An alphabet of things to think about when creating and polishing a poster...

A is for About this presentation

A is for Audience

A is for Audience

Appropriate, appealing, and accessible

A is for Audience

“

Most academic posters are ineffective. This trend makes it harder for good posters to be created

(Sousa & Clark, 2019)

Sousa, B. J., & Clark, A. M. (2019). Six Insights to Make Better Academic Conference Posters. *International Journal of Qualitative Methods*, 18. https://doi.org/10.1177/1609406919862370

A is for Audience

Fairly standard posters that just aren't that easy to read and enjoy (sorry, peeps!)
crudata.uea.ac.uk/cru/posters/2008-04-AK-SAM.pdf

A is for Audience

What are ‘rules’ vs. ’norms’ for the conference (and can you challenge these?)

A is for Audience

What do you want from your audience?
Hone key messages, test, iterate

Polish my poster!

A: Audience

Te Papa Board Book Series
Te Papa Press, 2015
Design: Jo Bailey and Anna Brown

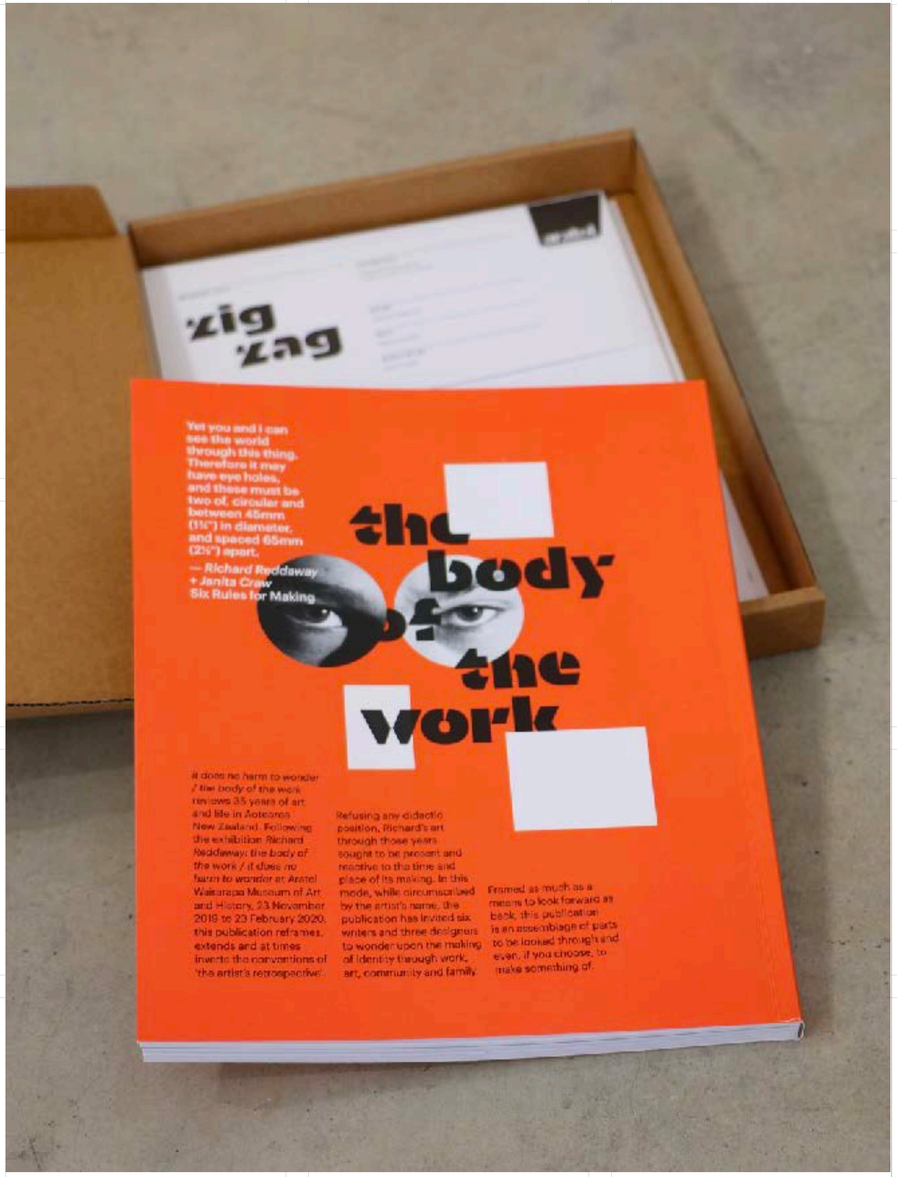
B is for Balance

B is for Balance

Is placement helping the reading order?
(big to little, top to bottom, left to right)
Is layout leading someone through the page?
Is it dynamic or static?

Polish my poster!

B: Balance



It does no harm to wonder / The body of the work
Richard Reddaway, 2020
Design: Jo Bailey and Anna Brown

Polish my poster!

lawa.org.nz

A human centred design case study for science communication

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Tristam Sparks

Massey University
School of Design
Ngā Pae Māhutonga

LAWA
LAND AIR WATER AOTEAROA

LAWA (Land Air Water Aotearoa) is a website designed to make scientific information on New Zealand's environment available to the public in an easily comprehensible, credible and trustworthy way.

In this project, designers, acted as a facilitating bridge between government (scientists, communicators and management at the local government and ministry level) and the audiences or users of the website.

The site presents environmental data collected by the regional council sector, and presents it in a way that gives context and allows comparison across sites and regions. Recreational information, publicly sourced events and stories, and learning resources make the site relevant to many audiences.

When LAWA launched in 2013, it was a world first in terms of making national water quality information accessible on a single platform. It has since grown to include the water quality of lakes and beaches alongside rivers, air quality, and water quantity (available for consented use), with indicators on groundwater quality and biodiversity in the pipeline.

Design process

An overview of the design process used in the LAWA project

Discover
Observe the data collection process, talk to scientists and stakeholders to understand needs of the client(s); define/ redefine the ultimate goals of LAWA from a user perspective

Understand audiences
Talk to potential user groups to gain empathy for their needs, wants and perspectives; synthesise insights into user personas representative of identifiable groups

Research
Identify functional precedents, understand context socially, technologically, and functionally through desk-based research

Generate ideas
How could the needs be met? What functions will allow that to happen? Iterative design; brainstorming; peer testing; rapid prototyping

Iterative design
Initially functional design (wireframes and test data visualisations), later aesthetic extrapolations: test as user journeys, share, get peer feedback, refine, repeat

Build and release
Hand over to developers, further feedback and self/peer testing; stakeholder testing; release. Refinements and further functional development repeats process

Guiding communication principles

Insight into the proposed users highlighted that within their broad variety of wants and needs, the data needed to reveal itself in a contextually relevant way; to 'talk' appropriately to the user. To enable this, information is displayed as summary grades, visualisations and descriptions, with further 'drilldown' to graphs, more detailed infographics, and ultimately to open source data sets that technical users can export for their own analysis. This is encapsulated in these principles:

> **Everything as simple as it can be, but not simpler**
> Attributed to **Albert Einstein**

> **Overview first, zoom and filter, then details on demand**
> **Ben Shneiderman**[1]

[1]*The Eyes Have It: A Task by Data Type Taxonomy for Information Visualizations.* In Proceedings of the IEEE Symposium on Visual Languages, 1996

Examples of 'drilldown' in action

1. Dashboard tiles show snapshot information as colour coded results or grading…
2. Tiles expand to show explanation giving context to the grading but written in simple language…
3. User-modifiable graphs add further context and show users the data in a comprehensible format…
4. Technical terms are hyperlinked with green (learn) links to open glossary descriptions that can link to detailed factsheets…
5. Data made available for users to download for their own analysis.

Human centred design

At its core, human centered design is a form of ethnographic research. A manner of investigation that allows designers to approach any given (passive or interactive) communication or sociocultural transaction from the perspective and the vernacular of the participant and the expert.

By conducting initial interviews with different audiences and balancing those multiple points of view, it is possible to develop lenses through which design outputs can be tested, and the goal of becoming a multifaceted data resource can be realised. Finally, by exercising cycles of user testing, this design process ensures that software can become harmonised with its rhetorical intent: not only by serving the audience, but by engaging relevant users into a conversation that constantly checks its communicative purpose against its current performance.

LAWA attempts to exemplify core tenants of science communication in a way that democratises access to information and flattens the hierarchy between information consumer and the environment that they interact with. It can only do this effectively if it bridges not only the environment and its representation, but also connects people to the physical environment and its resources that we rely on and value as a nation.

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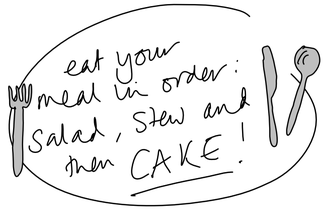
For an expanded discussion of this project please see: makinggood.design/work/lawa/

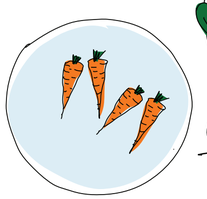
College of Creative Arts
MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

I Can Make It Tasty

Intra-/Cross-/Multi-/Inter-/Trans-
Fusion cooking with disciplines!

Complex problems require us to look outside disciplinary boundaries in order to shape new modes of knowledge production. These developing models of collective and collaborative working have gained a range of words to describe them. Though these continue to evolve and different bodies of literature may employ them with subtle variations, there is a general coalescence around some terms that articulate these different levels of 'fusion' as a continuum of increasing integration. Cooking – making raw ingredients increasingly 'tasty' – can be a useful way of understanding the different degrees of blending and mixing, and the mnemonic **I Can Make It Tasty** describes this progression: **Intradisciplinary** / **Crossdisciplinary** / **Multidisciplinary** / **Interdisciplinary** / **Transdisciplinary**:





Intradisciplinary

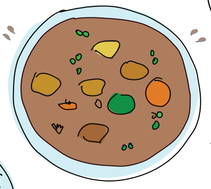
Intradisciplinary working is within one discipline. Like a single ingredient, clearly distinguishable…

Cross disciplinary

Crossdisciplinary working views one discipline from the frame of reference of another. It's like lots of different ingredients on a plate, but without chopping them up and mixing them…

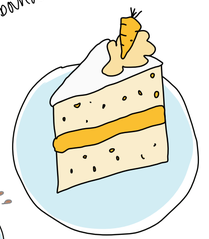
Multidisciplinary

Multidisciplinary working brings disciplines together so they can learn from each other, drawing on the mix of disciplinary knowledge. It's like a salad: the original ingredients are intact, but the flavours begin to blend…



Interdisciplinary

Interdisciplinary working starts to take a new form, integrating knowledge and methods from different disciplines and synthesising into a new whole. It's like a stew: the original ingredients are still partly distinguishable, but the overall is a blended pot of mixed flavours…



Transdisciplinary

Transdisciplinary working produces a new, novel form or way of working beyond the original disciplinary boundaries. It's like a cake: you can no longer see the form of the ingredients as they have taken on a different shape and flavour.

discipline boundaries not challenged

More tasty!

discipline boundaries transcended

Big ups to the people who did the actual research, or helped synthesise it including:
Stember, M. (1991). Advancing the social sciences through the interdisciplinary enterprise. *The Social Science Journal*, *28*(1), 1-14. https://doi.org/10.1016/0362-3319(91)90040-B
Choi, B. C. K., & Pak, A. W. P. (2006). Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical & Investigative Medicine*, *29*(6), 351-364.
Jensenius, A. (2012, March 12). Disciplinarities: Intra, cross, multi, inter, trans. Retrieved 18 January 2018, from Alexander Refsum Jensenius website: http://www.arj.no/2012/03/12/disciplinarities-2/

Te Pūnaha Matatini
Complexity is at our heart

a huge thank you to Te Pūnaha Matatini tepunahamatatini.ac.nz

makinggood.design/ICMIT
for all the references!

C is for Content

C is for Content

Less is more! Slides aren’t a script, and a poster is not a paper. Think carefully about how to reduce words and use carefully chosen visuals

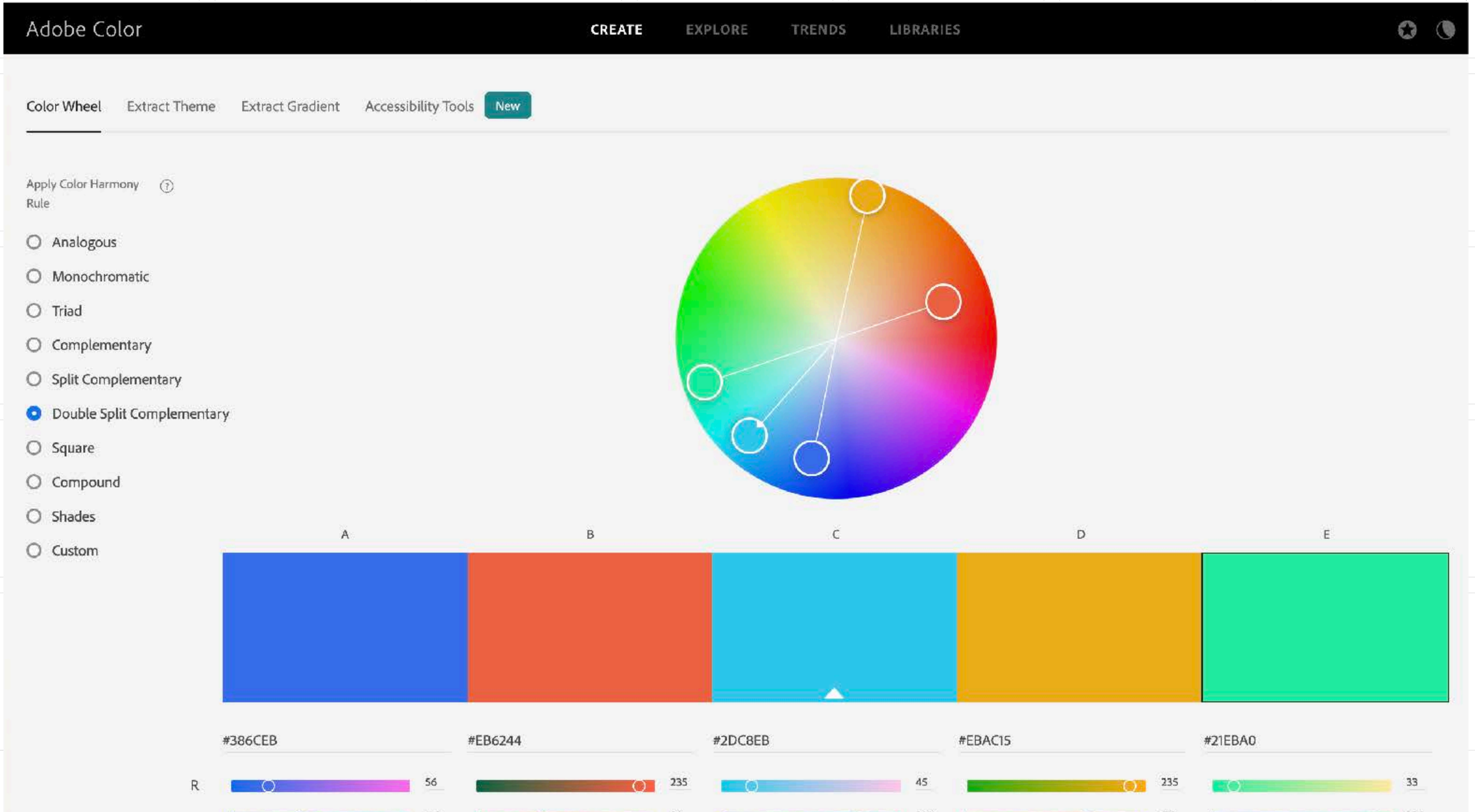
C is for Colour + Contrast

C is for Colour + Contrast

Limit the palette; check contrast; ’borrow’ from things that work

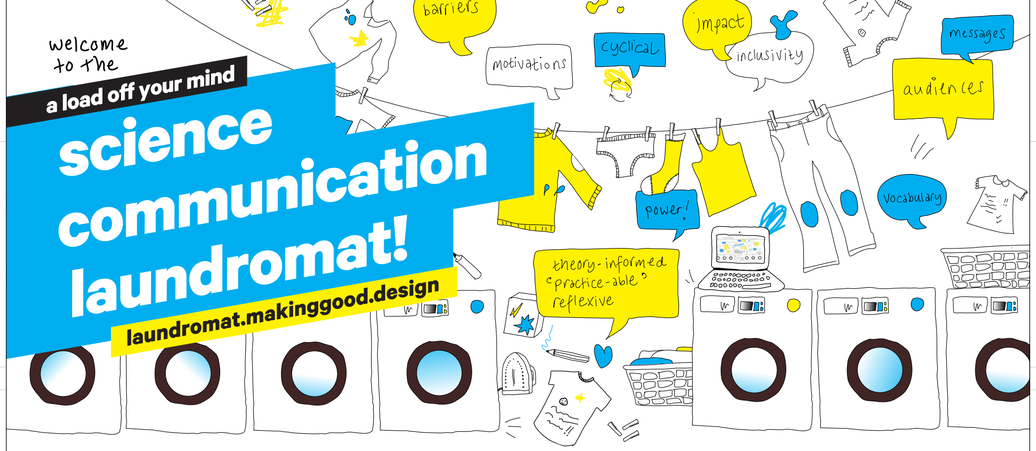
Polish my poster!

C: Colour



color.adobe.com

Polish my poster!



Take a spin in the science communication laundromat, a set of tools to help embed ideas from public engagement with science (PES) theory into research, to help scientist-communicators build capacity for successful science communication.

These tools — a zine workbook, worksheets, facilitator notes, and even a template for a cardboard washing machine to do the exercises on — are available to use and adapt at laundromat.makinggood.design under a creative commons licence[1]. The website is aimed primarily at people who would like to use the tools to deliver and facilitate their own laundromat.

what is a scicomm laundromat?

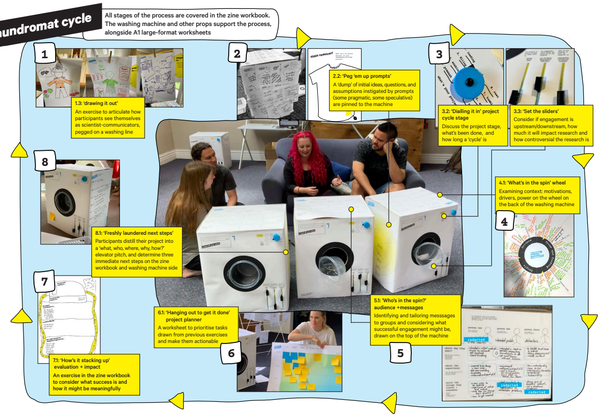
In short, it is a workshop model (developed using design methodologies and practices) incorporating a series of exercises to help scientists/researchers think about their scicomm or public engagement in a reflexive way, in order to improve it. Improve it in the sense of being more purposeful, inclusive, more clearly designed for the people the communication is aimed at, and with a better sense of potential challenges and motivations. Key to this is making the theory 'practice-able'[2]. The laundromat is usually delivered as a residential retreat over two or three days, but can also be done as shorter sessions, or online.

why a laundromat?

We had been playing with an installation where a lo-fi, playful cardboard laundromat was a repository for thoughts on 'airing the dirty laundry' of various disciplines at conferences, drawing on a lot of metaphors: cleaning up, ironing out, pressing on… We had also been working with scientist-communicators to help them develop reflexive, thoughtful, audience-centric science communication via design-led workshops. When we brought the two workstreams together, the metaphors just kept washing over us! The never-ending cycle that is laundry was especially resonant when thinking about public engagement practice as something that requires regular attention to 'refresh' it. You can find out more about this in our paper, linked below.

the laundromat cycle

All stages of the process are covered in the zine workbook. The washing machine and other props support the process, alongside A1 large-format worksheets



1 GATHER UP THE LAUNDRY PILE

This stage includes *Setting the cycle survey*, to gather expectations, expertise, backgrounds, project information etc; *Home tag: finding out about you*, an inclusive icebreaker; and *Drawing it out: you and your engagement*, a drawing task to help participants position themselves and think reflexively about their research *and* their engagement practice (and what engagement means).

2 SORT THE LAUNDRY

This stage includes *Scicomm 101* and *Get it on the garments peg 'em up prompts*. The purpose is to background how scicomm and engagement are framed in some literature to build shared understanding and to discuss how others understand key terms. Then, prompt sheets are used to draw out a sense of where the engagement project is at, and to document assumptions we might question later.

3 CHOOSE THE SETTING

This stage includes connected tasks *What's on the box?*; *Set the cycle length*; and *Set the sliders*. The purpose is to build on 2.2: *Peg 'em up prompts* to help think about the projects further. It enables discussion about the purpose of scicomm for participants' specific research project and where it fits in a research project: upstream, downstream, and how much engagement can vary the research. It also considers social licence.

4 SOAK + SPIN

This stage draws on a tool called the engagement wheel first proposed by Salmon & Roop (2019). Its purpose is to help participants get to grips with and articulate some of their different scicomm drivers and objectives. It is an opportunity to become more transparent and explicit about where the power lies; all the goals of an activity (including ones that aren't usually overtly declared); and what 'success' looks like.

5 RINSE + WRING

This stage has two parts: *What's in the spin?* audiences + messages, and *What *is* the spin?* messages rinse out. Through a scenario where audiences (primary, secondary, 'secret') are 'overheard' in a laundromat explaining why they took part in the proposed engagement; what they thought about the experience; and what they learnt we map who the audiences are; what we want them to know; and how we could connect with them. In essence, making sure we are centering the engagement on them and their needs.

6 GET IT DRIED

This stage is *Hanging out to get it done*. In essence it is a project planner. Participants have 'hung out' with their thoughts for a while. The wheel might have shifted dirt that wasn't visible before; the levers might have challenged when participants are engaging and how the engagement might in turn shape *their research*. Stage 6 considers what the gentle agitation has brought to the surface and translates the content it into tangible tasks and priorities, so the previous exercises become relevant, practical, and actionable.

7 FOLD + PRESS

This stage is called *How's it stacking up?* It asks: what are the measures of success for this engagement project? What metrics are there that you could count, measure or survey, or observe more informally? And how can you evaluate impact both on audiences and on yourself and the other team members? This is documented in the zine workbook.

8 READY TO WEAR

This stage comprises *Freshly laundered next steps*; an exercise to shake out the whole experience to get it down to an 'elevator pitch' (or a capsule wardrobe!). The point is to articulate where the project is at, and vitally, to distill and summarise next steps so the participants feel that they have a plan when they leave. Where stages 6 and 7 cover the longer-term plan in detail, this exercise is a quick distillation, and the 'note to self' you need when you get back to the office and need a quick recap to catalyse momentum.

[1] *free to use and adapt*

[2] *what's 'practice-able'?*

If practicable means 'able to be put into practice', but also brings to mind words like feasible, actionable or viable, we decided that we meant something more than this. We wanted to aid participants in absorbing and incorporating theoretical ideas from PES into their own practice. A key part of the theoretical ideas from our perspective was a reflexive disposition, so this incorporation of theory would enable them to reflexively shape their practice, whatever that may be. We wrote more about this in JCOM in 2022; paper linked below.

The zine workbook contains all the steps for the participants to work through

FIND OUT MORE…

Visit our 'a load off your mind' science communication laundromat website: laundromat.makinggood.design

Read our paper: Bailey, J., Salmon, R., & Horst, M. (2022). The 'Engagement Incubator': Using design to stimulate reflexivity about public engagement with science. *Journal of Science Communication*, 21(04), A01. doi.org/10.22323/2.21040201

WE ARE…

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THANKS TO…

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Te Pūnaha Matatini
Complexity is at our heart

Polish my poster!

C: Contrast

Polish my poster!

C: Contrast

The Implications of Greenhouse Gas Stabilisation for International Tourism

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Abstract

This poster presents for the first time the possible impacts of greenhouse gas stabilisation policies on the major international tourism flows. Tourism is one of the largest industries in the world and a vital component for the economy of many countries. Implementation of pro-active policies at the national and international level that will attempt to stabilise the atmospheric concentrations of greenhouse gases in the atmosphere will require substantial cuts in anthropogenic greenhouse gas emissions. But even then, the climate system will have changed, and so will the climatic conditions of tourist destinations. The Mieczkowski Tourism Climatic Index (MTCI), constructed from observed climate data is used as an analogy for a region's potential for tourism. The results from a range of General Circulation Model (GCM) integrations forced with greenhouse gas stabilisation scenarios are then used to construct the MCTI for the future. A comparative analysis is undertaken to assess how different levels of GHG stabilisation will impact upon the major international tourism flows and to identify the critical responses.

Background

Tourism is globally the largest, and one of the fastest growing economic sectors. Its emission of greenhouse gases (GHG) is considerable, with aviation emissions estimated to be the fastest growing source. Being a transport-intensive industry, tourism is highly dependent on fossil fuels and vulnerable to GHG mitigation policies.

Climate change as such will also impact on the tourism industry. It will have a range of direct impacts by changing the environment of resorts (e.g., sea-level rise, temperature, etc.) and it will increase the vulnerability of the tourism industry to other environmental changes (Agnew and Viner, 1998). There will also be a range of indirect impacts, for example: raising conflicts in water resources; health effects; impacts on the built environment; and detrimental impacts on the local environment. The interactions between climate change and tourism have to date not been examined on a large scale.

