaces (at least 6 sheets per group)
- Glue sticks
- Scissors
- White A4 paper

NeueGlyph is a 90-minute activity,⁶ where students are asked to construct new, non-existing glyphs or letterforms, from cut-out pieces of existing, pre-printed, and supplied letters. At a later stage, they're asked to pin them on the studio wall and present briefly to their peers in order to explain or rationalise their process, meaning, or significance of the newly created letterform or glyph.

The activity starts with an A3 pre-printed sheets of Latin characters (Figure 1) These vary between serif and sans-serifs type sets, at around 300-400 pts. Divided into small table groups, they're supplied with a stack of varying sheets of type families, along with some glue sticks and scissors.



Fig 1. A group of undergraduate students with supplied A3 sheets, towards the start of the NeueGlyph studio activity (2019–Semester 1). © George Hajian

During the studio activity, students are encouraged to investigate the work of constructivists and dadaists like Lissitzky, Zwart, Tzara, Hausmann among others. Moreover, and depending on the type of glyphs they start producing, they are also advised to look at pioneering typographic

work from analogue based typographers (Wolfgang Weingart, John Warwicker, + others), or artists working with the printed letter/word (Cecil Touchon, Howard Hollingsworth, + others).

2. Cut & Place

Materials needed:

- A mix of found old and new magazines.
- Optional: photocopied existing material with a variety of type sizes and scale.
- Glue sticks
- Scissors
- White A4 card stock

In this second activity students are asked to create analogue layout sheets from found or supplied offset printed magazines. Using various pieces of cut-out text, the aim here is to help students think about hierarchy of information and type size.

The activity extends into an intense 120-minute of studio time. Fast-pace work is encouraged to help students disregard and set aside the textual meaning of the supplied printed pages/words, and focus only on scale and hierarchy. Accordingly, it is worthwhile to supply students with magazines or books in an unfamiliar language. A4 cards are also provided to act as a backing to the new layout collages.

Figs 2 and 3. Cut & Place activity well underway with a group of 1st year undergraduates (2019-Semester 2). © George Hajian



Findings

While each activity brings its own set of limitations and restrictions to size and material, students learn quickly to improvise with the supplied prints. The printed analogue limitations of both activities compel students to slow-down. In their effort to rationalise and find solutions to the restrictions of fixed, printed forms and type, students will go through an initial slow phase, and eventually pick up the pace after a few tests.

1. NeueGlyph

To facilitate small discussions, it is helpful here to divide students into small table groups of 4-5 students and prompt them to think about cutting as tracing. As students trace the letterforms with scissors, they instinctively create in-group conversations. These discussions are steered strategically by asking students to think about the forms' origins: How were they originally written? Were they inscribed on stone or on clay? What tools were used to write these? How did they evolve? What about the impact of technology in shaping these letterforms?

The ensuing dialogues can range from clay tablets to calligraphy, fountain pens, nibs, printing press, legibility, language, meaning, semiotics, etc.



Fig 4. Students within a table group, 'tracing' letters and testing new letterforms. © George Hajian



Fig 5. Cut out (traced) letterforms. © George Hajian

During this workshop, many students connect two or more letters to form new symbols, while others reduce them by cutting the letters down to their basic forms. Others try to create monograms, and even words from connected letterforms (Figure 6). Students with hybrid backgrounds bring an extra layer of improvisation with an attempt to create hybrid forms and try to use strokes and arms from the Latin character set to make up glyphs that resemble other scripts (Figure 7). Productivity can also be increased by setting time limits, and asking or encouraging the class to have something on the studio wall at set/agreed times. Despite its simplicity, the activity initiates many moments of discovery, and the quick ideation process illustrates the value of design process to students.