The Mieczkowski Tourism Climatic Index (MTCI)

The Tourism Climatic Index, first developed by Mieczkowski (1985), allows quantitative evaluation of the climate for the purpose of tourism activity. Mieczkowski's TCI (MTCI) consists of five sub-indices (maximum value: 5), each of which is constituted by one or two monthly climate variables, these are: (i) daytime comfort (maximum daily temperature, minimum daily relative humidity); (ii) daily comfort (mean daily temperature, mean daily relative humidity); (iii) precipitation (total precipitation); (iv) sunshine (total hours of sunshine); and (iv) wind (wind speed). A location's suitability for tourism is then rated on a scale from -30 to 100 with the help of the following formula:

TCI = 2 x (4 x DaytimeComfort + DailyComfort + 2 x Precipitation + 2 x Sunshine + Wind)

The scale itself is divided into ten categories, from "ideal" (90 to 100), "excellent" (80 to 89) and "very good" (70 to79) to "extremely unfavourable" (10-19) and "impossible" (9 to -30). In this study, a TCI value of 70 or higher is considered attractive to the "typical" tourist engaged in relatively light activities.

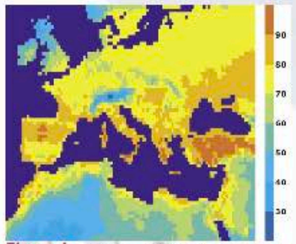


Figure 1. Europe's summer (JJA) MTCI pattern for 1961-90 (observed data).

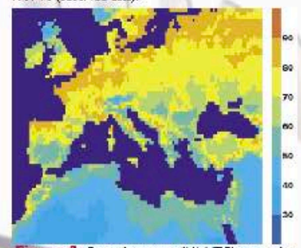


Figure 2. Europe's summer (JJA) MTCI pattern for 2040-2069, HadCM3A1F integration.

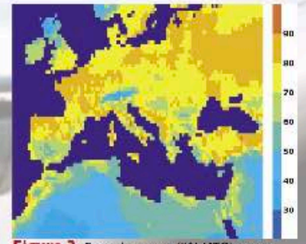


Figure 3. Europe's summer (JJA) MTCI pattern for 2040-2069 (HadCM3B1A integration; surrogate for CO2 stabilisation at 550 ppmv)

The Implications of Climate Change Mitigation Policies

The major driver of international tourism is the search for Sun, Sea, Sand, and (increasingly) Security. A dominant flow of tourists is the movement of people from Northern European countries to those in Southern Europe (the Mediterranean Region). Figure 1 shows the summer (JJA) MTCI constructed for the 1961-90 period. It confirms the excellent conditions of the Mediterranean region for tourism, and simultaneously shows the lower MTCI in the source countries (e.g. UK, Germany, Sweden, Norway).

Whilst the direct impacts of climate change on tourism and the environment can (with further research) be quantified, it is likely to be far more difficult to quantify the impacts of climate change mitigation policies upon major international tourism flows (Viner and Amelung, 2003). The work presented here attempts to do this for the first time. General Circulation Model (GCM) experiments are forced with several SRES baseline scenarios, representing different levels of greenhouse gas stabilisation. More specifically, the SRES A1F scenario is used to represent a scenario in which few mitigation measures are taken. While this scenario is at the high end of the SRES baselines, it resembles the emission pathway that, since 1990, the global society is currently following. The B1A scenario is used as a surrogate scenario for stabilisation at 550 ppmv, as suggested by Swart et al. (2002).

Figure 2 shows a map of MCTI scores constructed for the summer (JJA) of the 2050s according to the SRES A1F scenario. In comparison with Figure 1 it shows a strong decline in the suitability of the Mediterranean region for tourism, whilst at the same time the source countries of Northern Europe move into optimum conditions for tourism. Figure 3 shows the same map for the SRES B1A scenario, a proxy scenario for stabilisation of CO_2 concentrations at 550 ppmv (Swart, 2002). This figure makes clear that following a pathway leading to stabilisation at 550 ppmv (rather than at levels exceeding 750 ppmv) slows down the changes in Europe's suitability pattern considerably, even though these changes are far from halted.

Besides spatial consequences for MTCI performance, climate change will have seasonal consequences. Figures 4 and 5 represent the MTCI distributions for a typical Mediterranean destination (the Balearics) and a typical northern European destination (Brighton) respectively. Both locations have their MTCI peak in summer, which for the Balearics can be shown to coincide with actual visitation levels: for MTCI < 70, visitation is very low. The Balearics (representing the Mediterranean) are projected to develop into a destination with a bimodal MTCI distribution: good conditions in spring and autumn, poor conditions in summer. This trend is much slower, however, in the case of stabilisation at 550 ppmv, in particular for the eastern Mediterranean. For Brighton (representative of northern Europe), the holiday season is projected to get much longer, encompassing the full half-year from May to October, rather than just July and August. Stabilisation of greenhouse gas concentrations at lower levels seems to slow down rather than stop this transition.

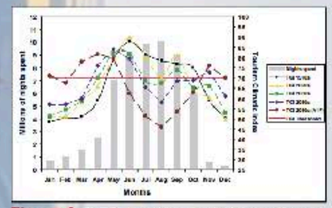


Figure 4. TMTCI distributions for the Balearics (Spain), for 1961-1990 (observed data), 2010-2039, 2040-2069, 2070-2099 (HadCM3B1A integration, stabilisation at 550 ppmv) and 2070-2099 (HadCM3A1F, stabilisation at >750 ppmv), confronted with historical visitation levels (2000-2003).

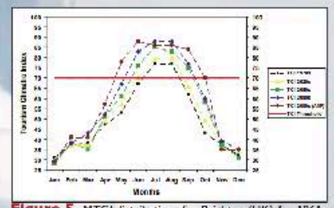


Figure 5. MTCI distributions for Brighton (UK), for 1961-1990 (observed data), 2010-2039, 2040-2069, 2070-2099 (HadCM3B1A integration, stabilisation at 550 ppmv) and 2070-2099 (HadCM3A1F, stabilisation at >750 ppmv).

Discussion

The change in suitability of differing regions is likely to impact on the flows of numbers of tourists visiting the Mediterranean and other regions. Different emissions pathways are unlikely to substantially alter the direction of MTCI change for regions: e.g. summer conditions will improve in the UK and deteriorate in the Mediterranean region. In contrast, the rate of change in the MCTI can be significantly altered. By slowing down the changes in suitability patterns, mitigation policies would give destinations more time to adapt to the inevitable consequences of climate change.

References

Acknowledgements

The HadCM3 and HadRM3 used in this project has been supplied by the Climate Impacts LINK Project (DEFRA Contract EPG 1/1/154) on behalf of the Hadley Centre and U.K. Meteorological Office.

Further details of the eCLAT Community can be found on the website. The website contains information about on-going activities, for example, workshops, papers and tourism projects that are relevant to the aims of eCLAT. Reports from workshops are included, as is the detailed Science Plan for Climate Change and Tourism Research that was prepared at the 1st Workshop in Nice, June 2003.

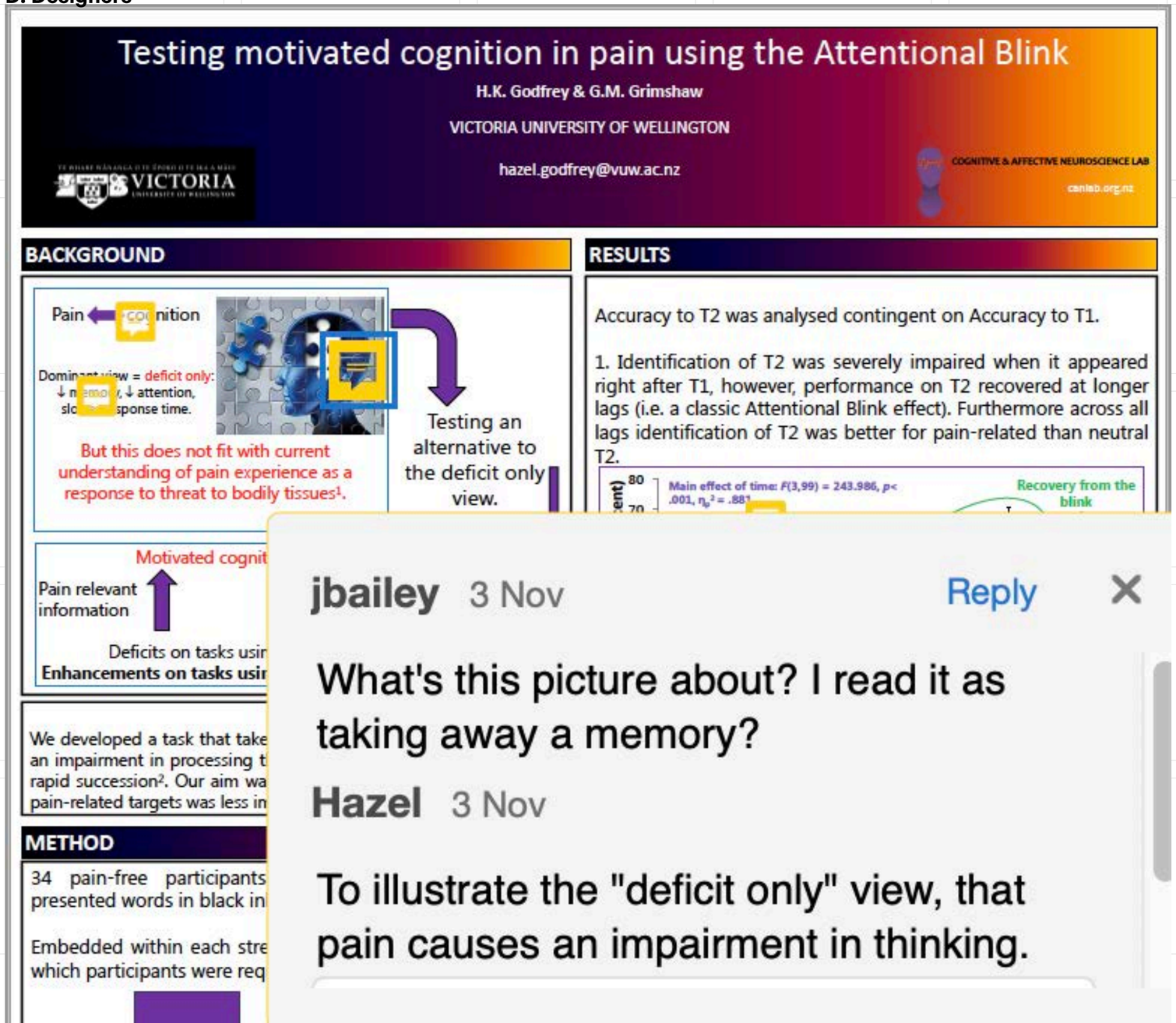
www.e-clat.org

crudata.uea.ac.uk/cru/posters/

D is for Designers

Polish my poster!

D: Designers



E is Evoking the right Emotion

E is Evoking the right Emotion

What’s the personality of your research?
How do you want people to feel?

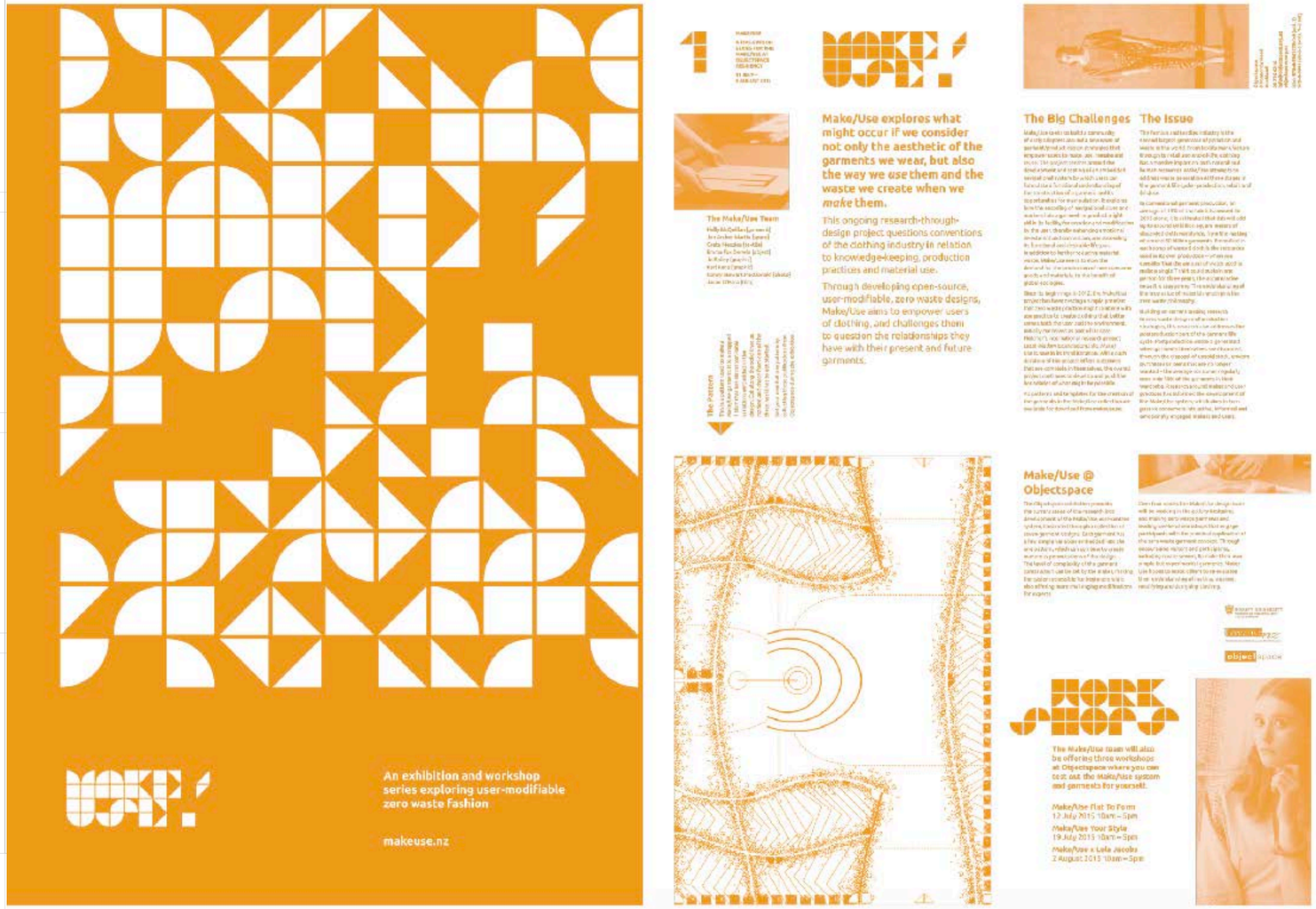
E: Evoking the right Emotion

- Subject matter?
- Number/type of sections?
- What are the colours (literal or emotional)?
- Who is the audience?
- What will appeal to them?
- What five words describe the ‘personality’ of your project?

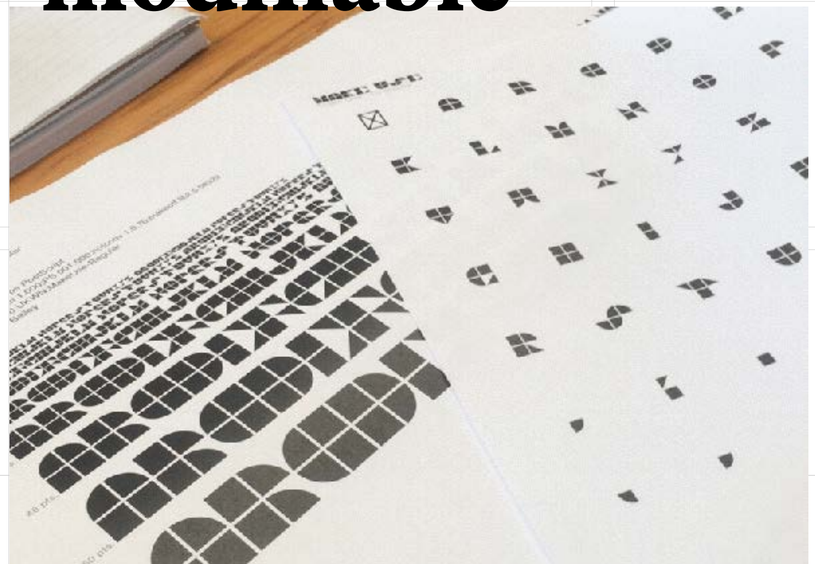
Progressive	⟷	Conservative
Warm	⟷	Cold
Innovative	⟷	Traditional
Serious	⟷	Fun
‘Feminine’	⟷	‘Masculine’
Formal	⟷	Casual
Laid back	⟷	Energetic
Classic	⟷	Trendy
Orderly	⟷	Spontaneous
Quiet	⟷	Loud
Popular	⟷	Solitary
Familiar	⟷	Unique
Old	⟷	Young

Polish my poster!

E: Evoking the right Emotion



- systematic
- ‘designerly’
- dynamic
- approachable
- modifiable



Make/Use
Design: Holly McQuillan and the Make/Use team, Print + identity: Jo Bailey
makeuse.nz

Polish my poster!

E: Evoking the right Emotion

- serious
- authoritative
- err...

See also:
http://makinggood.ac.nz/practice/visual-style/

Image credit:
https://newmediacentre.wordpress.com/2014/07/21/the-five-most-inappropriate-uses-of-comic-sans-ever/

F is for Fonts

F is for Fonts

Fonts help set the tone. Choose a good combo, or use one font throughout. There are good open source options out there

Polish my poster!

F: Fonts

Typeface (font family)

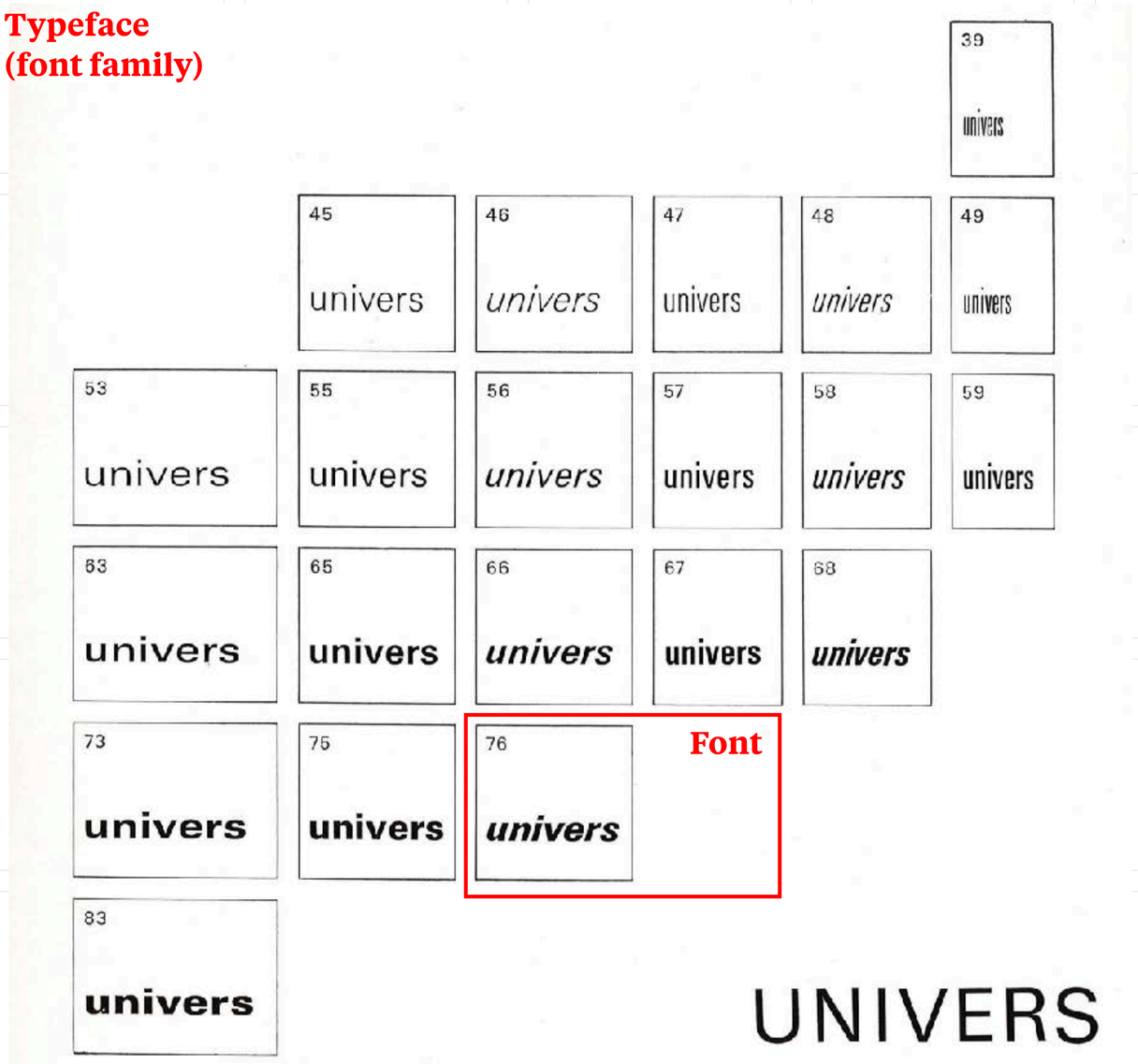


Image credit:
https://i.pinimg.com/originals/75/31/3a/75313a22865a76b8dc49f413254696fa.jpg

Sans serif (no pointy bits)

e.g

Helvetica Neue
Arial
Avenir
Ubuntu*
IBM Plex Sans*
Merriweather Sans*

Serifs (with pointy bits)

e.g

Baskerville
Times New Roman
Caslon
Tiempos
IBM Plex Serif*
Merriweather*

*these are available on Google Fonts for free

Polish my poster!

F: Fonts

learning from mars; or, facing our shit

Lydia Kallipoliti
The Cooper Union
0000-0003-2035-3295

Jestin George
University of Technology Sydney
0000-0002-8225-827X

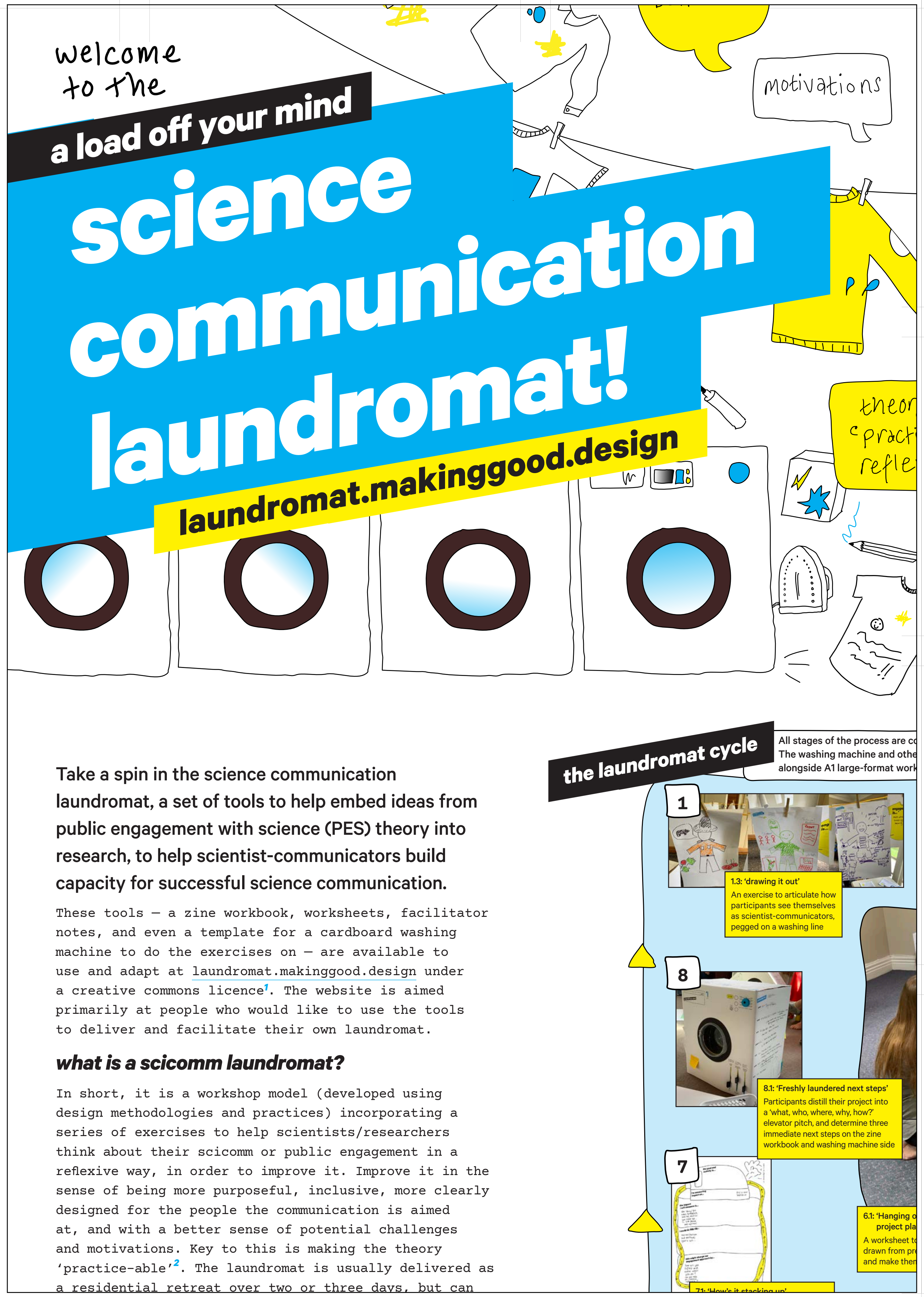
abstract

The intent to inhabit Mars carries many self-contradicting intentions, especially given our clear plan to extract Martian resources, domesticate the planet, and transfer the ideological framework of establishing territory in a newly found space free from jurisdiction. To that end, research into sustaining human life on Mars is highly problematic. Interplanetary habitation is arguably an escape from Earth. The latent narrative is defeat; that is succumbing to the climate crisis, while making alternative plans for a selected privileged population. Nevertheless, research into life on Mars forces us to face our shit on Earth, where resources for sustaining all forms of life have been abundant. Not until recently have we been mandated to consider their finite worth or replacement, or deal with the excessive waste we generate as a by-product of our daily production processes. On Mars, where every resource for sustaining life is precious and rare within a fully enclosed life support, waste becomes integral to our survival. This view from afar, in the words of Claude Levi Strauss, changes our viewpoint on how to retain and recycle waste. Arguably, it is not only insightful for Mars-based habitats, but also for helping in altering daily patterns of dealing with waste and the climate crisis on Earth.

This article presents *LIFE ON MARS*, a research-design project investigating closed-loop life-support living systems for Mars as giant living machines of ingestion and excretion. It is neither a complete project, nor a 'solution' to extra-terrestrial inhabitation. *LIFE ON MARS* looks at the minimum use of in-situ resources avoiding extraction, as well as the regenerative properties of Earth-based biology and our ability to engineer and tinker with resources through the field of synthetic biology. The project also brings to light emergent forms of habitation in extreme interiorisation and the problem of sustaining life in a sealed interior when the exterior world becomes prohibitive. In this format, it is presented as an inquisitive visual narrative, which raises both existential and scientific questions for further exploration.

cite as:
Kallipoliti, Lydia and Jestin George. 'Learning from Mars: Or, Facing our Shit,' idea journal 17, no. 01 (2020): 29-50,

keywords:
life support, inhabitable digestive machines, excrements, colonisation, closed-loop



Polish my poster!

F: Fonts

[ij] vol. 17, no. 01 2020 interior technicity research paper lydia kallipoliti jestin george learning from mars: or, facing our shit 29

learning from mars; or, facing our shit

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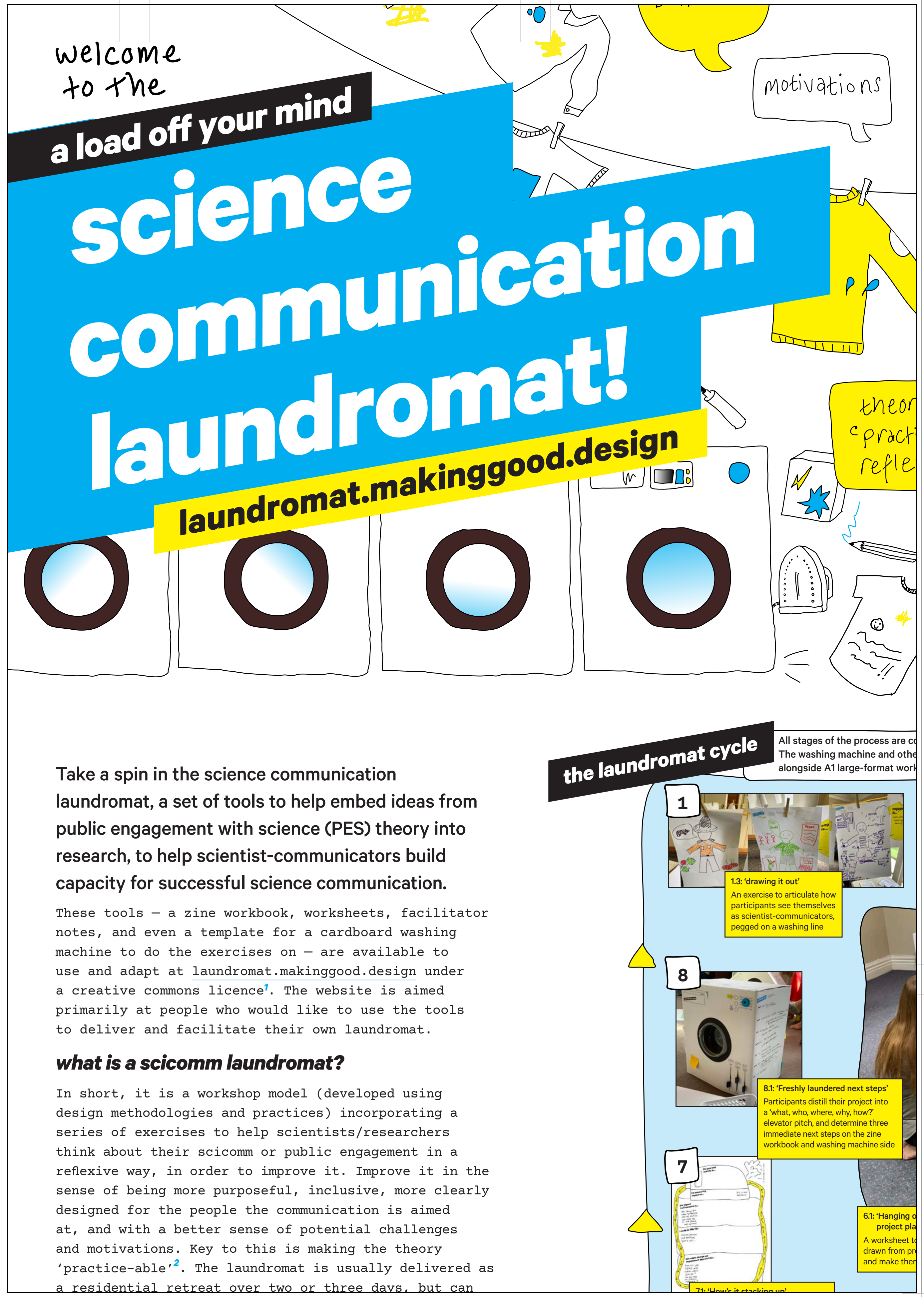


Then everything else...

Glyphics like Albertus Nova

Scripts like *Snell Roundhand* and **Marker Felt**

Blackletter like Fette Fraktur

Decorative like CRITTER

Symbols like ✳❁❒❄ ✤⁂■✳❁❀▼▲

*like Zapf Dingbats

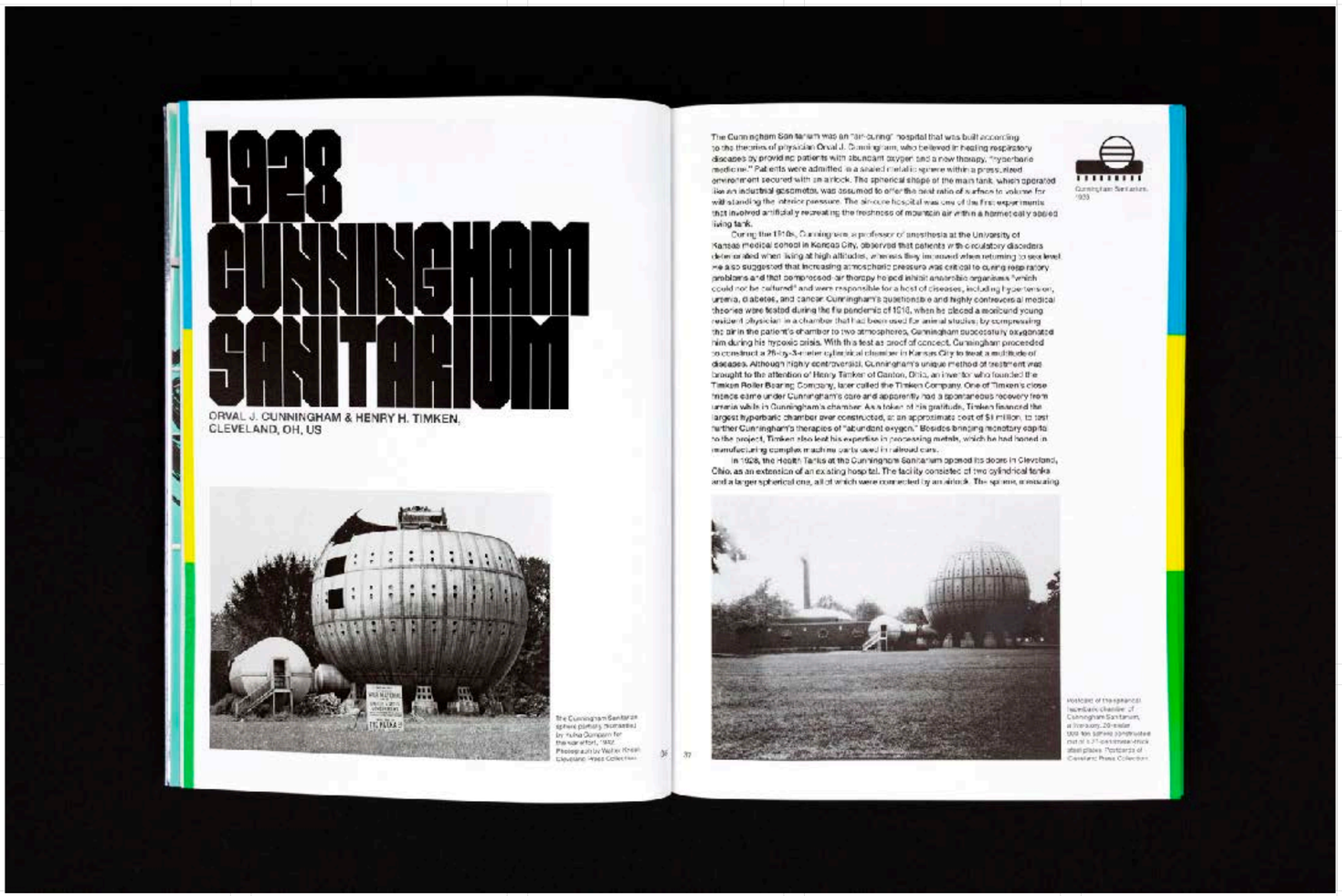
Polish my poster!

F: Fonts

CLOSED WORLDS

The Architecture of Closed Worlds
Lydia Kallipoliti
Design: Pentagram

Image credit:
https://www.pentagram.com/work/closed-worlds



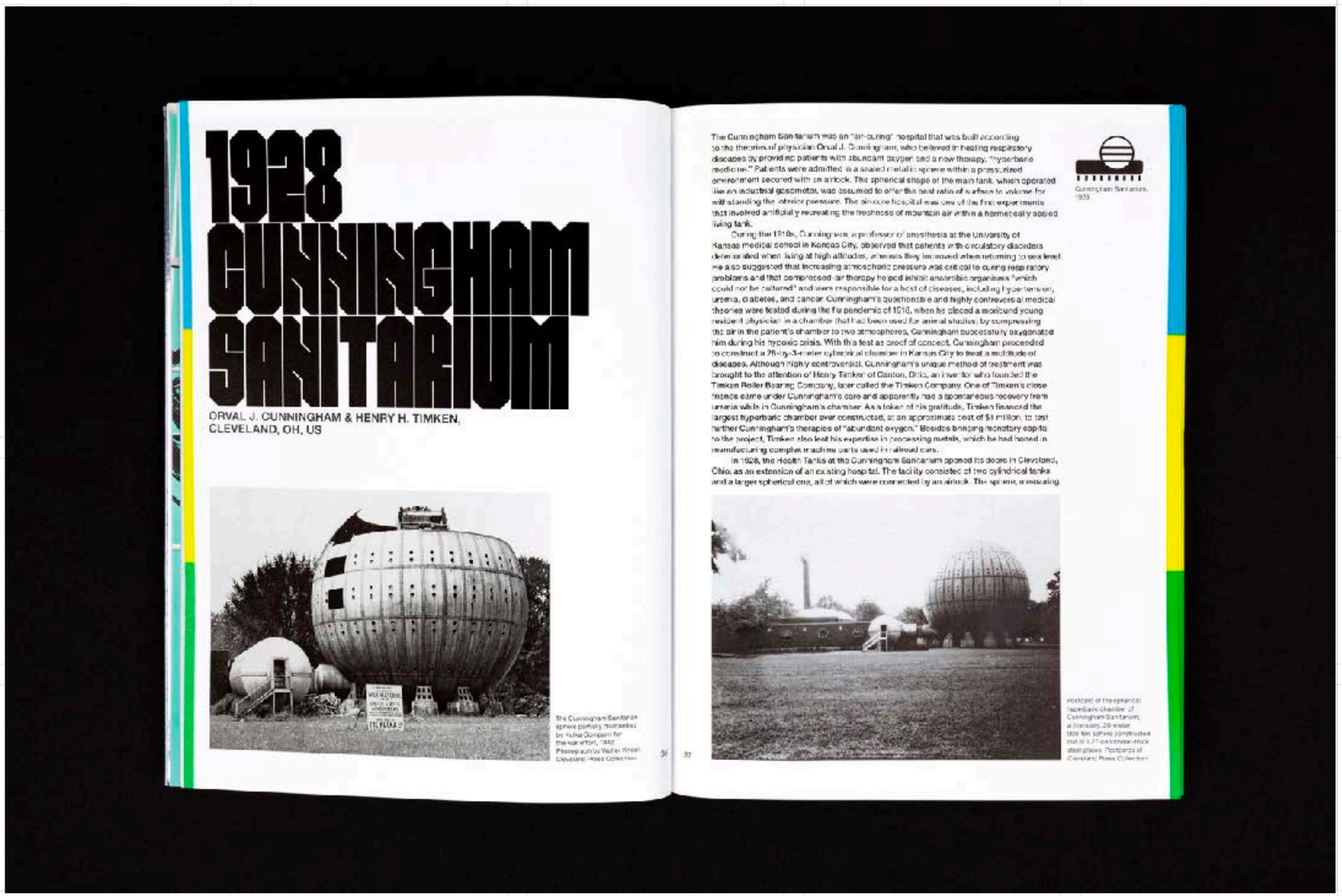
Polish my poster!

F: Fonts

CLOSED WORLDS

The Architecture of Closed Worlds
Lydia Kallipoliti
Design: Pentagram

Image credit:
https://www.pentagram.com/work/closed-worlds



In essence...

(Though you can choose an interesting font for **titles**)

Limit your palette: stick to one or two typefaces

Typefaces do have *personality* (think, does this feel right?)

That ‘only serif for reading’ thing isn’t actually true...

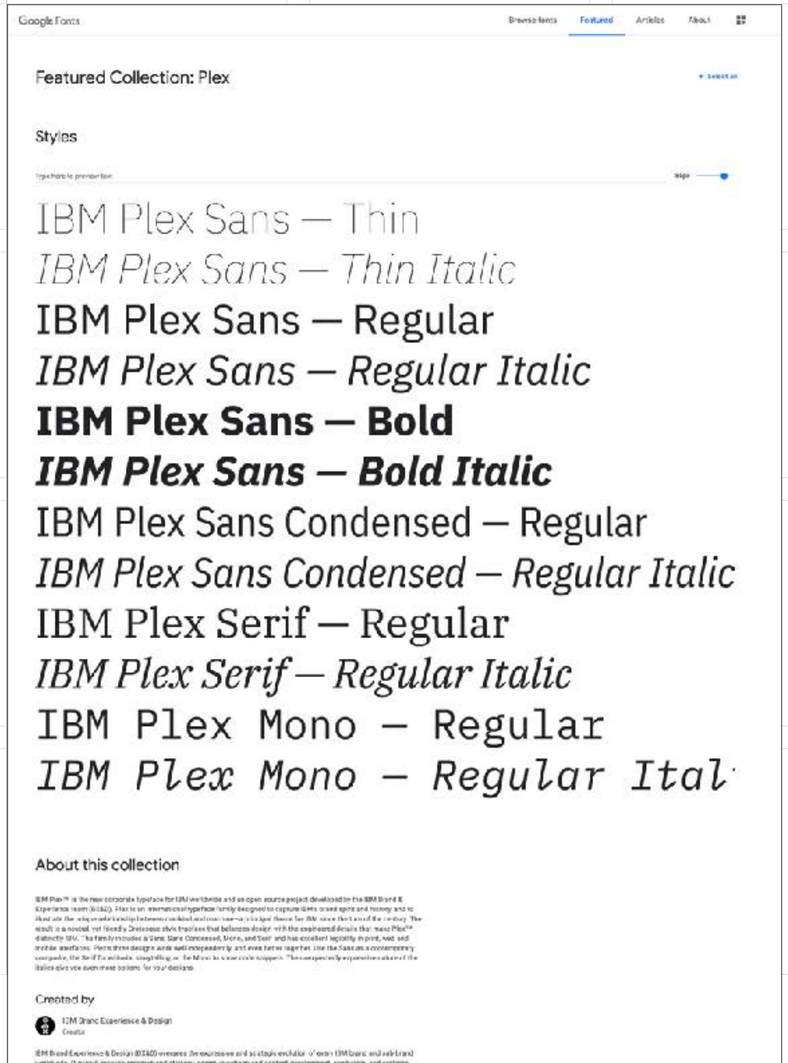
Buy well-crafted typeface (or use open source)

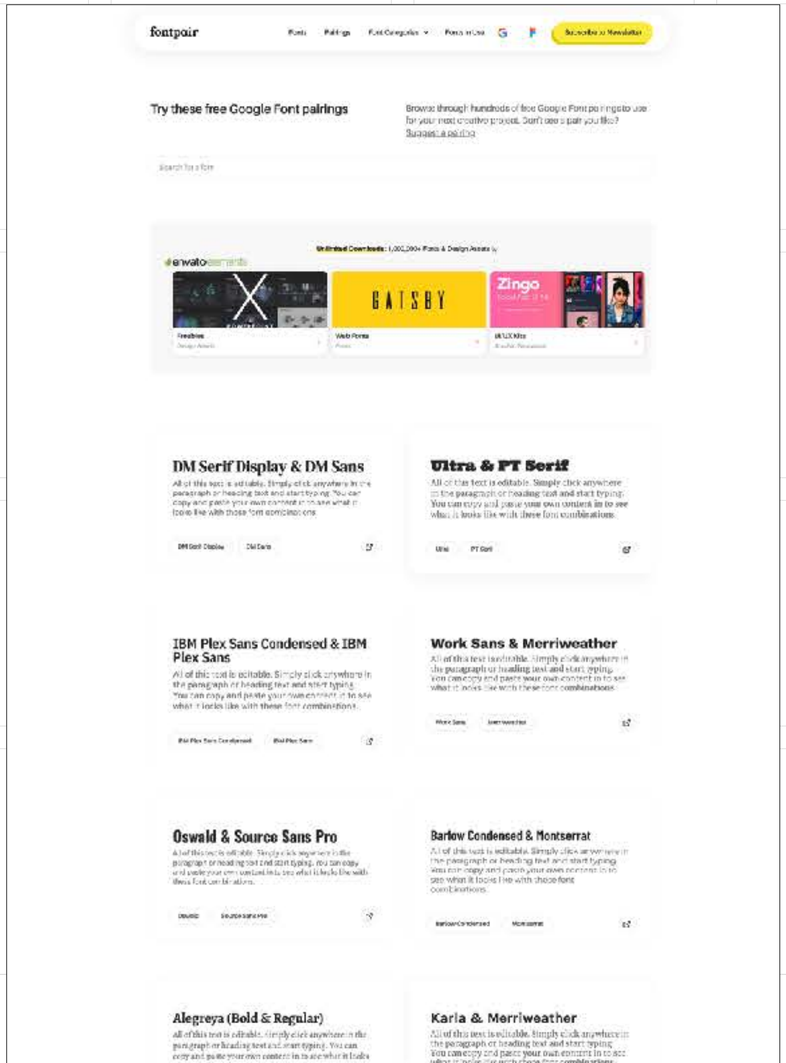
See also: http://makinggood.ac.nz/practice/typography/

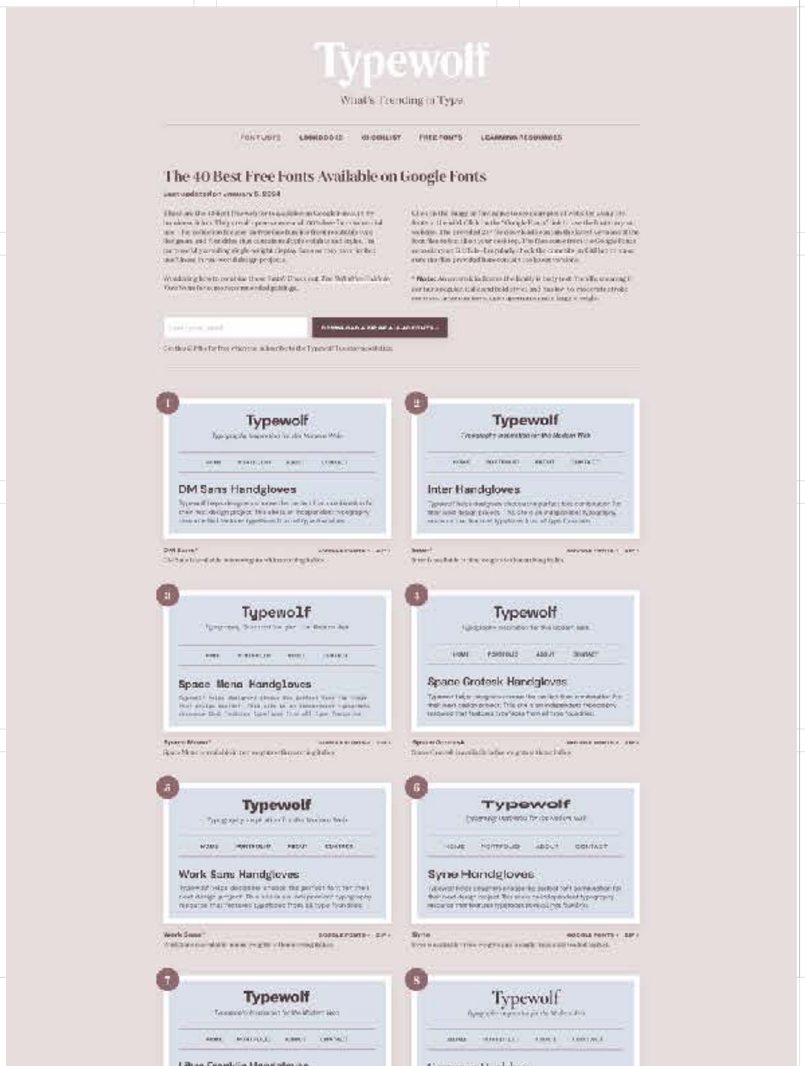
Polish my poster!

F: Fonts

https://fonts.google.com/featured/Plex
https://www.fontpair.co/all
https://www.typewolf.com/google-fonts







G is for Grids or Guides

G is for Grids or Guides

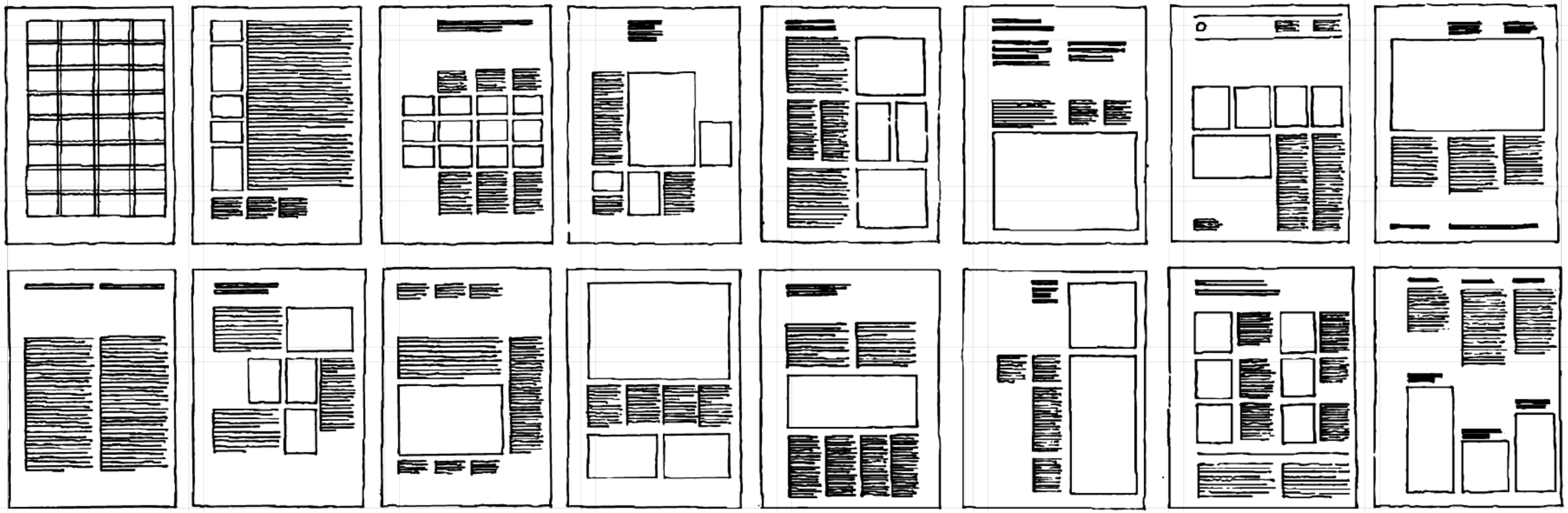
Don’t attempt to build a house without a blueprint and scaffolding!

Polish my poster!