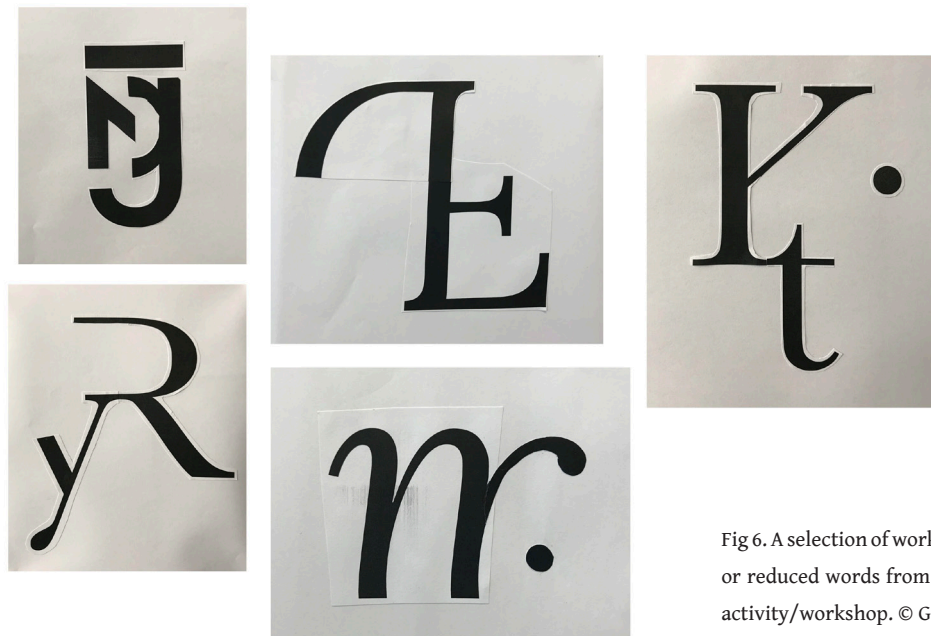


Fig 6. A selection of work as monograms or reduced words from the NeueGlyph activity/workshop. © George Hajian

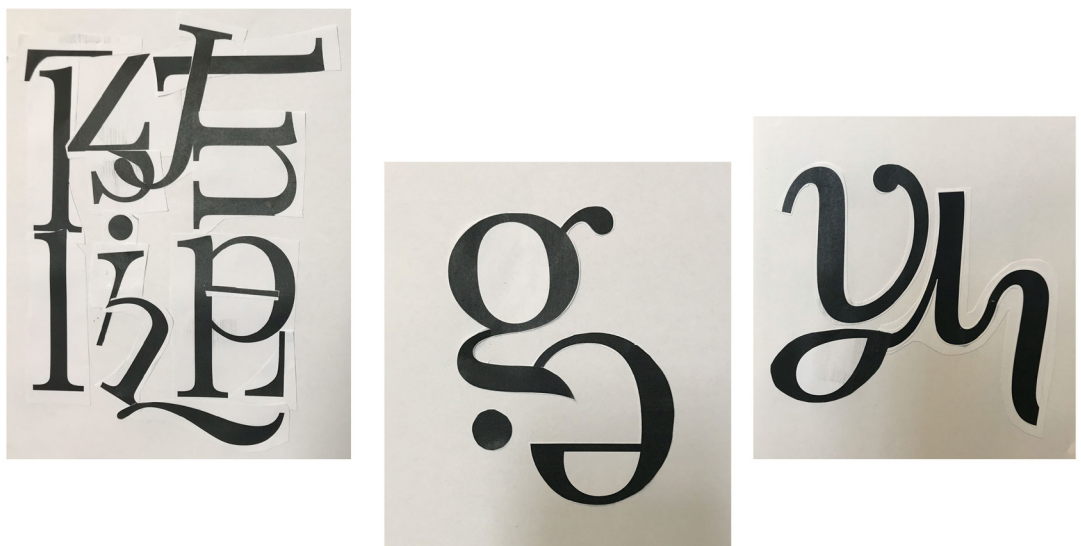


Fig 7. A selection of work from the NeueGlyph activity/workshop, where students from hybrid background attempt to create new characters. © George Hajian

2. Cut & Place

Cut & place is a generic collage studio activity with a twist: no images allowed- only type! Since this is a tactile, collage-based activity, students initially get attracted to the images printed in the supplied magazines, but as the workshop progresses, it becomes clearer that working with only type has its own challenges and limitations. It's helpful here to supply students with a variety of source materials- not just one type of magazines. Having material printed in another language also aids students to skip through the semantics of their first language, and concentrate on the type forms and legibility of characters.

Without creating many limitations for their final output, the only requirement of this workshop is to create typographic collages with found text. This keeps options open for students to experiment with different formats ranging from page design and layout, to typographic posters. As the activity progresses, group discussions are initiated to draw students to contrast, legibility, and readability concerns, pointing them, at the same time, to existing examples within their immediate reach.



Fig 8. A selection of work from the Cut & Place workshop. © George Hajian

Observations

Two student hand-ins have been chosen to illustrate the impact of the above-mentioned analogue activities on the completion of the Typographic Specimen Sheet assignment.

Student 1 (G. Stanley)

For the Typographic Specimen Sheet project, the 2nd year undergraduate student has chosen the typeface Poppins from fonts.google.com and presented it as their outcome for the assignment. As figures 9 and 10 underline, there is a clear relationship between the value of the workshop and the student's output. The student was able to successfully create two visually striking posters which outline the qualities of the Poppins type family as 'purely geometric'. There's also the obvious connection between the ideation process of the student's NeueGlyph workshop outcome with their final Typographic Specimen Sheet presentation. The student was able to transcribe the knowledge from the analogue activity to the digital design and creation of the two posters. The individual letters of the word "POPPINS" moving vertically across the poster (Figure 10) noticeably replicate the students original analogue work (Figure 9). The connecting ampersand, the letter "d" and other symbols, created scale contrasts and lever use of space and proximity to highlight size and legibility. The presented posters are aesthetically engaging, and respect the conventions of space, proximity, hierarchy, and legibility. The contrast of the typographic forms and geometric connectivity are efficiently executed to deliver a pair of well-balanced type-based posters. There's also a good indication of readability considerations with shorter line widths (Figure 11).