G: Grids

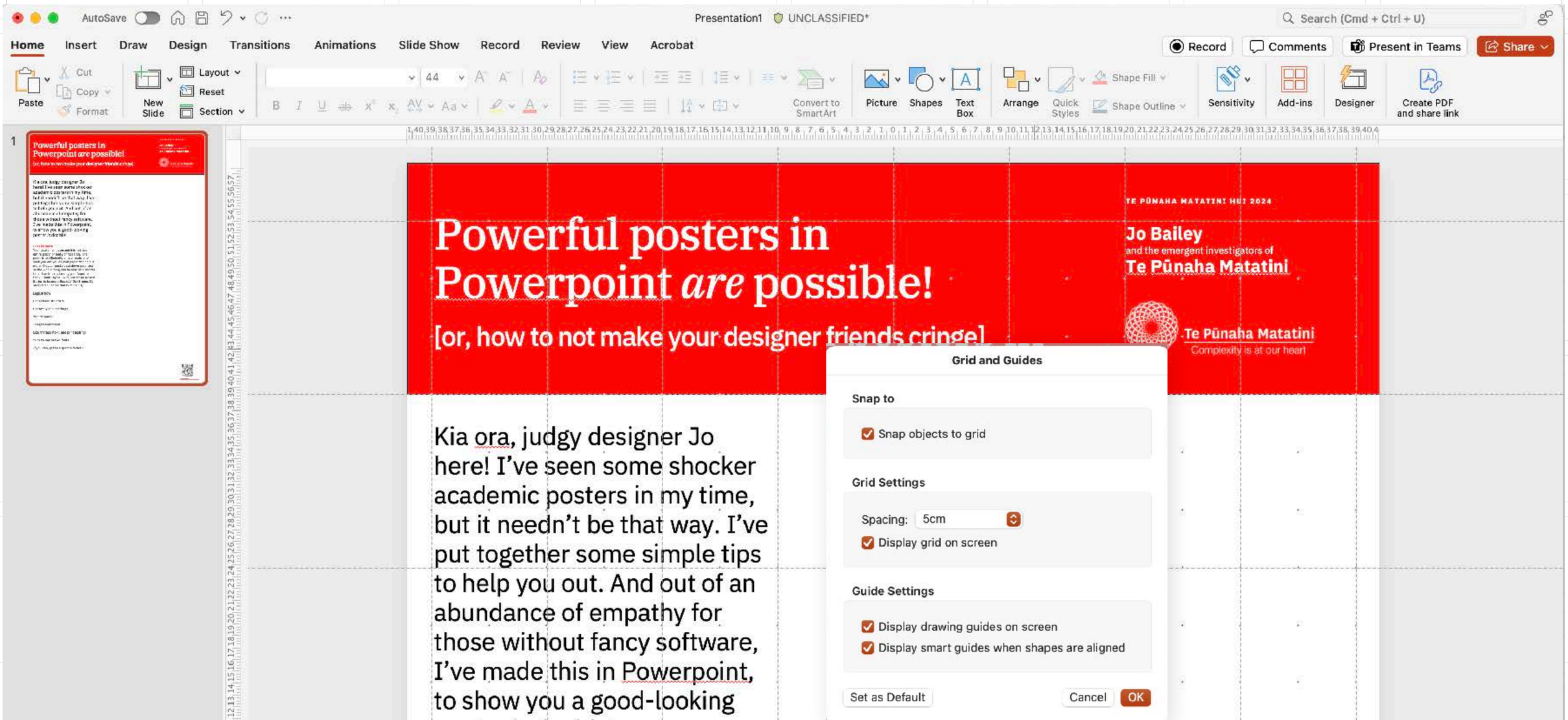
Joseph Müller-Brockmann's hand sketches from *Grid Systems in Graphic Design*

Image credit: https://medium.com/subform/better-grid-systems-in-ui-design-tools-495dc35c5791



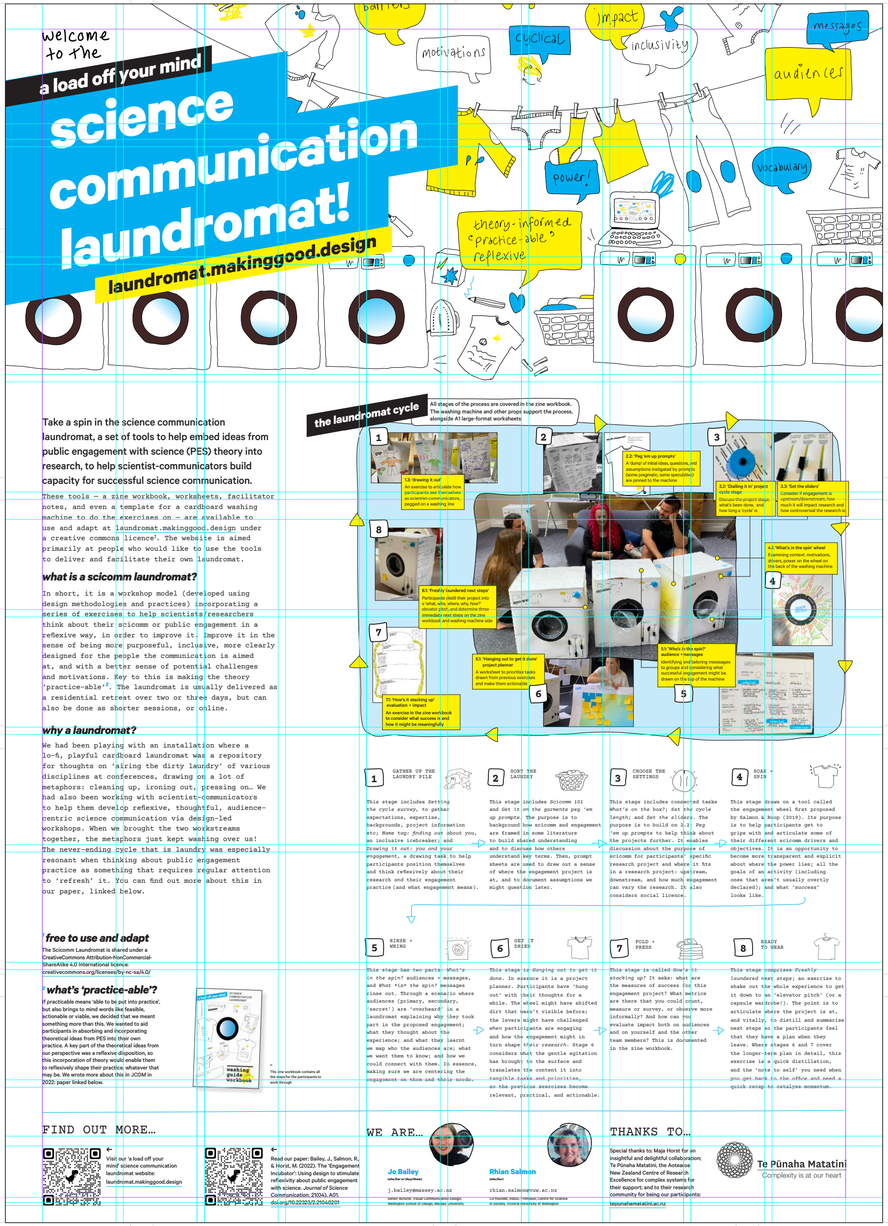
Polish my poster!

G: Grids



Polish my poster!

G: Grids



H is for Hierarchy (and Headings)

Polish my poster!

H: Hierarchy

Colorful Crossroads
From Paper to the Crystal Palace

***Dickinson's Comprehensive Pictures of the Great Exhibition of 1851* (1854)** Waiting for the Queen

(CCA CAGE MT690 (W1227)

Printing color, building color

The year 1851 saw the publication of many architectural books illustrated with chromolithographs. Among them, two books on ancient Greek architecture permit an investigation of the nature of the relationship between the images in architectural books and the design and perception of buildings: *L'Architecture polychrome chez les Grecs* by Jacques Ignace Hittorff (1792–1867),[1] a compilation of research (both his own and others') on polychromy;[2] and *An Investigation of the Principles of Athenian Architecture* by Francis Cranmer Penrose (1817–1903), a geometric analysis of the entasis of the Parthenon.[3] Both books feature chromolithographs and black-and-white engravings.

Penrose was not unaware of the use of color in the Parthenon,[4] but his main focus was optical correction: the way the Greeks achieved the illusion of perfect geometry in building form by adjusting elements to avoid potential visual distortions caused by the human eye. These adjustments are documented in the book in plain measured drawings that record the shape of the building and its geometrical deformations. Despite the exactitude of the information provided, the images are somewhat dull. Even in the chromolithographic plates, where Penrose recorded "some evidence of colour," the most significant images are in *chiaro oscuro* to emphasize the solid and massive appearance of the Parthenon's northwest corner. Hittorff's perspective from the same point of view is in vivid color and exploits the full range of possibilities offered by the chromolithographic process. Because Hittorff's research interest lay in

1 Michael Kiene, *Jacques Ignace Hittorff: Précurseur du Paris d'Haussmann* (Paris: Éditions du Patrimoine, Centre des Monuments Nationaux, 2010); *Hittorff: Un architecte du XIXème* (Paris: Musée Carnavalet, 1986).

2 Jacques Ignace Hittorff, *Restitution du temple d'Empédocle à Sélinonte, ou, L'Architecture polychrome chez les Grecs* (Paris: Firmin Didot Frères, 1851).

3 Francis Cranmer Penrose, *An Investigation of the Principles of Athenian Architecture* (London: Longman Co. & Paternoster Row & John Murray, 1851).

4 Ibid., plate 1: "View of the north-west angle of the Parthenon showing in *chiaro oscuro* the ornaments inscribed on the mouldings & together with the evidence of colour."

The Anatomy of the Architectural Book
Lars Müller Publishers, 2014
Design:Drop/João Faria

Polish my poster!

H: Hierarchy

Title

Colorful Crossroads

From Paper to the Crystal Palace

Image caption

***Dickinson's Comprehensive Pictures of the Great Exhibition of 1851* (1854)** Waiting for the Queen

(CCA CAGE M1690 (W12272))

Heading

Printing color, building color

Body copy

The year 1851 saw the publication of many architectural books illustrated with chromolithographs. Among them, two books on ancient Greek architecture permit an investigation of the nature of the relationship between the images in architectural books and the design and perception of buildings: *L'Architecture polychrome chez les Grecs* by Jacques Ignace Hittorff (1792–1867),[1] a compilation of research (both his own and others') on polychromy;[2] and *An Investigation of the Principles of Athenian Architecture* by Francis Cranmer Penrose (1817–1903), a geometric analysis of the entasis of the Parthenon.[3] Both books feature chromolithographs and black-and-white engravings.

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Footnotes

1 Michael Kiene, *Jacques Ignace Hittorff: Précurseur du Paris d'Haussmann* (Paris: Éditions du Patrimoine, Centre des Monuments Nationaux, 2011); *Hittorff: Un architecte du XIXème* (Paris: Musée Carnavalet, 1986).

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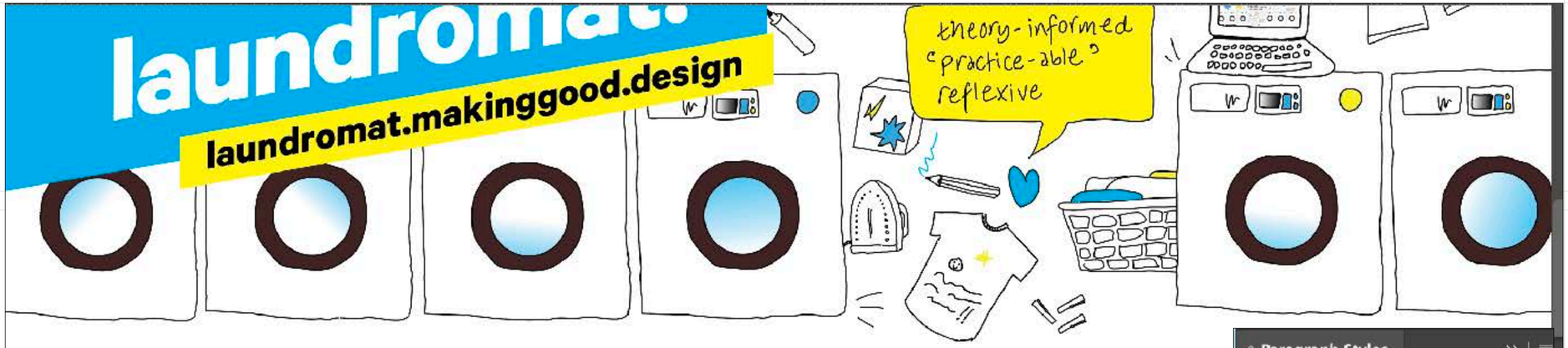
The Anatomy of the Architectural Book
Lars Müller Publishers, 2014
Design:Drop/João Faria

Polish my poster!

laundromat

laundromat.makinggood.design

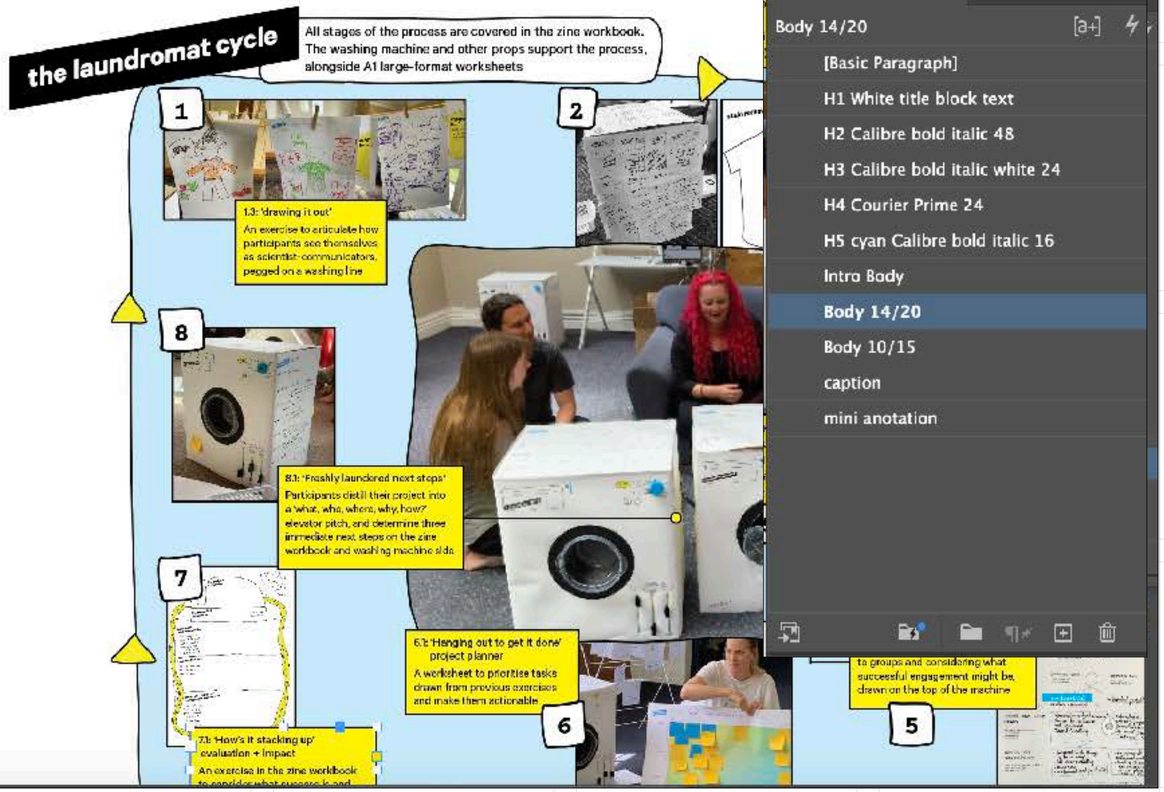


Take a spin in the science communication laundromat, a set of tools to help embed ideas from public engagement with science (PES) theory into research, to help scientist-communicators build capacity for successful science communication.

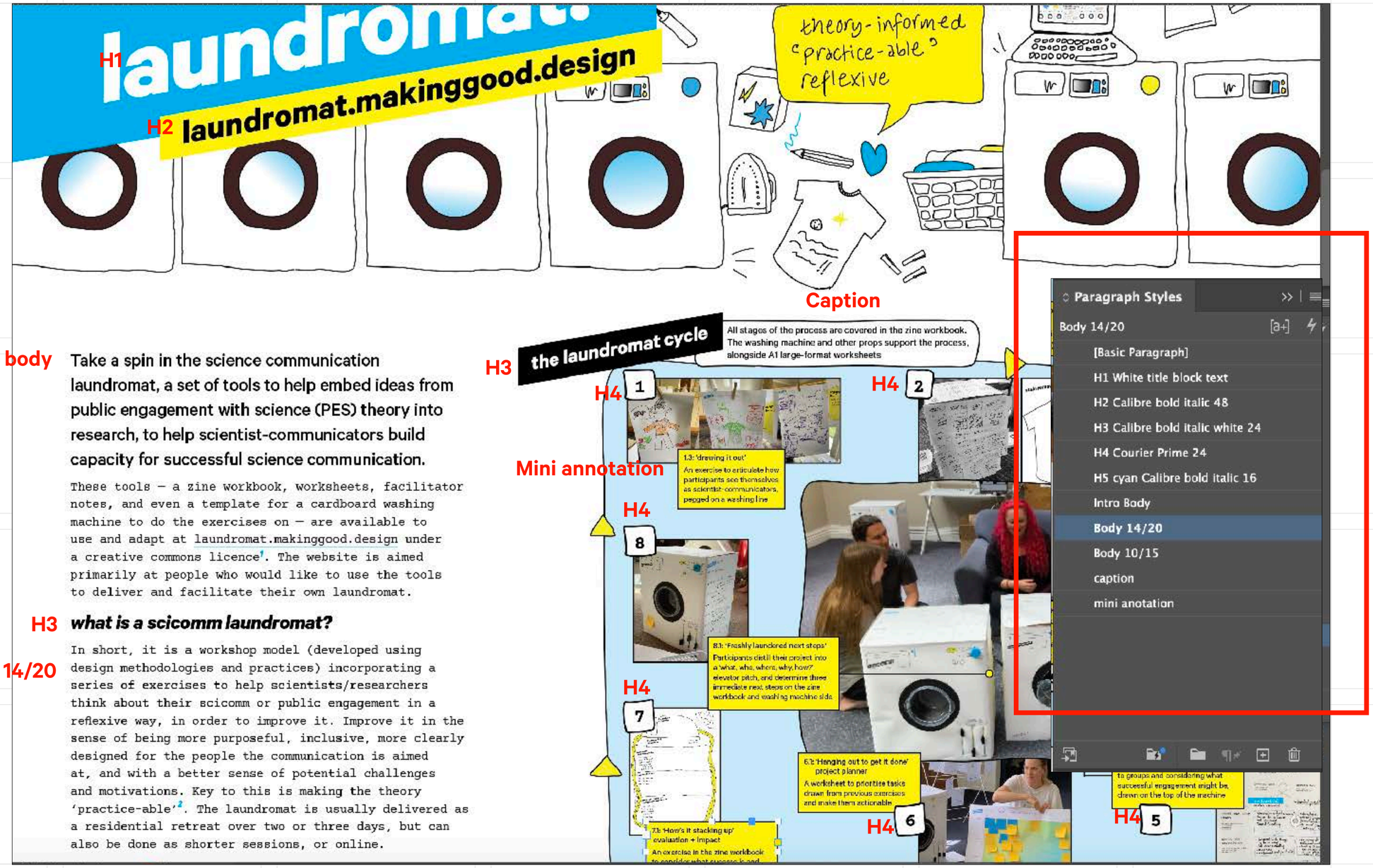
These tools — a zine workbook, worksheets, facilitator notes, and even a template for a cardboard washing machine to do the exercises on — are available to use and adapt at laundromat.makinggood.design under a creative commons licence[1]. The website is aimed primarily at people who would like to use the tools to deliver and facilitate their own laundromat.

what is a scicomm laundromat?

In short, it is a workshop model (developed using design methodologies and practices) incorporating a series of exercises to help scientists/researchers think about their scicomm or public engagement in a reflexive way, in order to improve it. Improve it in the sense of being more purposeful, inclusive, more clearly designed for the people the communication is aimed at, and with a better sense of potential challenges and motivations. Key to this is making the theory 'practice-able'[2]. The laundromat is usually delivered as a residential retreat over two or three days, but can also be done as shorter sessions, or online.



Polish my poster!



I is for Imagery

I is for Imagery

A hero image can hook in a reader from a distance

Polish my poster!

I: Imagery

bioheritage.nz/outputs/roles-of-restoration-collectives-poster-for-print/

Illustration: ezrawhittaker.com

Polish my poster!

I: Imagery

Polish my poster!

I: Imagery

makinggood.design/work/freshwater/

Polish my poster! I: Imagery

REDUCING UNCERTAINTY IN CITIZEN SCIENCE DATA

Julie Mugford [1], Alex James [1,2], Elena Moltchanova [1], Andrea Byrom [3], Jon Sullivan [4]

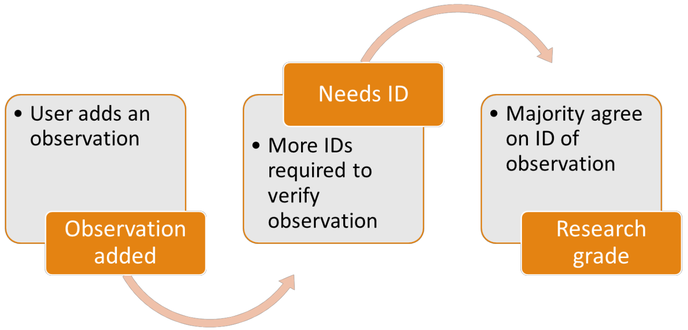
1. University of Canterbury
2. Te Punaha Matatini
3. Manaaki Whenua Landcare research
4. Lincoln University

CHRISTCHURCH, NEW ZEALAND

INTRODUCTION

Citizen science or public participation in scientific research (PPSR) is the involvement of non-scientific members of the community in helping scientists collect and analyse information. This method of information collection is growing in popularity among researchers and citizens. Citizen science opens up a large amount of data for researchers from a vast range of locations at unprecedented frequencies with minimal costs. At the same time it provides users with the opportunity to be involved in a range of projects from environmental management by contributing to time lapses of glaciers with 'Snap Shot Me' to galaxy detection with 'Galaxy Zoo' projects .

Many citizen science projects are based on users classifying images. These images can range from satellite photos of Earth for users to identify land types, to images of flora and fauna for users to help build a map of biodiversity.



MAJORITY VOTE WINS

It is common practice for citizen science projects to decide the final classification of an image based on the majority vote of the users that identified the image.

BUT, WE'RE NOT ALL EQUAL

Majority vote does not take into account differences in users accuracies at identifying images. If we account for this difference we can base our final image classification on a weighted vote.

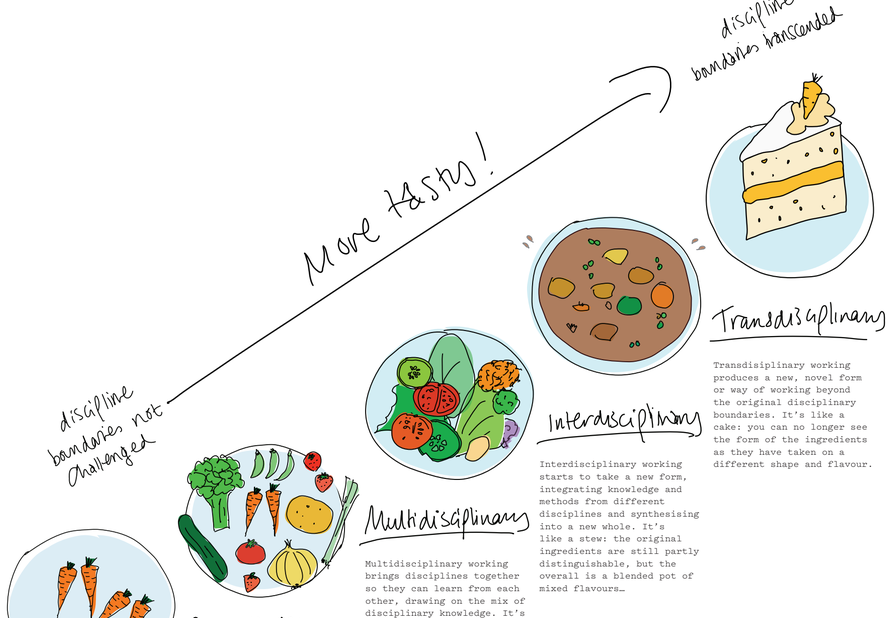
Polish my poster!

I: Imagery

I Can Make It Tasty

Intra-/Cross-/Multi-/Inter-/Trans-
Fusion cooking with disciplines!

Complex problems require us to look outside disciplinary boundaries in order to shape new modes of knowledge production. These developing models of collective and collaborative working have gained a range of words to describe them. Though these continue to evolve and different bodies of literature may employ them with subtle variations, there is a general coalescence around some terms that articulate these different levels of 'fusion' as a continuum of increasing integration. Cooking – making raw ingredients increasingly 'tasty' – can be a useful way of understanding the different degrees of blending and mixing, and the mnemonic **I Can Make It Tasty** describes this progression: **Intradisciplinary** / **Crossdisciplinary** / **Multidisciplinary** / **Interdisciplinary** / **Transdisciplinary**:



Intradisciplinary

Intradisciplinary working is within one discipline. Like a single ingredient, clearly distinguishable…

Cross disciplinary

Crossdisciplinary working views one discipline from the frame of reference of another. It's like lots of different ingredients on a plate, but without chopping them up and mixing them…

Multidisciplinary

Multidisciplinary working brings disciplines together so they can learn from each other, drawing on the mix of disciplinary knowledge. It's like a salad: the original ingredients are intact, but the flavours begin to blend…

Interdisciplinary

Interdisciplinary working starts to take a new form, integrating knowledge and methods from different disciplines and synthesising into a new whole. It's like a stew: the original ingredients are still partly distinguishable, but the overall is a blended pot of mixed flavours…

Transdisciplinary

Transdisiplinary working produces a new, novel form or way of working beyond the original disciplinary boundaries. It's like a cake: you can no longer see the form of the ingredients as they have taken on a different shape and flavour.

Te Pūnaha Matatini
Complexity is at our heart

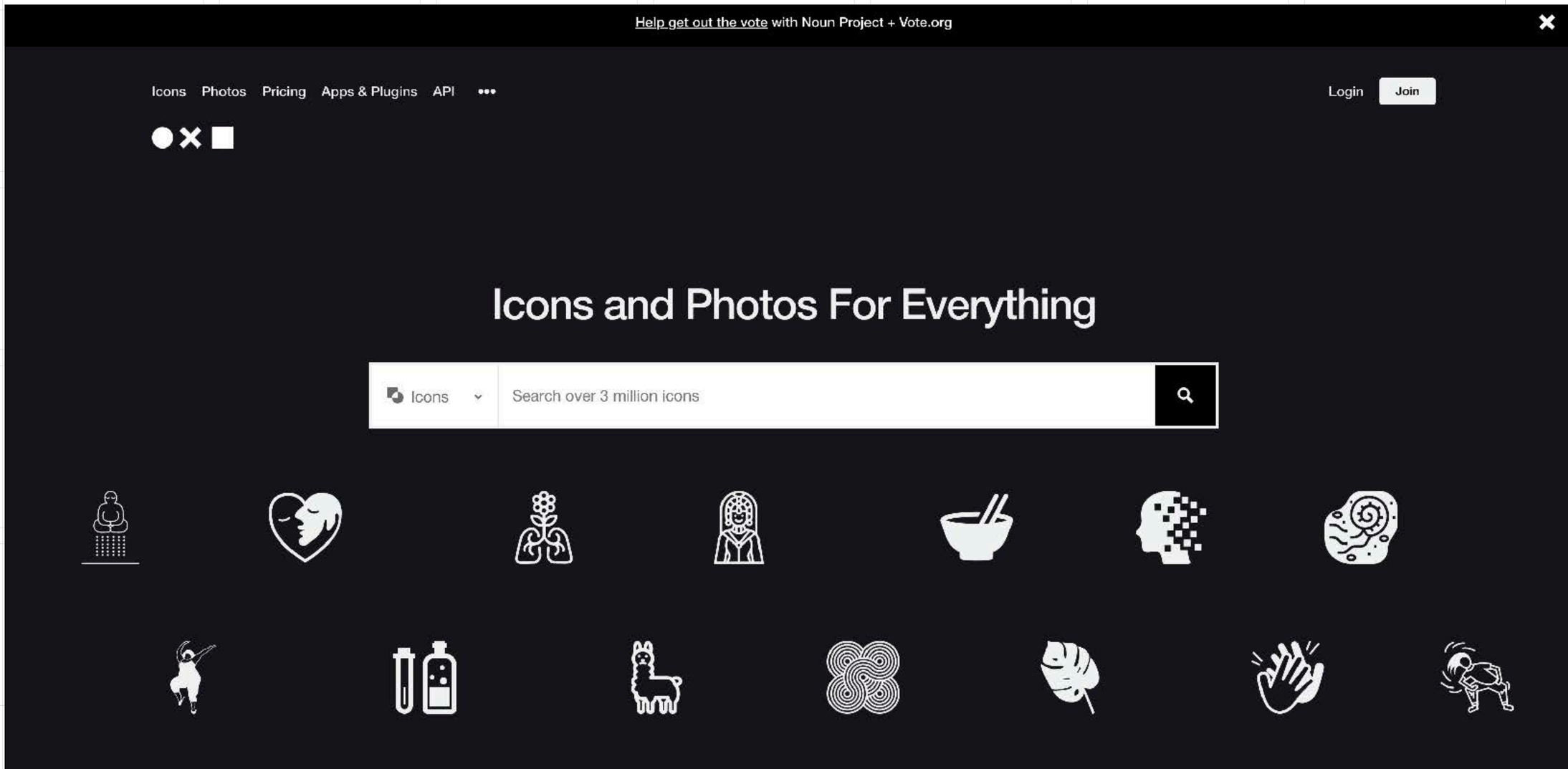
a huge thank you to
Te Pūnaha Matatini
tepunahamatatini.ac.nz

Big ups to the people who did the actual research, or helped synthesise it including:
Stember, M. (1991). Advancing the social sciences through the interdisciplinary enterprise. *The Social Science Journal*, *28*(1), 1–14. https://doi.org/10.1016/0362-3319(91)90040-B
Choi, B. C. K., & Pak, A. W. P. (2006). Multidisciplinarity, interdisciplinarity and transdisciplinarity in health research, services, education and policy: 1. Definitions, objectives, and evidence of effectiveness. *Clinical & Investigative Medicine*, *29*(6), 351–364.
Jensenius, A. (2012, March 12). Disciplinarities: Intra, cross, multi, inter, trans. Retrieved 18 January 2018, from Alexander Refsum Jensenius website: http://www.arj.no/2012/03/12/disciplinarities-2/

making good. design/ICMIT
for all the references!

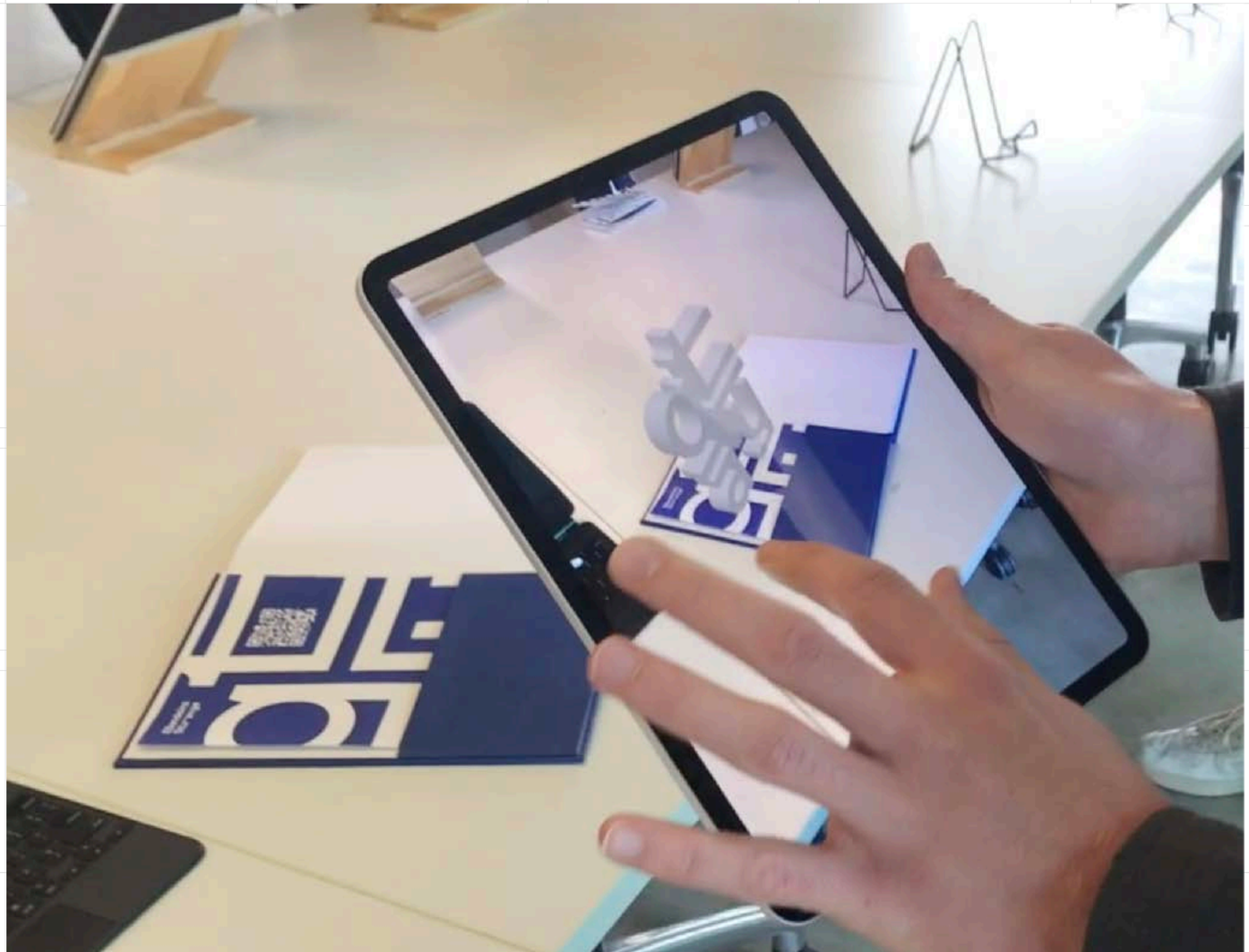
Polish my poster!

I: Imagery



thenounproject.com

Crowdsourcing?
AR?



Format to augment meaning?

J is for Justified

Polish my poster!

J: (Not) Justified

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When type is set in short line-lengths, the number of words that fit into a line means that people often justify the text. This presents particular problems, in that the type is then forced to fit an enclosed form that it does not naturally fit. This is the stage at which word-spaces and letter-spaces become the unintended victims.

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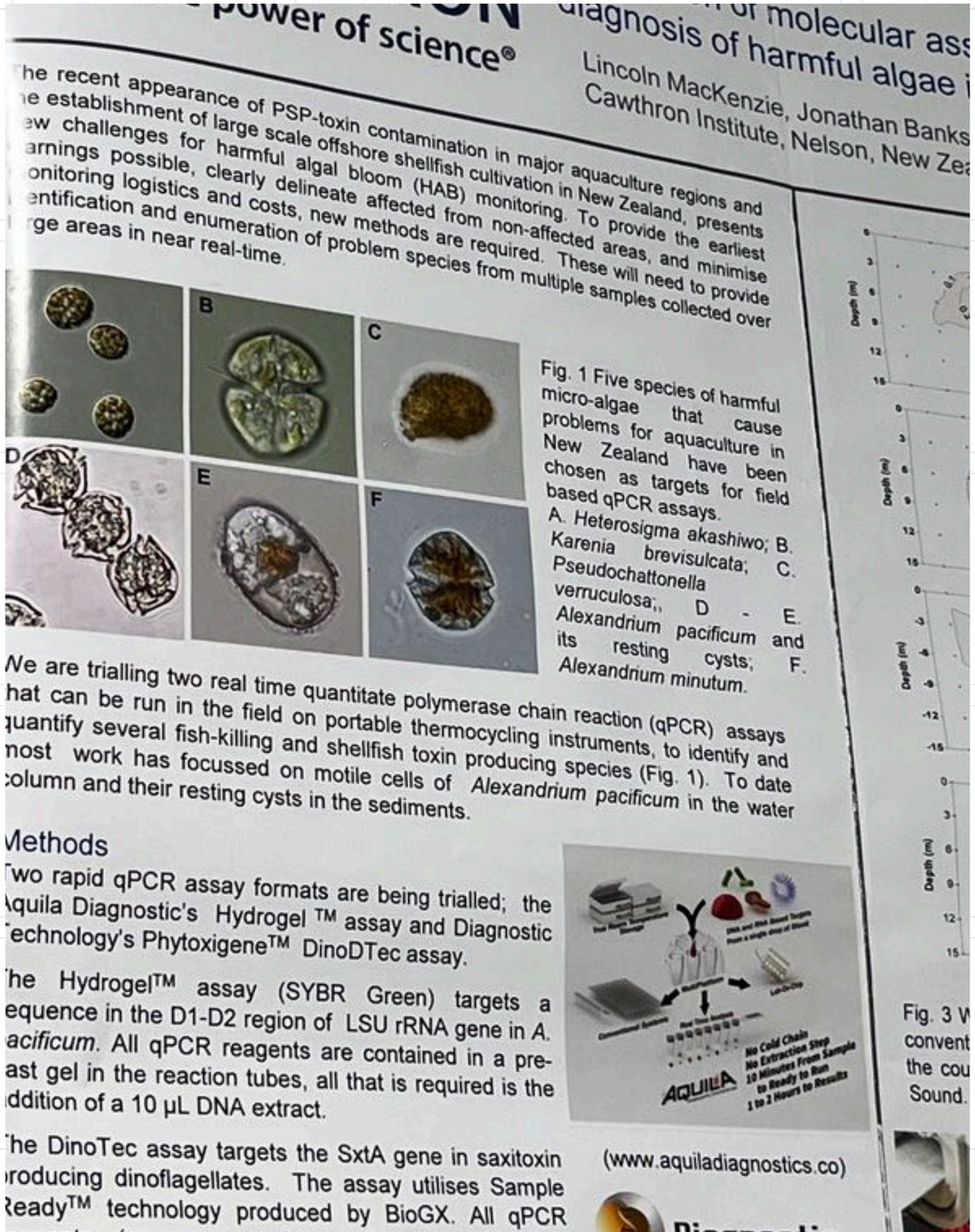

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diagnosis of harmful algae

Lincoln MacKenzie, Jonathan Banks

Cawthron Institute, Nelson, New Zea

The recent appearance of PSP-toxin contamination in major aquaculture regions and the establishment of large scale offshore shellfish cultivation in New Zealand, presents new challenges for harmful algal bloom (HAB) monitoring. To provide the earliest warnings possible, clearly delineate affected from non-affected areas, and minimise monitoring logistics and costs, new methods are required. These will need to provide identification and enumeration of problem species from multiple samples collected over large areas in near real-time.

Fig. 1 Five species of harmful micro-algae that cause problems for aquaculture in New Zealand have been chosen as targets for field based qPCR assays. A. *Heterosigma akashiwo*; B. *Karenia brevisulcata*; C. *Pseudochattonella verruculosa*;, D - E. *Alexandrium pacificum* and its resting cysts; F. *Alexandrium minutum*.

We are trialling two real time quantitate polymerase chain reaction (qPCR) assays that can be run in the field on portable thermocycling instruments, to identify and quantify several fish-killing and shellfish toxin producing species (Fig. 1). To date most work has focussed on motile cells of *Alexandrium pacificum* in the water column and their resting cysts in the sediments.

Methods

Two rapid qPCR assay formats are being trialled; the Aquila Diagnostic's Hydrogel ™ assay and Diagnostic Technology's Phytoxigene™ DinoDTec assay.

The Hydrogel™ assay (SYBR Green) targets a sequence in the D1-D2 region of LSU rRNA gene in *A. pacificum*. All qPCR reagents are contained in a pre-cast gel in the reaction tubes, all that is required is the addition of a 10 µL DNA extract.

The DinoTec assay targets the SxtA gene in saxitoxin producing dinoflagellates. The assay utilises Sample Ready™ technology produced by BioGX. All qPCR

(www.aquiladiagnostics.co)

Fig. 3 W
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Justification

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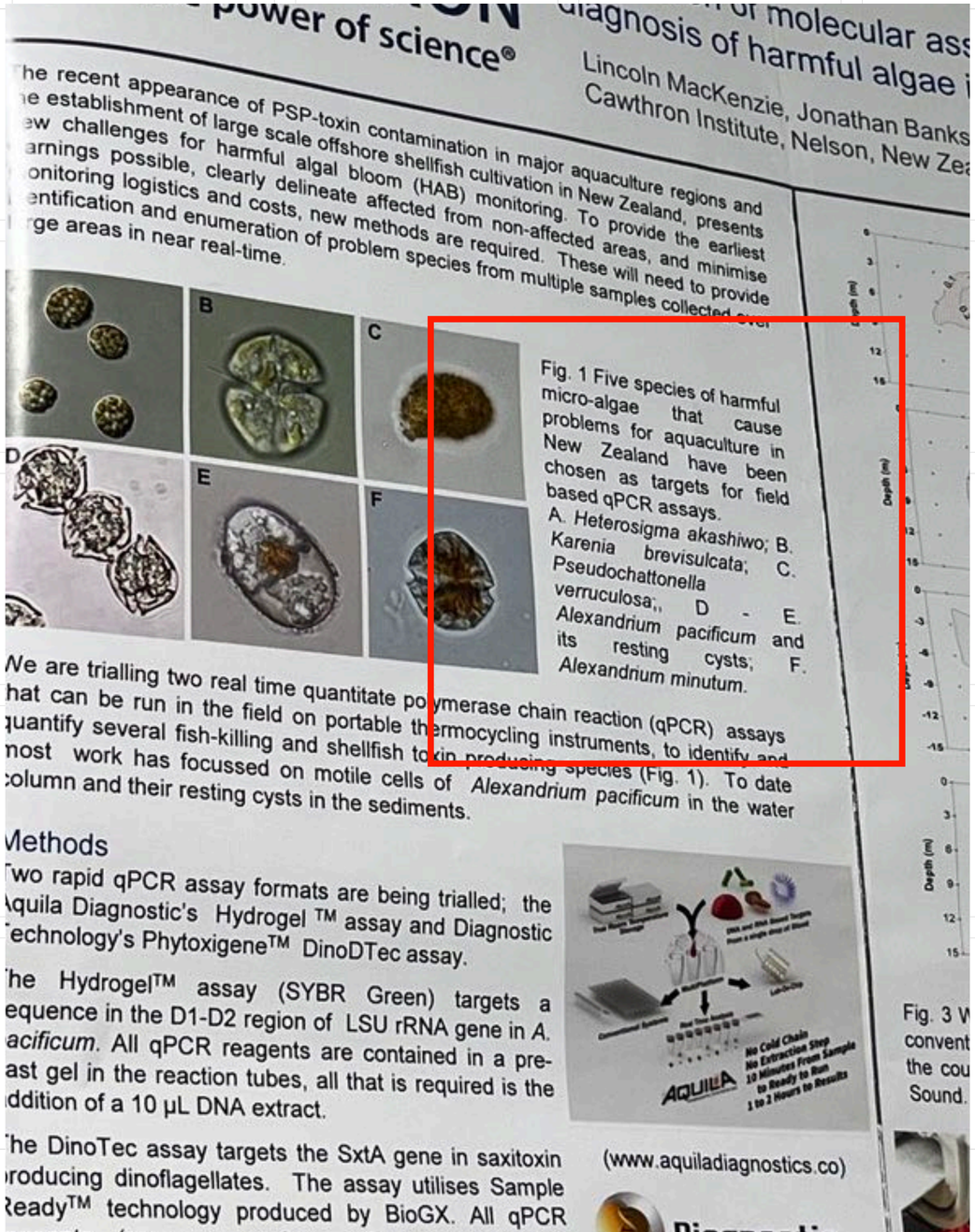

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No Extraction Step
10 Minutes From Sample to Ready to Run
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Kerning=relationship between pairs of letters
Tracking=universal spacing over words/paragraphs

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K: Kerning

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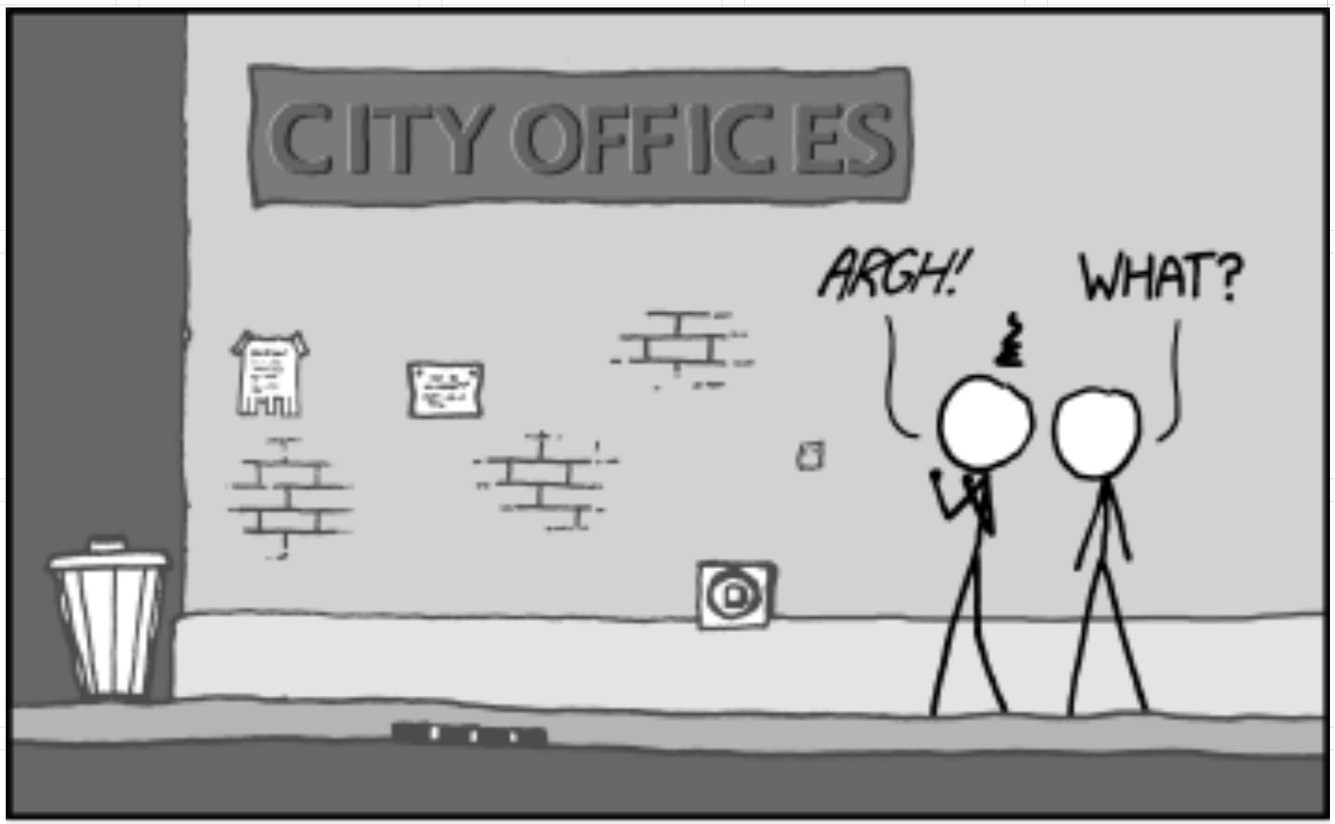

Tracking
aka letterspacing

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- But capitals respond well to positive tracking and can look more elegant

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Response Essay:
PlaceTime

+100 (don’t do this)

Response Essay:
PlaceTime

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RESPONSE ESSAY:
PLACETIME

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RESPONSE ESSAY:
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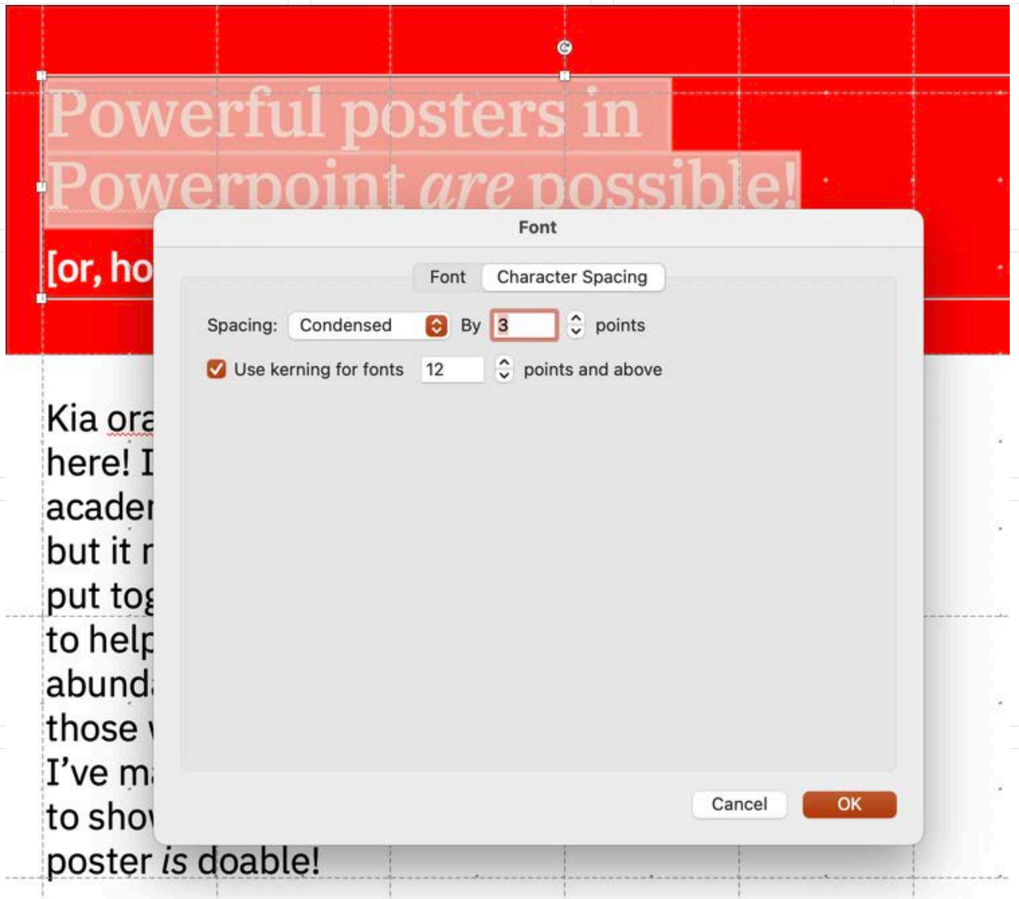

L is for Line length

L is for Line length

Use line lengths (aka column widths) to reinforce your hierarchy. E.g, your caption line length will be shorter (and the text smaller) than your body copy

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Modern: New Zealand Homes from 1938 to 1977
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Design: Inhouse