Fig 9. Original analogue work by G. Stanley (Student 1) as part of the NeueGlyph studio activity.

© George Hajian



Fig 10. Final outcome for the Typographic Specimen Sheet assignment by Student 1 (G. Stanley, 2019).

© George Hajian

Student 2 (E. French)

For their hand-in, the second student has chosen the font family Roboto, available from fonts.google.com. Knowledge gained from the Cut & Place activity is visibly and effectively transcribed by the student. The impact of their original collage as a starting point for the typographic posters is undoubtedly evident from the use of colour, torn paper forms, as well as the grid like building up of character sets. The student was also able to successfully replace the “N” on the top right of their initial Cut & Place activity collage with “123” to retain the balance of the typographic specimen sheet. Yellow, black, brown, and warm grey are transferred and translated adeptly. These also provide process, as well as, context to the design work itself. The material shape of the torn paper edges has also been successfully reproduced in the student’s final posters (Figure 12). The obvious connections between analogue activity and outcome are easily seen and the value perceptible.

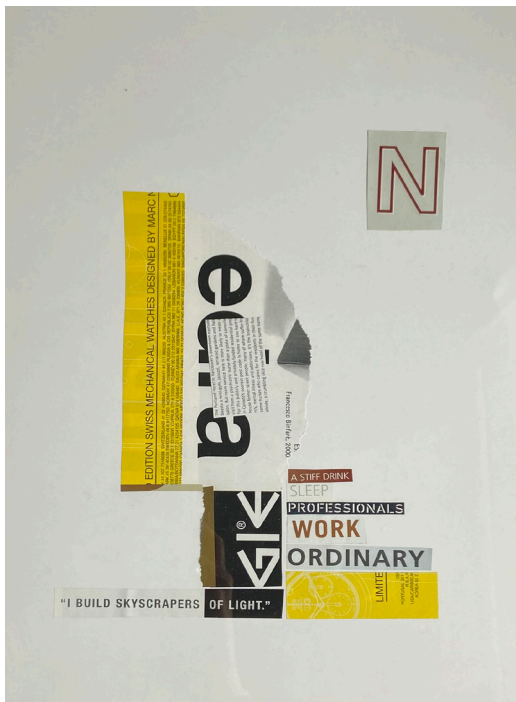


Fig 11. Original Cut & Place activity outcome. © E. French

Fig 12. Final outcome for the Typographic Specimen Sheet by student 2 (E. French, 2019). © George Hajian



Conclusion

The two workshop activities presented in this article present some of the ways in which learning and teaching with analogue activities can be introduced to digitally native students. It is also relevant to mention how these studio activities distract students from off-task digital distractions and direct their attention to on-task requirements. The effectiveness of these tactile activities is clearly visible through the examples shown and the two examples discussed briefly.

Although contemporary graphic design is shaped by technology and the computer, it is evident that when it comes to communication design, activities that include analogue processes complement student learning, and prepare them to the human-centred aspects inherent to this field. Despite their simplicity, the two activities provide a good starting point to the development of future design practitioners. The workshops also highlight the importance of tactile learning, and the benefits of analogue ‘material literacy’ in a post-digital age.

1 There's a growing research on the benefits and drawbacks of on-task and off-task use of technology in the classroom. Kraushaar & Novak (2010) estimate 42% of students engage in off-task use of technology in the classroom, while Bolkan & Griffin (2017) suggest more than 90% students use technology for in the classroom for unrelated, off-task purposes.

2 For a survey of minimum type size and legibility research literature please see Charles Bigelow's Typeface features and legibility research, section 4: Size.

3 The x-height of a typeface is the height of the lowercase 'x'. Font families with a tall x-height have better legibility at small sizes.

4 'Material Literacy' is akin to the concept of the real versus the digital, and is used to discuss and distinguish tactile and virtual experiences (Dezuanni, Erstad, Flewitt, Kümmerling-Meibauer, & Pereira, 2020).

5 For the Typographic Specimen Sheet project, students were asked to choose a font family or a typeface, and design two posters highlighting the features of that particular typeface. The outcome of the assignment is to be printed in A1 size at 100%.

6 As of March 5, 2020, NeueGlyph has been included in the online American Institute of Graphic Arts (AIGA) Design Teaching Resource studio activity database. <https://teachingresource.aiga.org/project/neueglyph>

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