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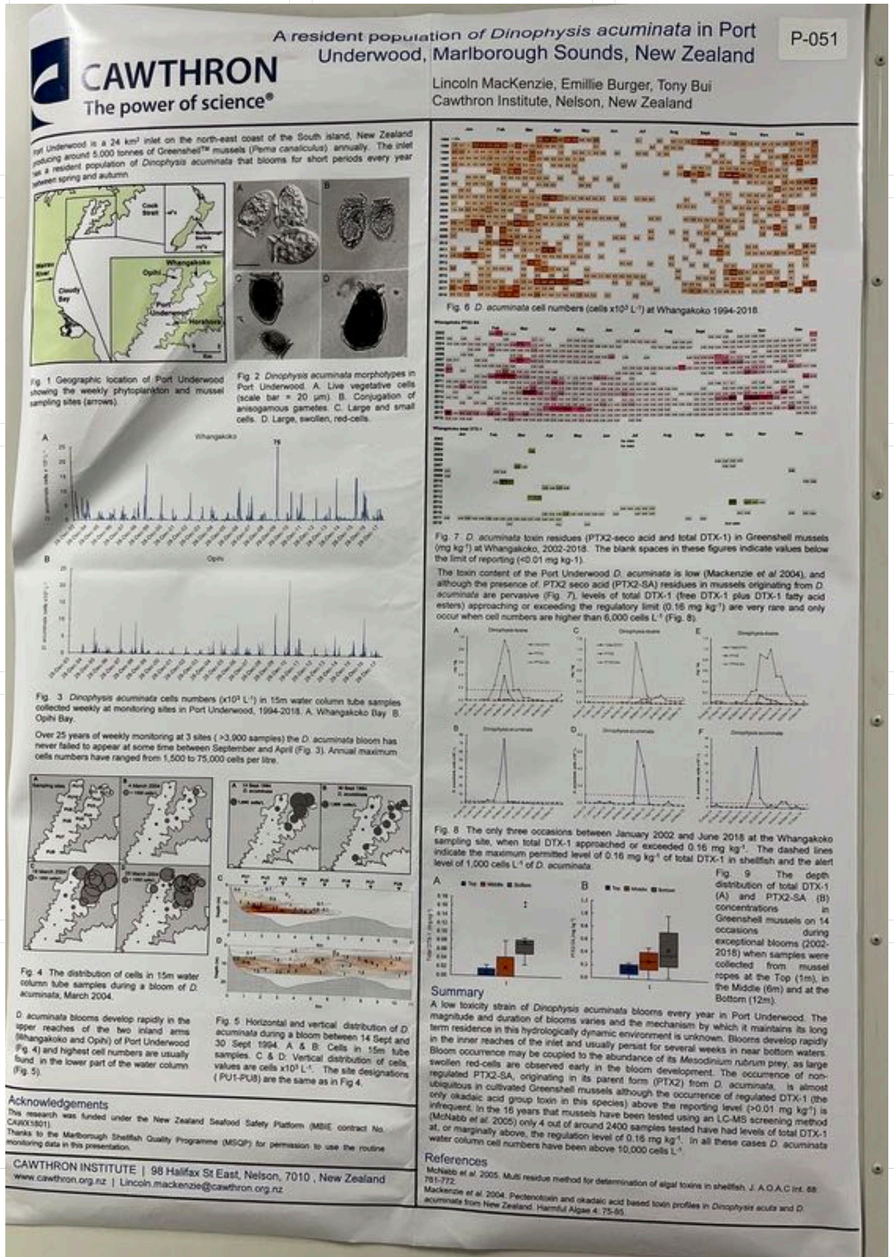

A resident population *of Dinophysis acuminata* in Port Underwood, Marlborough Sounds, New Zealand

P-051

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Lincoln MacKenzie, Emillie Burger, Tony Bui
Cawthron Institute, Nelson, New Zealand

Port Underwood is a 24 km² inlet on the north-east coast of the South island, New Zealand producing around 5,000 tonnes of Greenshell™ mussels (*Perna canaliculus*) annually. The inlet has a resident population of *Dinophysis acuminata* that blooms for short periods every year between spring and autumn.

Fig. 1 Geographic location of Port Underwood showing the weekly phytoplankton and mussel sampling sites (arrows).

Fig. 2 *Dinophysis acuminata* morphotypes in Port Underwood. A. Live vegetative cells (scale bar = 20 µm). B. Conjugation of anisogamous gametes. C. Large and small cells. D. Large, swollen, red-cells.

Fig. 3 *Dinophysis acuminata* cells numbers (x10³ L⁻¹) in 15m water column tube samples collected weekly at monitoring sites in Port Underwood, 1994-2018. A. Whangakoko Bay B. Opihi Bay.

Over 25 years of weekly monitoring at 3 sites (>3,900 samples) the *D. acuminata* bloom has never failed to appear at some time between September and April (Fig. 3). Annual maximum cells numbers have ranged from 1,500 to 75,000 cells per litre.

Fig. 4 The distribution of cells in 15m water column tube samples during a bloom of *D. acuminata*, March 2004.

D. acuminata blooms develop rapidly in the upper reaches of the two inland arms (Whangakoko and Opihi) of Port Underwood (Fig. 4) and highest cell numbers are usually found in the lower part of the water column (Fig. 5).

Fig. 5 Horizontal and vertical distribution of *D. acuminata* during a bloom between 14 Sept and 30 Sept 1994. A & B: Cells in 15m tube samples. C & D: Vertical distribution of cells, values are cells x10³ L⁻¹. The site designations (PU1-PU8) are the same as in Fig 4.

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Fig. 6 *D. acuminata* cell numbers (cells x10³ L⁻¹) at Whangakoko 1994-2018

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The toxin content of the Port Underwood *D. acuminata* is low (Mackenzie *et al* 2004), and although the presence of PTX2 seco acid (PTX2-SA) residues in mussels originating from *D. acuminata* are pervasive (Fig. 7), levels of total DTX-1 (free DTX-1 plus DTX-1 fatty acid esters) approaching or exceeding the regulatory limit (0.16 mg kg⁻¹) are very rare and only occur when cell numbers are higher than 6,000 cells L⁻¹ (Fig. 8).

Fig. 8 The only three occasions between January 2002 and June 2018 at the Whangakoko sampling site, when total DTX-1 approached or exceeded 0.16 mg kg⁻¹. The dashed lines indicate the maximum permitted level of 0.16 mg kg⁻¹ of total DTX-1 in shellfish and the alert level of 1,000 cells L⁻¹ of *D. acuminata*.

Fig. 9 The depth distribution of total DTX-1 (A) and PTX2-SA (B) concentrations in Greenshell mussels on 14 occasions during exceptional blooms (2002-2018) when samples were collected from mussel ropes at the Top (1m), in the Middle (6m) and at the Bottom (12m).

Summary

A low toxicity strain of *Dinophysis acuminata* blooms every year in Port Underwood. The magnitude and duration of blooms varies and the mechanism by which it maintains its long term residence in this hydrologically dynamic environment is unknown. Blooms develop rapidly in the inner reaches of the inlet and usually persist for several weeks in near bottom waters. Bloom occurrence may be coupled to the abundance of its *Mesodinium rubrum* prey, as large swollen red-cells are observed early in the bloom development. The occurrence of non-regulated PTX2-SA, originating in its parent form (PTX2) from *D. acuminata*, is almost ubiquitous in cultivated Greenshell mussels although the occurrence of regulated DTX-1 (the only okadaic acid group toxin in this species) above the reporting level (>0.01 mg kg⁻¹) is infrequent; In the 16 years that mussels have been tested using an LC-MS screening method (McNabb *et al.* 2005) only 4 out of around 2400 samples tested have had levels of total DTX-1 at, or marginally above, the regulation level of 0.16 mg kg⁻¹. In all these cases *D. acuminata* water column cell numbers have been above 10,000 cells L⁻¹.

References

McNabb *et al.* 2005. Multi residue method for determination of algal toxins in shellfish. J. A.O.A.C Int. 88: 761-772.

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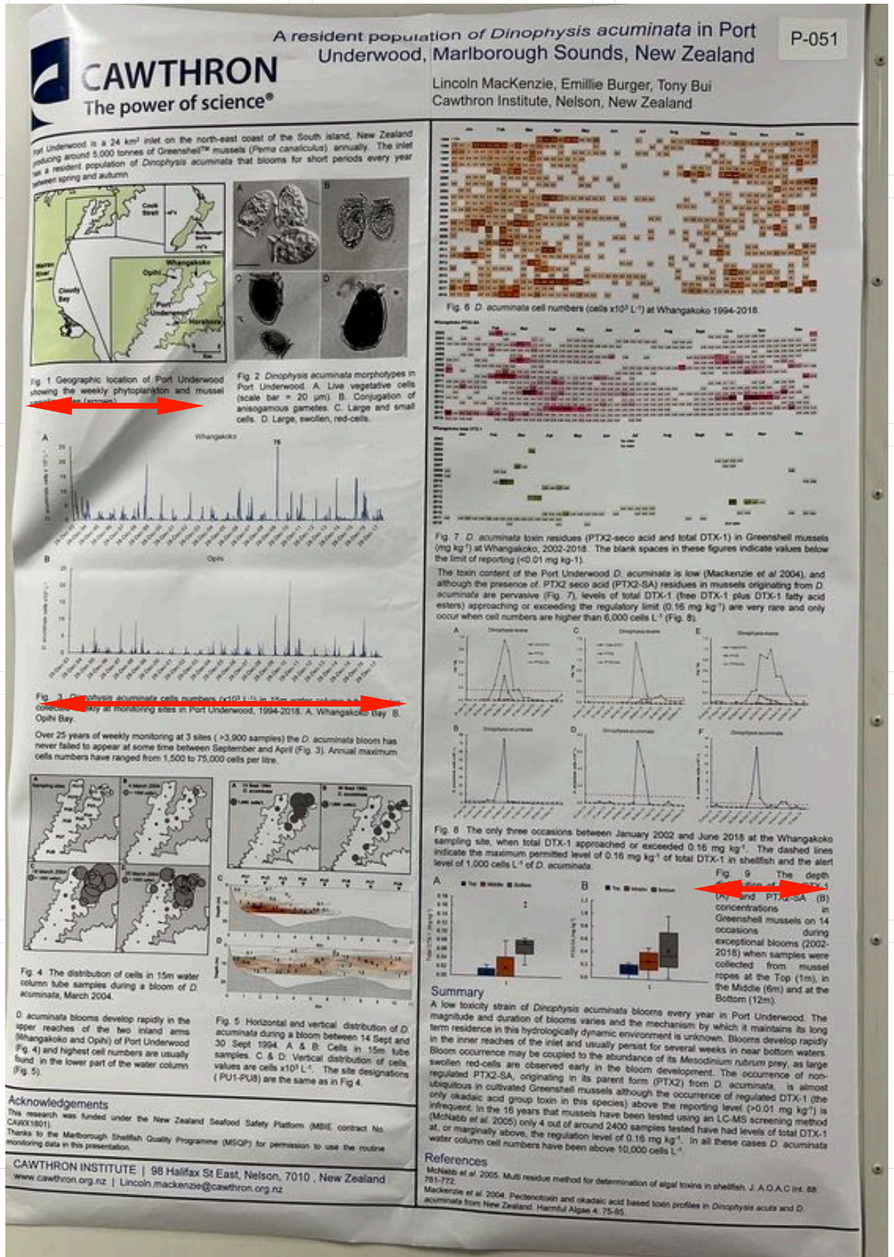

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P-051

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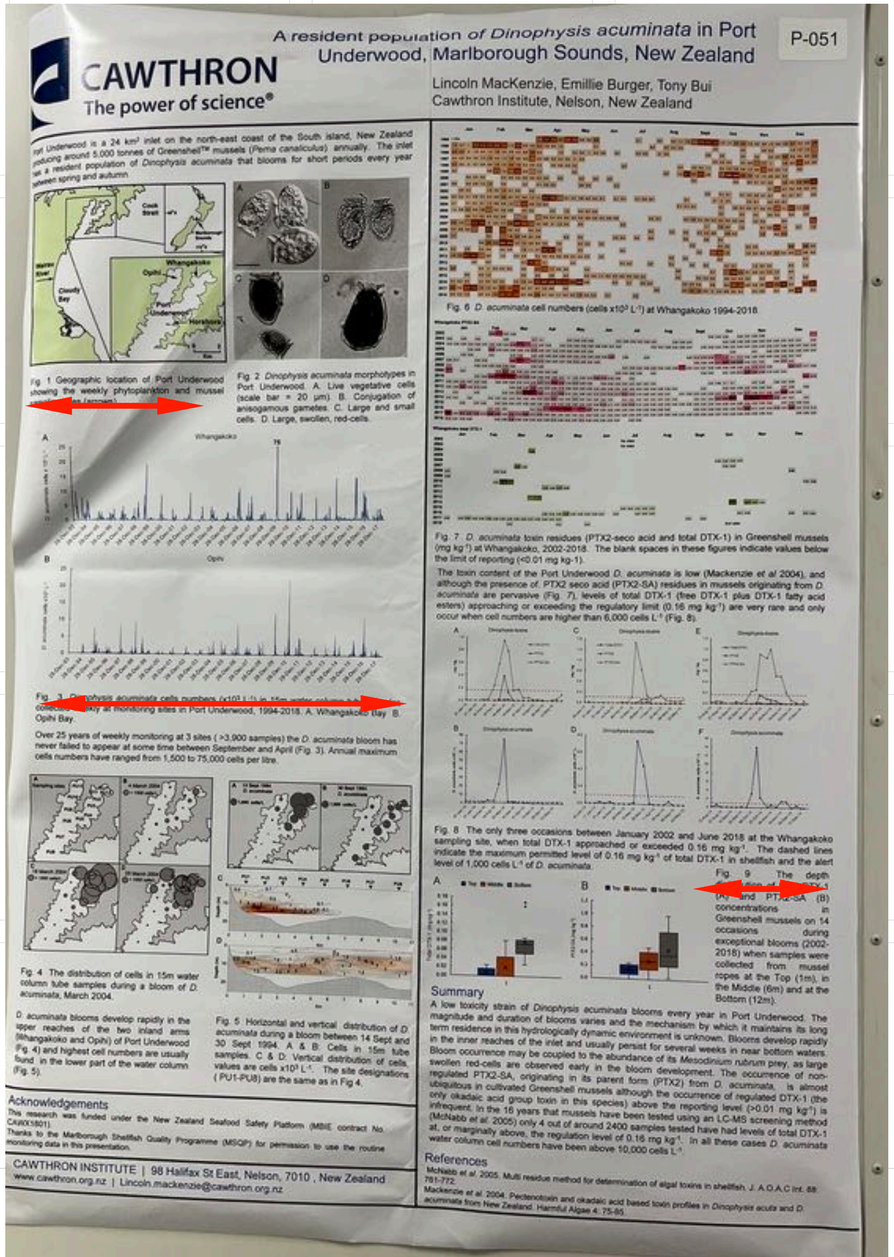

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Fig. 6 *D. acuminata* cell numbers (cells x10³ L⁻¹) at Whangakoko 1994-2018

Fig. 7 *D. acuminata* toxin residues (PTX2-seco acid and total DTX-1) in Greenshell mussels (mg kg⁻¹) at Whangakoko, 2002-2018. The blank spaces in these figures indicate values below the limit of reporting (<0.01 mg kg-1).

The toxin content of the Port Underwood *D. acuminata* is low (Mackenzie *et al* 2004), and although the presence of PTX2 seco acid (PTX2-SA) residues in mussels originating from *D. acuminata* are pervasive (Fig. 7), levels of total DTX-1 (free DTX-1 plus DTX-1 fatty acid esters) approaching or exceeding the regulatory limit (0.16 mg kg⁻¹) are very rare and only occur when cell numbers are higher than 6,000 cells L⁻¹ (Fig. 8).

Fig. 8 The only three occasions between January 2002 and June 2018 at the Whangakoko sampling site, when total DTX-1 approached or exceeded 0.16 mg kg⁻¹. The dashed lines indicate the maximum permitted level of 0.16 mg kg⁻¹ of total DTX-1 in shellfish and the alert level of 1,000 cells L⁻¹ of *D. acuminata*.

Fig. 9 The depth distribution of DTX-1 (A) and PTX2-SA (B) concentrations in Greenshell mussels on 14 occasions during exceptional blooms (2002-2018) when samples were collected from mussel ropes at the Top (1m), in the Middle (6m) and at the Bottom (12m).

Summary
A low toxicity strain of *Dinophysis acuminata* blooms every year in Port Underwood. The magnitude and duration of blooms varies and the mechanism by which it maintains its long term residence in this hydrologically dynamic environment is unknown. Blooms develop rapidly in the inner reaches of the inlet and usually persist for several weeks in near bottom waters. Bloom occurrence may be coupled to the abundance of its Mesodinium rubrum prey, as large swollen red-cells are observed early in the bloom development. The occurrence of non-regulated PTX2-SA, originating in its parent form (PTX2) from *D. acuminata*, is almost ubiquitous in cultivated Greenshell mussels although the occurrence of regulated DTX-1 (the only okadaic acid group toxin in this species) above the reporting level (>0.01 mg kg⁻¹) is infrequent. In the 16 years that mussels have been tested using an LC-MS screening method (McNabb *et al.* 2005) only 4 out of around 2400 samples tested have had levels of total DTX-1 at, or marginally above, the regulation level of 0.16 mg kg⁻¹. In all these cases *D. acuminata* water column cell numbers have been above 10,000 cells L⁻¹.

References
McNabb *et al.* 2005. Multi residue method for determination of algal toxins in shellfish. J. A.O.A.C Int. 88: 761-772.
Mackenzie *et al.* 2004. Pectenotoxin and okadaic acid based toxin profiles in *Dinophysis acuta* and *D. acuminata* from New Zealand. Harmful Algae 4: 75-86.

welcome to the

a load off your mind

science communication laundromat!

laundromat.makinggood.design

barriers
motivations
cyclical
impact
inclusivity
messages
audiences
power!
vocabulary
theory-informed
'practice-able'
reflexive

Body text

Take a spin in the science communication laundromat, a set of tools to help embed ideas from public engagement with science (PES) theory into research, to help scientist-communicators build capacity for successful science communication.

These tools — a zine workbook, worksheets, facilitator notes, and even a template for a cardboard washing machine to do the exercises on — are available to use and adapt at laundromat.makinggood.design under a creative commons licence[1]. The website is aimed primarily at people who would like to use the tools to deliver and facilitate their own laundromat.

what is a scicomm laundromat?

In short, it is a workshop model (developed using design methodologies and practices) incorporating a [illegible] think about their scicomm or public engagement in a reflexive way, in order to improve it. Improve it in the sense of being more purposeful, inclusive, more clearly designed for the people the communication is aimed at, and with a better sense of potential challenges and motivations. Key to this is making the theory 'practice-able'[2]. The laundromat is usually delivered as a residential retreat over two or three days, but can also be done as shorter sessions, or online.

why a laundromat?

We had been playing with an installation where a lo-fi, playful cardboard laundromat was a repository for [illegible] on 'airing the dirty laundry' in various disciplines at conferences, drawing on a [illegible] of metaphors: cleaning up, ironing out, pressing on… We had also been working with scientist-communicators to help them develop reflexive, thoughtful, audience-centric science communication via design-led workshops. When we brought the two workstreams together, the metaphors just kept washing over us! The never-ending cycle that is laundry was especially resonant when thinking about public engagement practice as something that requires regular attention to 'refresh' it. You can find out more about this in our paper, linked below.

Footnotes

[1] ***free to use and adapt***
The Scicomm Laundromat is shared under a [illegible] ShareAlike 4.0 International licence. creativecommons.org/licenses/by-nc-sa/4.0/

[2] ***what's 'practice-able'?***
If practicable means 'able to be put into practice', but also brings to mind words like feasible, actionable or doable, we decided that we meant [illegible] participants in absorbing and incorporating theoretical ideas from PES into their own practice. A key part of the theoretical ideas from our perspective was a reflexive disposition, so this incorporation of theory would enable them to reflexively shape their practice, whatever that may be. We wrote more about this in JCOM in 2022: paper linked below.

* The zine workbook contains all the steps for the participants to work through

Read our paper: Bailey, J., Salmon, R. & Horst, M. (2022). The 'Engagement reflexivity' about public engagement with science. *Journal of Science Communication*, 21(04), A01. doi.org/10.22323/2.21040201

Supplementary info

FIND OUT MORE…

Visit our 'a load off your mind' science communication laundromat.makinggood.design

WE ARE…

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Senior lecturer, Visual Communication Design, Wellington School of Design, Massey University

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Co-founder, Assoc. Professor, Centre for Science in Society, Victoria University of Wellington

THANKS TO…
Special thanks to Maja Horst for an insightful and delightful collaboration; Te Pūnaha Matatini, the Aotearoa Network for Complex Systems for Excellence for complex systems for their support; and to their research community for being our participants: tepunahamatatini.ac.nz

Te Pūnaha Matatini
Complexity is at our heart

Diagram annotations

the laundromat cycle

All stages of the process are covered in the zine workbook. The washing machine and other props support the process, alongside A1 large-format worksheets

1.0: 'Drawing it out'
An exercise to articulate how participants see their practice as scientist-communicators, plugged on a washing line.

2.2: 'Peg 'em up prompts'
A bump of initial ideas, questions, and assumptions instigated by prompts (some pragmatic, some speculative) are pinned to the machine

3.2: 'Dialling it in' project cycle stage
Discuss the project stage, what's been done, and how long a 'cycle' is

3.3: 'Set the elders'
Consider engagement in relation to research: how much it will impact research and how controversial the research is

4.3: 'What's in the spin' wheel
Examining context motivations drivers, power on the wheel on the back of the washing machine

5.1: 'Who's in the spin?' audience +messages
Identifying and tailoring messages to primary and secondary audiences. Engagement experiments might be drawn on the top of the machine

5.3: 'How's it working up' evaluation + impact
An exercise in the zine workbook to consider what success is and how it might be meaningfully

6.1: 'Hanging out to get it done' project planner
A worksheet to prioritise tasks drawn from previous exercises and make them actionable

8.1: 'Here's the dirt on…' research 'dirt'
Drawing it out: *you and your engagement*, a drawing task to help participants position themselves and their [illegible] research, and to reflect on their engagement practice (and what engagement means).

1 GATHER UP THE LAUNDRY PILE
This stage includes *Setting the cycle* survey, to gather expectations, expertise, [illegible]

2 SORT THE LAUNDRY
This stage includes *Scicomm 101* and *Get in on the garments peg 'em up* prompts. The purpose is to [illegible] and to discuss how others understand key terms. Then, prompt sheets are used to draw out a sense of [illegible] and to reflect on what we might question later.

3 CHOOSE THE SETTINGS
This stage includes connected tasks *What's on the load?*, *Set the cycle length*, and *Set the sliders*. The purpose is to build on *1.1: Peg 'em up* prompts to help think about [illegible] and where it fits in [illegible] to [illegible] and how engagement can vary the research. It also considers social licence.

4 SOAK + SPIN
This stage draws on a tool called the engagement wheel first proposed by Salmon & Hoop (2019). Its purpose is to help participants get to grips with and articulate some of their different scicomm drivers and objectives. It is an opportunity to become more transparent and explicit about where the power lies; all the [illegible] [illegible] ideas that [illegible] and [illegible] declared); and what 'success' looks like.

5 RINSE + WRING
This stage has two parts: *What's in the engagement [illegible]*, and *[illegible] a dry*. [illegible] rinse out. Through a scenario where audiences (primary, secondary, 'secret') are 'overheard' in a laundromat explaining why they took part in the proposed engagement; what they thought about the experience; and what they learnt we may who the audiences are; what we want them to know; and how we could connect with them. In essence, making sure we are centering the engagement on them and their needs.

6 GET IT DRIED
This stage is *Hanging out to get it dried* [illegible] [illegible] planned engagements, [illegible] out' with their thoughts for a while. The wheel might have shifted dirt that wasn't visible before; the levers might have challenged when participants are engaging and how the engagement might in turn shape their research. Stage 6 considers what the gentle agitation has brought to the surface and translates the content it into tangible tasks and priorities, so the previous exercises become relevant, practical, and actionable.

7 FOLD + PRESS
This stage is called *How's it [illegible]* [illegible] [illegible] the [illegible] [illegible] engagement projects? What metrics are there that you could count, measure or survey, or observe more informally? And how can you evaluate impact both on audiences and on yourself and the other team members? This is documented in the zine workbook.

8 READY TO WEAR
This stage comprises *Freshly [illegible]* [illegible] [illegible] shake out [illegible] the engagement [illegible] get it down to an 'elevator pitch' (or a capsule wardrobe!). The point is to articulate where the project is at, and vitally, to distill and summarise next steps so the participants feel that they have a plan when they leave. Where stages 6 and 7 cover the longer-term plan in detail, this exercise is a quick distillation, and the 'note to self' you need when you get back to the office and need a quick recap to catalyse momentum.

L is for Leading

Interline spacing, aka leading

Good

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer posuere orci quis ligula. Donec egestas massa vulputate nisl. Curabitur venenatis. Nullam egestas facilisis ante. Suspendisse tincidunt. Etiam vitae leo id mauris laoreet luctus. Cum sociis natoque penatibus et magnis dis parturient montes.

Too Little

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Too Much

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Isthmus: Coast, Country, Neighborhood, City
6pt Press, 2015
Design: Inhouse

M is for Macrons

M is for Macrons

11

eleven

tekau mā tahi

We can't eat karaka berries.
They are for kererū bellies.

M is for Manipulation

Manipulating text
(just don’t!)

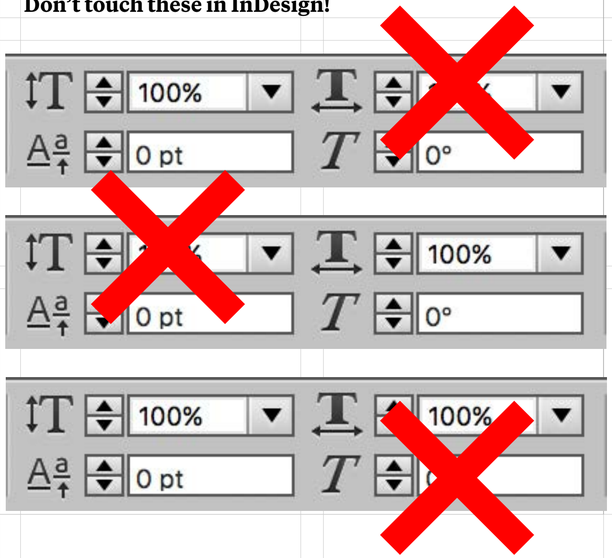
I’m all good

I’m stretched!

I’m squashed!

I’m skewed!

Don’t touch these in InDesign!



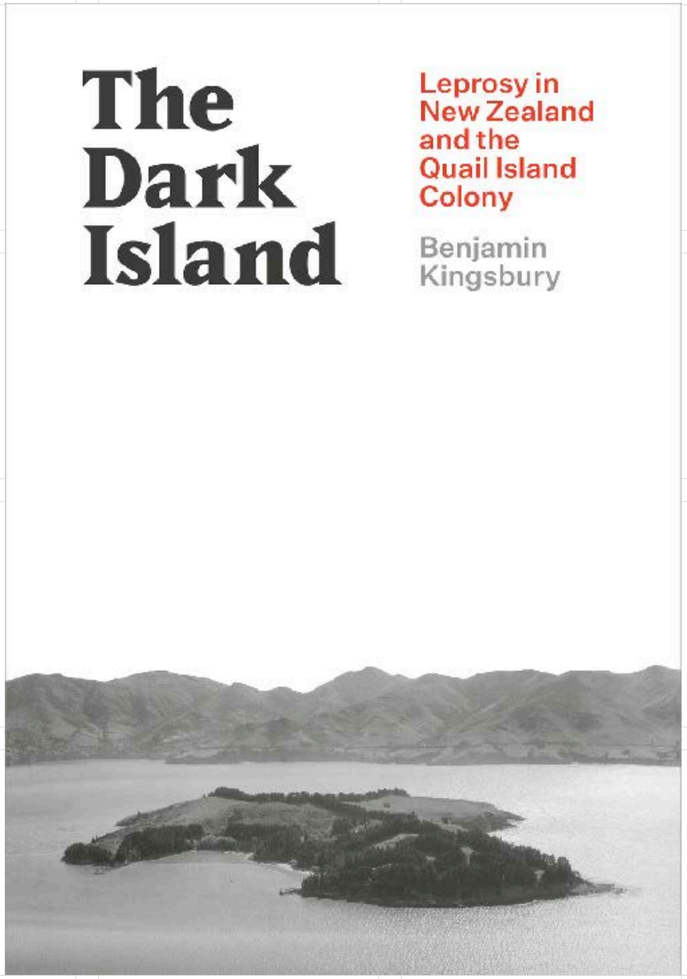
N is for Negative space

N is for Negative space

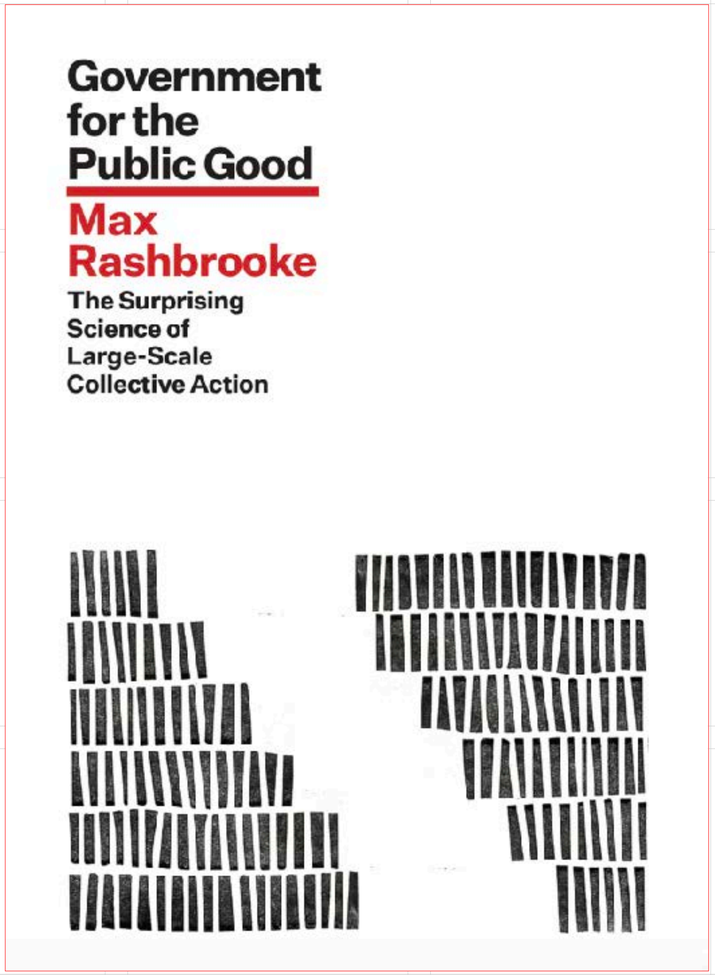
Aka whitespace or breathing space

Polish my poster!

N: Negative space



The Dark Island
Benjamin Kingsbury,
Bridget Williams Books, 2019
Design :Jo Bailey



Government for the Public Good
Bridget Williams Books, 2018
Design: Jo Bailey

Polish my poster!

L: Less is more

www.cochrane.org/news/betterposter-templates-cochrane-colloquium-attendees

O is for Orientation

text

TEXT

y i k e s

P is for Proofing and Printing (and Practice your pitch)

Q is for QR codes (and urls)

R is for Resolution

R is for Resolution

Don’t expand images beyond 100% of their size and export for print at 300 DPI (or PPI)

S is for Software

S is for Software

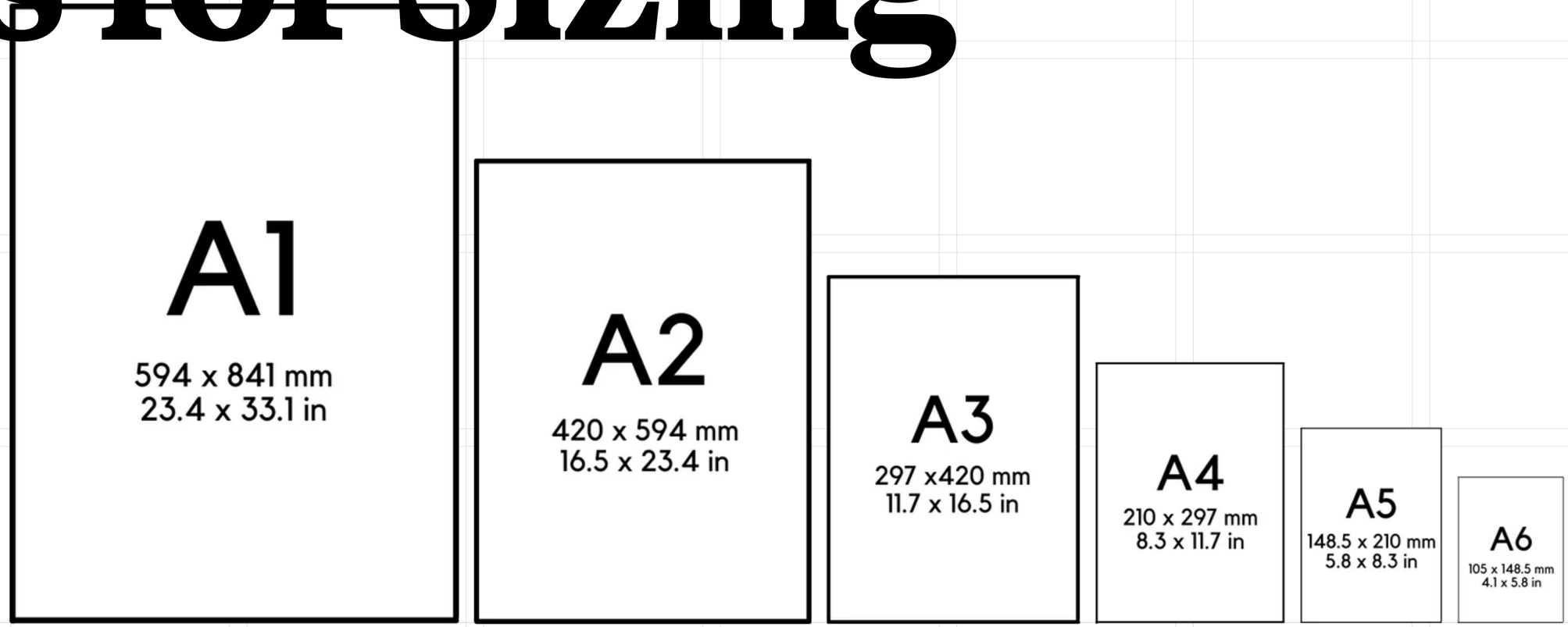
Powerpoint will likely be your best bet, or take a look at Canva

S is for Sizing

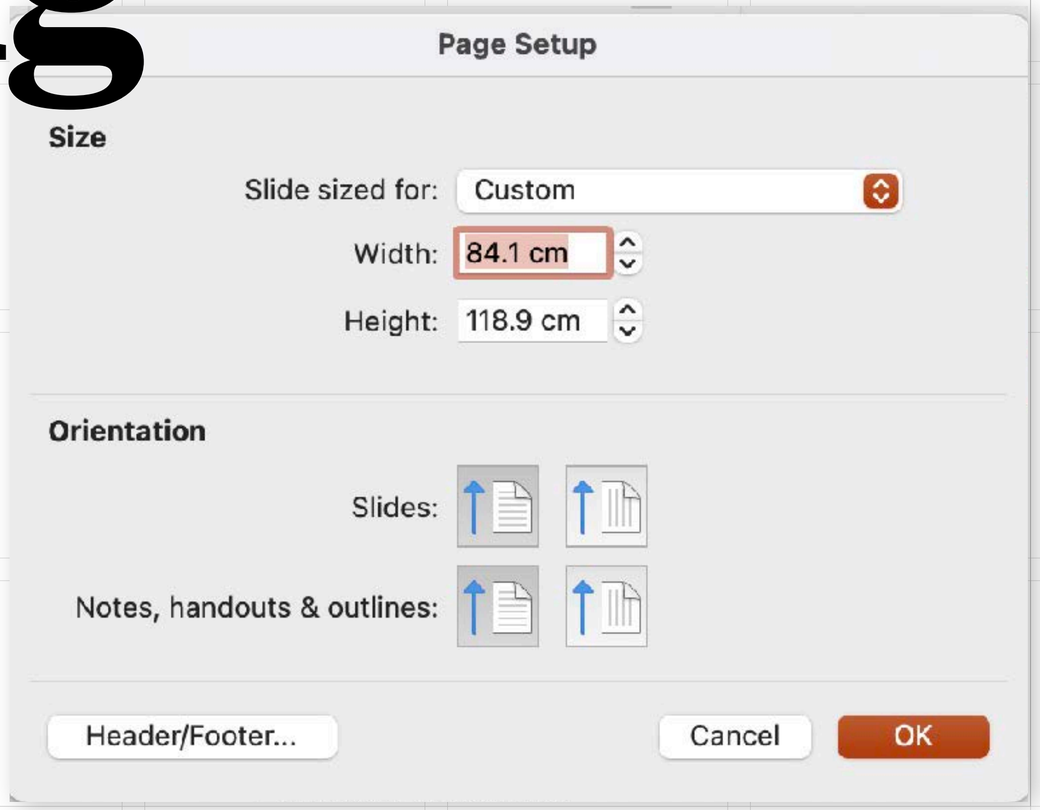
S is for Sizing

Check the size requirements and design to that (a designer will produce a specific output for the use—rarely just scale up or scale down)

S is for Sizing



S is for Sizing



T is for Testing

Test, evolve, repeat (aka iterate)

Polish my poster!

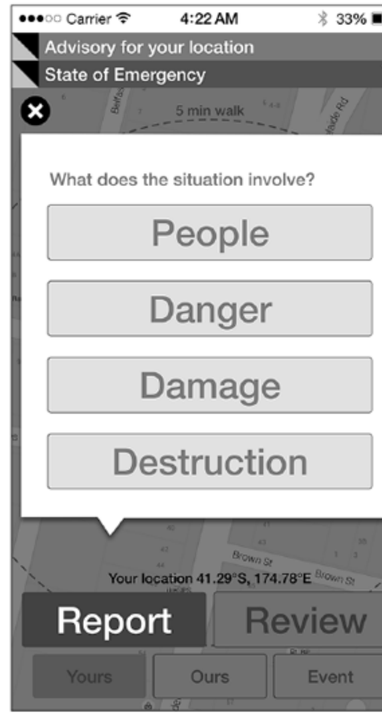
T: Testing

***The Dark Island*,**
Bridget Williams Books
Design: Jo Bailey

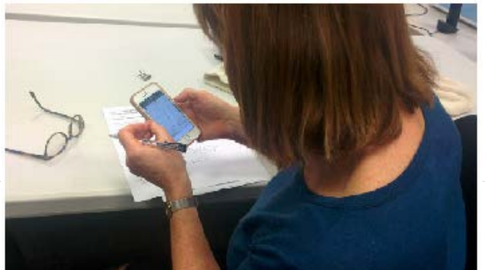
Polish my poster!

***The Dark Island*,**
Bridget Williams Books
Design: Jo Bailey

T: Testing



User testing prototype app for WREMO. Design: Tristam Sparks: prepwell.makinggood.design



U is for Usability

U is for Usability

How effectively, efficiently and satisfactorily a user can interact with an interface (or design)

Legibility

defined by the design of the typeface:

- **x-height**
- **width**
- **stroke contrast**
- **shape of counters**
- **serifs or not**

the contrast of thicks and thins of Didot may be harder to read at small sizes as the strokes vanish

whereas Caslon has more even strokes (lines) so is less likely to ‘fall apart’ when small

Readability

controlled through things like:

- case
- text size
- linespacing (leading)
- contrast
- weight
- colour

Hellish menu on Amtrak train

Readability

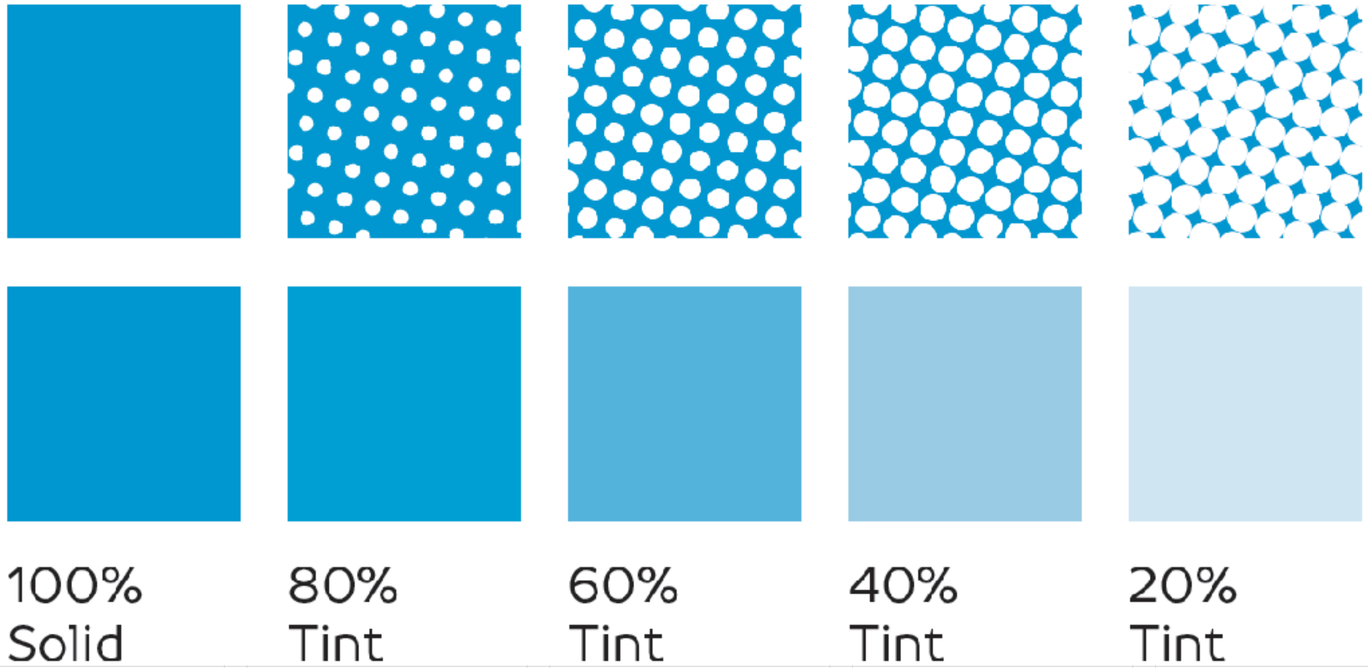
controlled through things like:

- **case**
- **text size**
- **linespacing (leading)**
- **contrast**
- **weight**
- **colour**

Readability

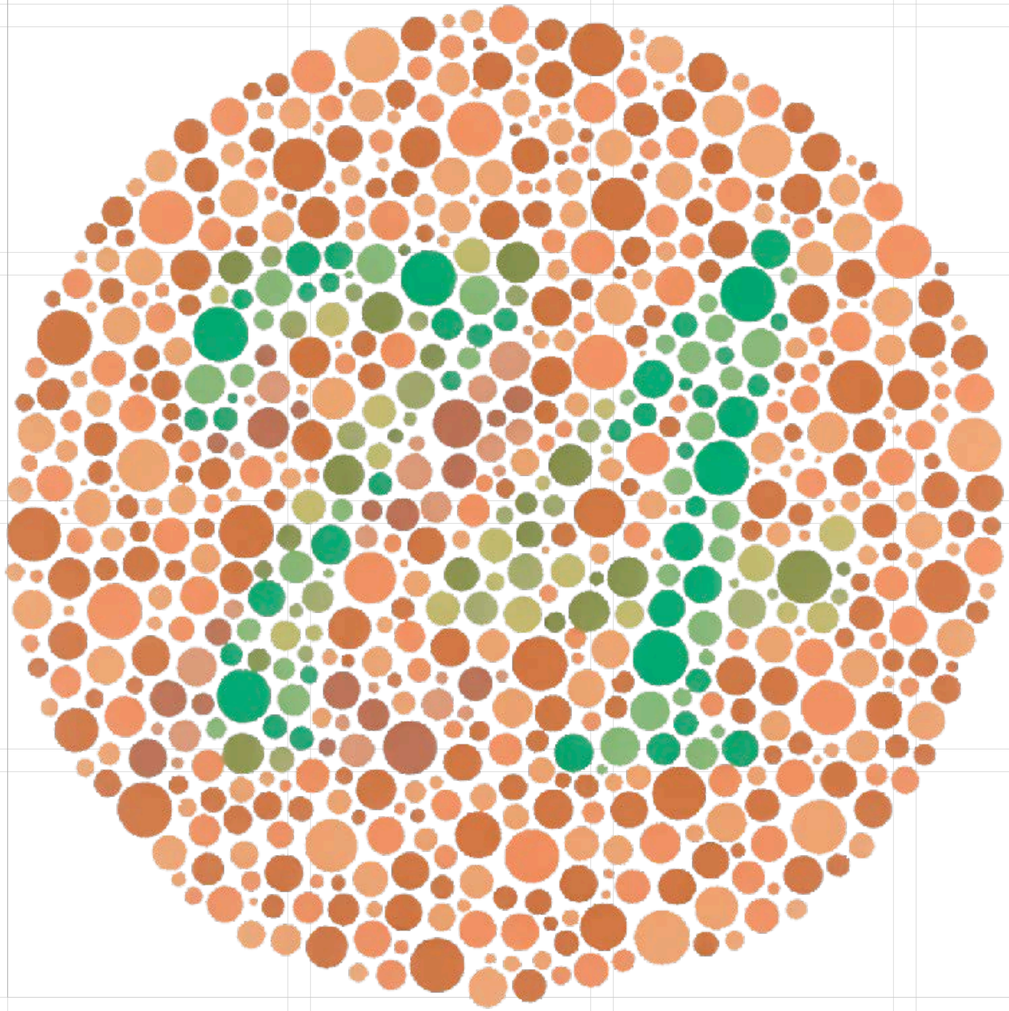
controlled through things like:

- case
- text size
- linespacing (leading)
- contrast
- weight
- colour



Polish my poster!

U: Usability



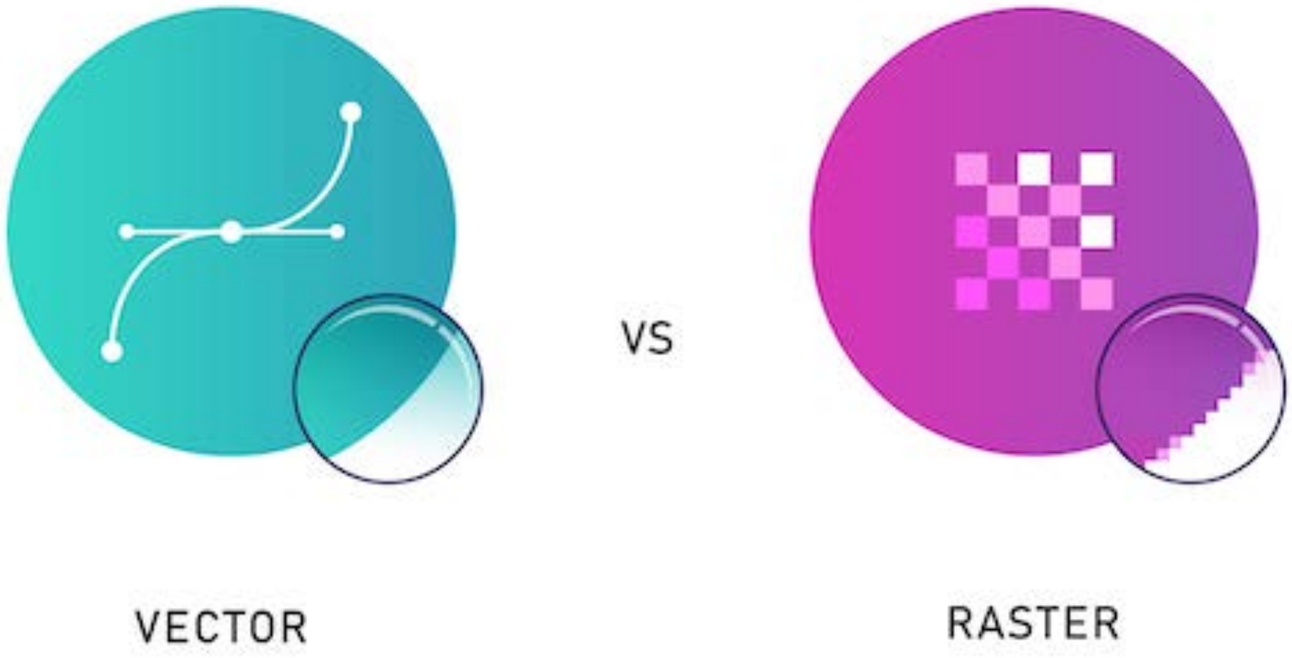
	R,G,B (0-255)	R,G,B (0-1)	Hex	C,M,Y,K (%)
	0,0,0	0,0,0	#000000	0,0,0,100
	230,159,0	0.902,0.624,0	#E69F00	0,50,100,0
	86,180,233	0.337,0.706,0.914	#56B4E9	80,0,0,0
	0,158,115	0,0.620,0.451	#009E73	97,0,75,0
	240,228,66	0.941,0.894,0.259	#F0E442	10,5,90,0
	0,114,178	0,0.447,0.698	#0072B2	100,50,0,0
	213,94,0	0.835,0.369,0	#D55E00	0,80,100,0
	204,121,167	0.8,0.475,0.655	#CC79A7	10,70,0,0

Masataka Okabe (Jikei Medical School) and Kei Ito (University of Tokyo) colour-blind friendly colour palette

https://wp.nyu.edu/siegal/color-palette/

V is for Vector (as opposed to Raster)

Points and lines vs Pixels



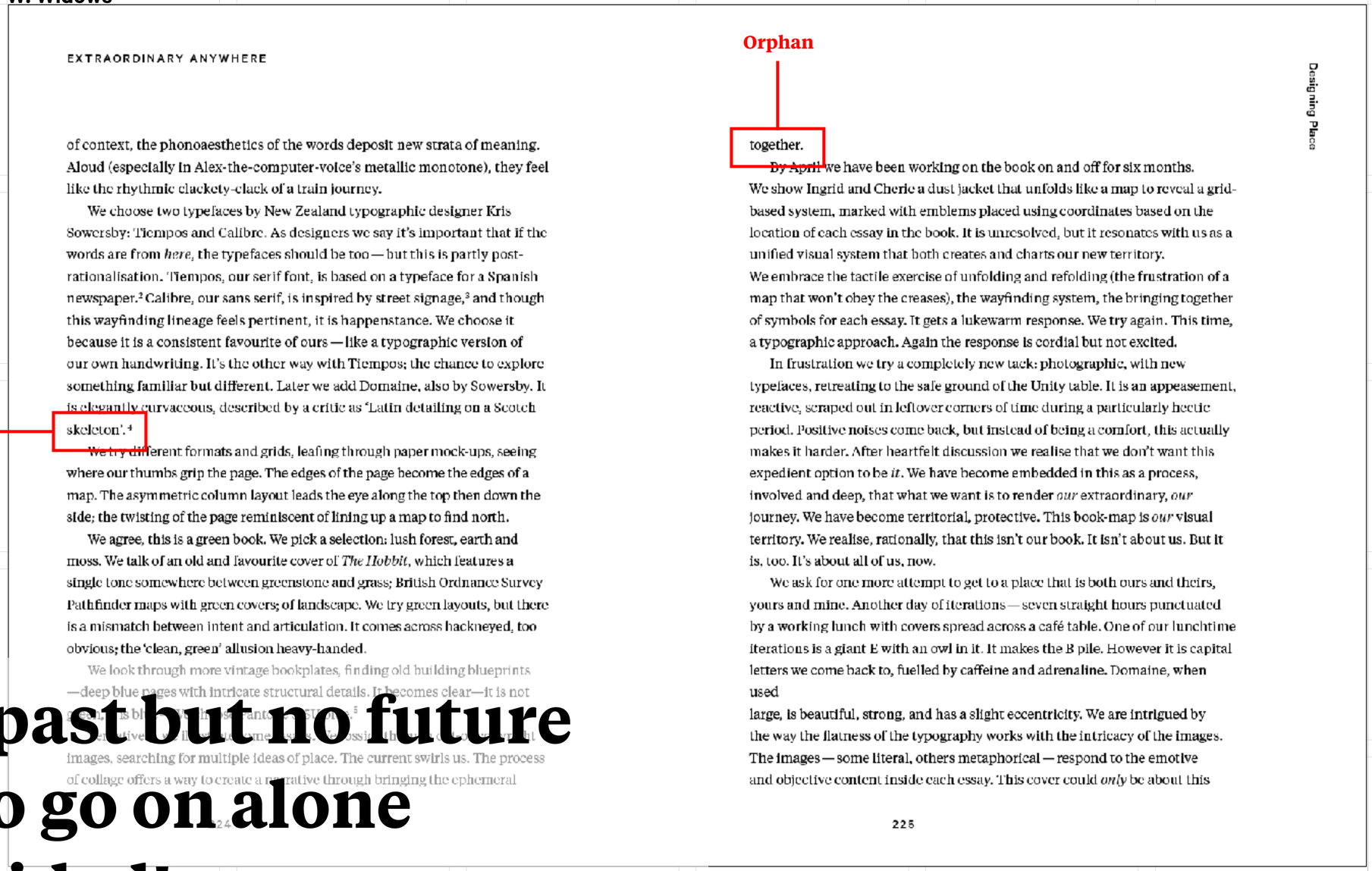
e.g. eps, svg, ai, pdf*

e.g. jpg, png, gif, bmp

W is for Widows (and orphans)

Polish my poster!

W: Widows



EXTRAORDINARY ANYWHERE

of context, the phonoaesthetics of the words deposit new strata of meaning. Aloud (especially in Alex-the-computer-voice's metallic monotone), they feel like the rhythmic clackety-clack of a train journey.

We choose two typefaces by New Zealand typographic designer Kris Sowersby: Tiempos and Calibre. As designers we say it's important that if the words are from *here*, the typefaces should be too — but this is partly post-rationalisation. Tiempos, our serif font, is based on a typeface for a Spanish newspaper.[2] Calibre, our sans serif, is inspired by street signage,[3] and though this wayfinding lineage feels pertinent, it is happenstance. We choose it because it is a consistent favourite of ours — like a typographic version of our own handwriting. It's the other way with Tiempos: the chance to explore something familiar but different. Later we add Domaine, also by Sowersby. It is elegantly curvaceous, described by a critic as 'Latin detailing on a Scotch skeleton'.[4]

We try different formats and grids, leafing through paper mock-ups, seeing where our thumbs grip the page. The edges of the page become the edges of a map. The asymmetric column layout leads the eye along the top then down the side; the twisting of the page reminiscent of lining up a map to find north.

We agree, this is a green book. We pick a selection: lush forest, earth and moss. We talk of an old and favourite cover of *The Hobbit*, which features a single tone somewhere between greenstone and grass; British Ordnance Survey Pathfinder maps with green covers; of landscape. We try green layouts, but there is a mismatch between intent and articulation. It comes across hackneyed, too obvious; the 'clean, green' allusion heavy-handed.

We look through more vintage bookplates, finding old building blueprints —deep blue pages with intricate structural details. It becomes clear—it is not

images, searching for multiple ideas of place. The current swirls us. The process of collage offers a way to create a narrative through bringing the ephemeral

224

Designing Place

together.

By April we have been working on the book on and off for six months. We show Ingrid and Cherie a dust jacket that unfolds like a map to reveal a grid-based system, marked with emblems placed using coordinates based on the location of each essay in the book. It is unresolved, but it resonates with us as a unified visual system that both creates and charts our new territory.

We embrace the tactile exercise of unfolding and refolding (the frustration of a map that won't obey the creases), the wayfinding system, the bringing together of symbols for each essay. It gets a lukewarm response. We try again. This time, a typographic approach. Again the response is cordial but not excited.

In frustration we try a completely new tack: photographic, with new typefaces, retreating to the safe ground of the Unity table. It is an appeasement, reactive, scraped out in leftover corners of time during a particularly hectic period. Positive noises come back, but instead of being a comfort, this actually makes it harder. After heartfelt discussion we realise that we don't want this expedient option to be *it*. We have become embedded in this as a process, involved and deep, that what we want is to render *our* extraordinary, *our* journey. We have become territorial, protective. This book-map is *our* visual territory. We realise, rationally, that this isn't our book. It isn't about us. But it is, too. It's about all of us, now.

We ask for one more attempt to get to a place that is both ours and theirs, yours and mine. Another day of iterations — seven straight hours punctuated by a working lunch with covers spread across a café table. One of our lunchtime iterations is a giant E with an owl in it. It makes the B pile. However it is capital letters we come back to, fuelled by caffeine and adrenaline. Domaine, when used large, is beautiful, strong, and has a slight eccentricity. We are intrigued by the way the flatness of the typography works with the intricacy of the images. The images — some literal, others metaphorical — respond to the emotive and objective content inside each essay. This cover could *only* be about this

225

Widow

Orphan

Widow: has a past but no future
Orphan: has to go on alone
Both to be avoided!

X is for X-height

Polish my poster!

X: X-height

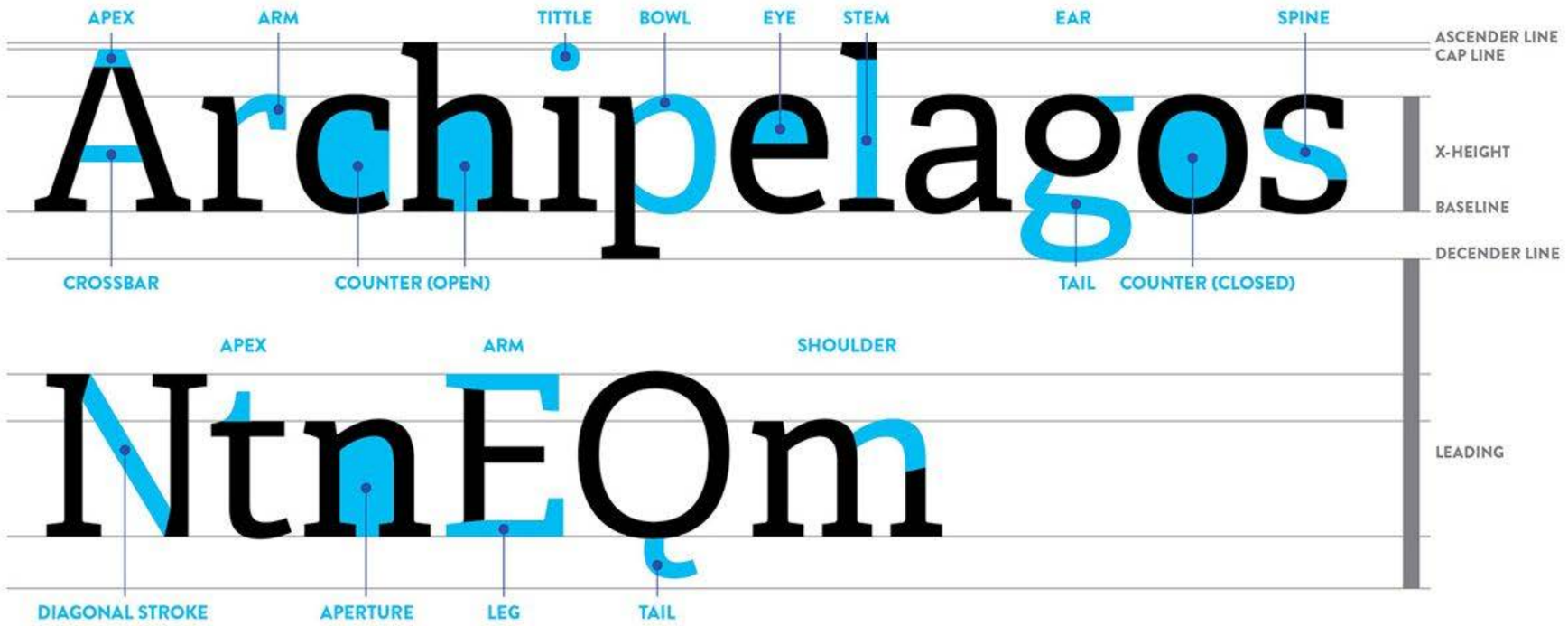


Image: ckgd.net/anatomy-typography-letter-features-characteristics/

Animated terminology tool at https://avark.agency/typeterms/

Cheat sheet at https://www.quora.com/q/euuromxiqgovhbua/The-Anatomy-of-Typefaces-The-anatomy-of-type

Y is for You (and your supporters)

Polish my poster!

Y is for You (and your supporters)

what is a scicomm laundromat?

In short, it is a workshop model (developed using design methodologies and practices) incorporating a series of exercises to help scientists/researchers think about their scicomm or public engagement in a reflexive way, in order to improve it. Improve it in the sense of being more purposeful, inclusive, more clearly designed for the people the communication is aimed at, and with a better sense of potential challenges and motivations. Key to this is making the theory 'practice-able'[2]. The laundromat is usually delivered as a residential retreat over two or three days, but can also be done as shorter sessions, or online.

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We had been playing with an installation where a lo-fi, playful cardboard laundromat was a repository for thoughts on 'airing the dirty laundry' of various disciplines at conferences, drawing on a lot of metaphors: cleaning up, ironing out, pressing on… We had also been work[illegible] communicators to help them develop [illegible]ive, t[illegible]ughtful, audience-cen[illegible]e communi[illegible]on v[illegible] des[illegible]led work[illegible]. When we brou[illegible] two [illegible]stream[illegible]oge[illegible] the metaphors [illegible]ept w[illegible]g ove[illegible] the [illegible]r-ending cycle th[illegible] laun[illegible]as es[illegible]lly reso[illegible] when thinking ab[illegible]ublic [illegible]emen[illegible] pra[illegible] something t[illegible]res reg[illegible]ttention to 'refresh' it. You can find out more about this in our paper, linked below.

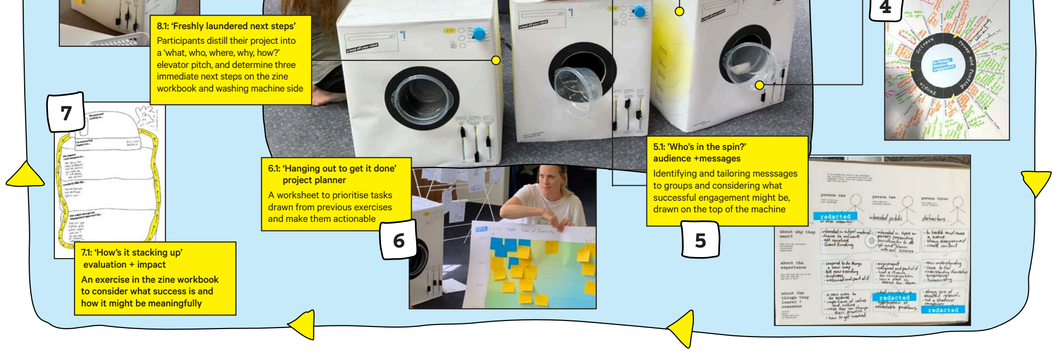
re[illegible]se a[illegible]da[illegible]

The Scicom[illegible]aundromat is[illegible] under a[illegible] tiveCom[illegible]ttributio[illegible]mmerci[illegible]alike [illegible]national[illegible] [illegible]/licens[illegible]c-sa/4.

What's [illegible]actic[illegible]able

If *practicable* means 'able to be put into pra[illegible] but also brings to mind words like feasib[illegible] actionable or viable, we decided that we meant something more than this. We wanted to aid participants in absorbing and incorporating theoretical ideas from PES into their own practice. A key part of the theoretical ideas from our perspective was a reflexive disposition, so this incorporation of theory would enable them to reflexively shape their practice, whatever that may be. We wrote more about this in JCOM in 2022: paper linked below.

← The zine workbook contains all the steps for the participants to work through



1 GATHER UP THE LAUNDRY PILE

[illegible] stage includes *Setting [illegible] cycle surv[illegible]* [illegible]ther [illegible]ectation[illegible] [illegible]per[illegible] [illegible]kgrounds [illegible]ject [illegible]nation [illegible]; *Name tag: findi[illegible]* [illegible]bout [illegible] inclusive [illegible]d [illegible]wing i[illegible] *you* [illegible]r [illegible]gagemen[illegible]awing [illegible]to hel[illegible] [illegible]icipan[illegible] [illegible]think relatively abo[illegible] their research *and* their engagement practice (and what engagement means).

2 SORT THE LAUNDRY

This stage includes *Scicomm IC* and [illegible] *on the garme[illegible]* [illegible]. The pu[illegible] [illegible] backg[illegible]ow so[illegible] and eng[illegible] are f[illegible]h sc[illegible]erature to bu[illegible]red [illegible]standing and to [illegible]ss [illegible]rs under[illegible]ey t[illegible]en, pr[illegible] shee[illegible]d t[illegible] of where the engagement project is at, and to document assumptions we might question later.

3 CHOOSE THE SETTINGS

This stage includes connected tasks *What's on the box?*; *Set the cycle length;* and *Set the sliders*. The purpose is to build on 2.2: *Peg 'em up prompts* to help think about the projects further. It enables discussion about the purpose of scicomm for participants' specific research project and where it fits in a research project: upstream, downstream, and how much engagement can vary the research. It also considers social licence.

4 SOAK + SPIN

This stage draws on a tool called the engagement wheel first proposed by Salmon & Roop (2019). Its purpose is to help participants get to grips with and articulate some of their different scicomm drivers and objectives. It is an opportunity to become more transparent and explicit about where the power lies; all the goals of an activity (including ones that aren't usually overtly declared); and what 'success' looks like.

[illegible] [illegible] +

[illegible]tage has t[illegible]ts: *Wha[illegible] spin?* aud[illegible] + mess[illegible] *is* th[illegible]age[illegible] rinse out. Through a scenario where audiences (primary, secondary, 'secret') are 'overheard' in a laundromat explaining why they took part in the proposed engagement; what they thought about the experience; and what they learnt we map who the audiences are; what we want them to know; and how we could connect with them. In essence, making sure we are centering the engagement on them and their needs.

[illegible] [illegible] DR[illegible]

This stage [illegible]ging out to get [illegible] [illegible]. In es[illegible]it is a [illegible]ject [illegible]der. [illegible] have [illegible] out' with their thoughts for a while. The wheel might have shifted dirt that wasn't visible before; the levers might have challenged *when* participants are engaging and how the engagement might in turn shape *their research*. Stage 6 considers what the gentle agitation has brought to the surface and translates the content it into tangible tasks and priorities, so the previous exercises become relevant, practical, and actionable.

7 [illegible] +

[illegible] is stag[illegible] called *How's it [illegible]acking*. It asks: what are the meas[illegible] of success for this engagem[illegible] project? What metrics are th[illegible] that you could count, measure or survey, or observe more informally? And how can you evaluate impact both on audiences and on yourself and the other team members? This is documented in the zine workbook.

8 READY TO WEAR

This stage comprises *Freshly laundered next steps*; an exercise to shake out the whole experience to get it down to an 'elevator pitch' (or a capsule wardrobe!). The point is to articulate where the project is at, and vitally, to distill and summarise next steps so the participants feel that they have a plan when they leave. Where stages 6 and 7 cover the longer-term plan in detail, this exercise is a quick distillation, and the 'note to self' you need when you get back to the office and need a quick recap to catalyse momentum.

FIND OUT MORE…

← Visit our 'a load off your mind' science communication laundromat website: laundromat.makinggood.design

← Read our paper: Bailey, J., Salmon, R., & Horst, M. (2022). The 'Engagement Incubator': Using design to stimulate reflexivity about public engagement with science. *Journal of Science Communication*, 21(04), A01. doi.org/10.22323/2.21040201

WE ARE…

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THANKS TO…

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Te Pūnaha Matatini
Complexity is at our heart

Y is for You’ve got this!

If in doubt...

- Appropriate style for audience
- Not cluttered, visually balanced
- Do everything with purpose, in context
- Be consistent (with fonts, sizes, colour etc)
- If it's supposed to be read, treat it like text to *read*, don't make it into pictures or stick it on crazy backgrounds
- Select visuals to help your storytelling, and craft your visual and written narrative with care

Polish my poster!

Y: You've got this!

- Choose fonts carefully
- Left aligned, not justified
- Good contrast
- Comfortable line length
- No double space after a full stop
- Use macrons and other punctuation conventions
- Test, iterate, test…
- Type 'rules' aren't there to trip you up or be pointlessly pedantic – it's always about reader-centricity!

These are all best practice usability for dyslexic users.
See uxplanet.org/what-to-consider-when-designing-for-dyslexia-b99d373905ac

Polish my poster!

Z: ZZZZZZ is it the end yet?

Z is for ZZZZZ
I will shut up now!

Te Pūnaha Matatini Whānau hui 2024

Critique!

Use this crib sheet to critique some posters that you see...

Does it look appropriate at first glance?
Balance (is there good flow, white space)
Colours and contrast appropriate and comfortable?
Strong alignments
Consistency in everything!
Hierarchy (clear what's a title, what's not)
Typos and other errors
Limited jargon (audience appropriate)
Font (limited number, well chosen sizes)
Text (left aligned, comfortable size, leading*, line length)
Images and figures† (one 'hero' others as appropriate)

*the space between lines
† think carefully, is that graph really helpful?!

Polish my poster!

A pretty easy to follow poster by Ellen and team

Can detection of temporal and spatial tipping points in New Zealand systems lead to better decisions?

Ellen Hume[1], Troy Baisden[1], Cate Macinnis-Ng[2], Rachelle Binny[3], Emily Harvey[4], Fraser Morgan[3]

Thanks to Te Pūnaha Matatini for funding this project

Te Pūnaha Matatini
1 The University of Waikato
2 The University of Auckland
3 Manaaki Whenua Landcare Research
4 me market economics research & consulting

Contact: Ellen Hume
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WHY?

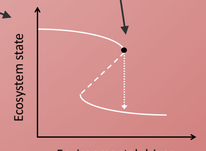
Ecosystems can have non-linear responses to pressures once they reach a critical threshold
i.e. a tipping point

*A **tipping point** is the stage at which a system changes from one state to another.*

*The potentially unexpected and abrupt nature of the change can be due to gradual increases in system pressures being absorbed by the **resilience** of the system, but only up until a point.*

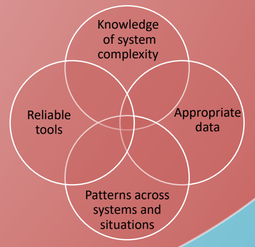
***Hysteresis** from positive feedback loops in the undesired system state can make it difficult to reverse the change despite similar environmental conditions. Transitions with hysteresis are known as **regime shifts**.*

e.g.



Consequences of going past the tipping point into a degraded state include:
- Loss of ecosystem services and values
- Difficult and costly to manage
- Negative socio-economic effects
- Policy ill-equipped to deal with non-linearity

We need to avoid tipping systems into undesirable states
BUT tipping points are difficult to predict in advance due to a lack of:



HOW?

We will explore the potential of the Fisher Information algorithm for detecting tipping points in New Zealand systems using existing datasets

***Fisher Information** is an index based on information theory. It is a measure of system order and therefore can be used to characterise regimes and regime shifts. It is effective at assessing multivariate systems with slow and fast dynamics.*

e.g. How will climate change drivers interact with other factors to create potentially cascading effects?

e.g. Are any habitats or species vulnerable to pressures due to current management boundaries?

Temporal and spatial examples of critical thresholds will be investigated

Our methods will include:
- Connecting with stakeholders
- Using interdisciplinary approaches
- Considering environmental and socio-economic risk factors
- Comparing with current detection methods e.g. statistical measures known as early warning indicators

WHAT?

We will develop a risk-based approach for dealing with tipping points in a New Zealand context

Future contributions at local and central government level could include:
- Socialising the concept of non-linear responses of systems
- Considering non-linearity in policy, e.g. through adaptive planning approaches
- Recommending what monitoring should be conducted to detect tipping points
- Providing a tool that can contribute to decision-making processes dealing with tipping points

Polish my poster!

A well-chunked poster with easy to navigate visuals by Julie and team

REDUCING UNCERTAINTY IN CITIZEN SCIENCE DATA

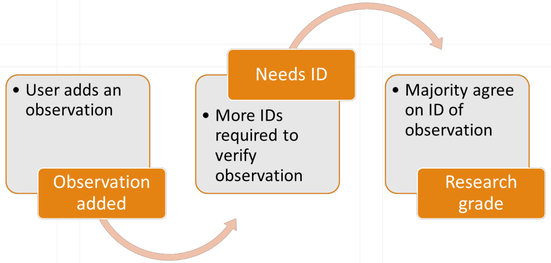
Julie Mugford [1], Alex James [1,2], Elena Moltchanova [1], Andrea Byrom [3], Jon Sullivan [4]

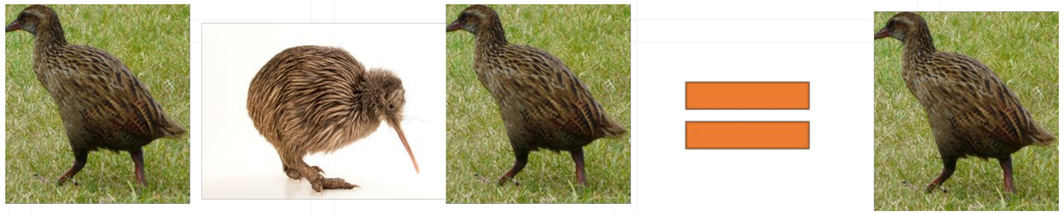
1. University of Canterbury
2. Te Punaha Matatini
3. Manaaki Whenua Landcare research
4. Lincoln University

INTRODUCTION

Citizen science or public participation in scientific research (PPSR) is the involvement of non-scientific members of the community in helping scientists collect and analyse information. This method of information collection is growing in popularity among researchers and citizens. Citizen science opens up a large amount of data for researchers from a vast range of locations at unprecedented frequencies with minimal costs. At the same time it provides users with the opportunity to be involved in a range of projects from environmental management by contributing to time lapses of glaciers with 'Snap Shot Me' to galaxy detection with 'Galaxy Zoo' projects .

Many citizen science projects are based on users classifying images. These images can range from satellite photos of Earth for users to identify land types, to images of flora and fauna for users to help build a map of biodiversity.



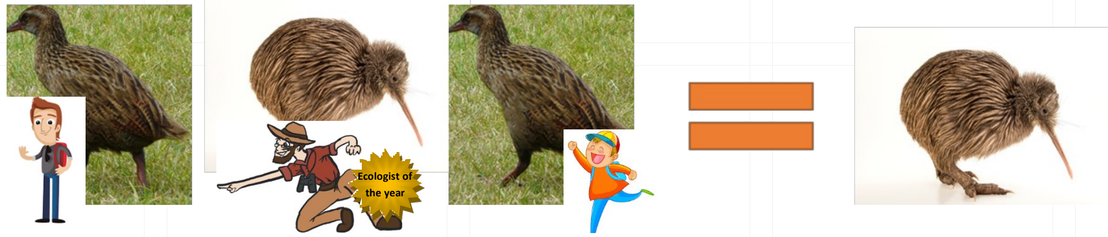


MAJORITY VOTE WINS

It is common practice for citizen science projects to decide the final classification of an image based on the majority vote of the users that identified the image.

BUT, WE'RE NOT ALL EQUAL

Majority vote does not take into account differences in users accuracies at identifying images. If we account for this difference we can base our final image classification on a weighted vote.



METHODS

Data: We will use real data from the citizen science project Naturewatch NZ and simulate data informed by Naturewatch NZ by using stochastic processes to model users classifying images.

Decision methods: We will use Bayes Theorem to continuously and interactively update user accuracy and the posterior probability of the images identification starting with some prior idea for both.

Method comparison: To compare our methods to 'majority vote wins' we will use key performance metrics, e.g number of identifications required to decide a final classification and overall accuracy of classified images.

Method application: We will apply our method to Naturewatch NZ

RESULTS

We aim to create a computationally efficient and dynamic continuously updating algorithm to decide the final classification for each image with improved data quality compared to 'majority vote wins' method. We want to develop an algorithm that can be robustly applied to classification based citizen science projects.

Funded by: University of Canterbury, Manaaki Whenua Landcare Research and Te Punaha Matatini

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https://youtu.be/AwMFhyH7_5g

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