THE WHAKARARE TYPEFACE PROJECT: WHEN CULTURE-SPECIFIC VISUAL DESIGN BRINGS ELEMENTS OF UNIVERSAL VALUE.

* this essay is the result of collective work, but for the purpose of this publication part 1 has been written by Johnson Witehira, while part 2 and the subsequent conclusion was written by Paola Trapani. The authors co-wrote the abstract and introduction.

ABSTRACT
This paper presents a reflection on the design of the Whakarare typeface created by Johnson Witehira, a Māori visual designer. In this research Witehira was interested in exploring two areas of inquiry: customary Māori knowledge as a source of inspiration for contemporary Māori design, and Māori typography as a means of cultural resistance through engagement with post-colonial discourse. Starting with the observation that there are no authentic Māori typefaces, designed by Māori for Māori communities, Witehira traces the kaupapa Māori design process in which Māori cosmo-genealogy is transformed into structural characteristics of the Whakarare typeface. In Māori history, the world was created when the children of Ranginui (sky-father) and Papatūānuku (earth-mother), forcibly push their parents apart.

The second part of the paper is a reflection on the “universal value” of such a design. Here we explore what kinds of ideas can be conveyed in different cultural contexts without loss, and what ideas are likely to be overlooked because of their cultural specificity. While the Whakarare typeface is designed to be Māori-centric, the authors demonstrate how the problem of designing forms that express the concept of compression and crushing, as a status immediately preceding an explosive expansion, is not specific to the Māori culture. Every designer in the world would face the same design challenge in a completely different context. The ability to design a form capable of generating that perception in the observer is not a trivial or easy task. On the contrary, its solution requires a very advanced knowledge of the psychology of perception and therefore has a universal, rather than local, significance.
INTRODUCTION

The first purpose of the paper is to reflect and make explicit a methodology for a Māori graphic designer dealing with the creation of a typeface. Here, the challenge was to design a typeface that aspired to be the visual manifestation of both the Māori language and of a specific narrative, in this case that of a Māori cosmo-genealogical story. Secondly the authors wanted to understand to which extent the result is meaningful when transposed to a cultural environment completely different from the original one. We wanted to discern which characteristics of the typeface were correctly readable and which are “lost in translation” to a Western audience not familiar with the tale.

The differing theoretical perspectives of the researchers - Witehira being grounded in Te Ao Māori (a Māori world view) and Trapani in a Western knowledge paradigm - was problematic in that the kaupapa Māori research methodology of the Māori researcher rejects notions of objectivity and universalism. Nevertheless, the nature of the Western theoretical knowledge used by Trapani to support the investigation into aesthetics was considered to be culturally non-specific. In this analysis Trapani reviewed the literature in the field of psychology of visual perception with a specific focus on the phenomenon of “perceived causality.” This has triggered an extraordinary debate, still running since the first work by Michotte (1946). We wanted to establish which processing tasks of the visual stimuli (that derive from the functioning of the senses, and are not influenced by cultural factors) concur to generate in the viewer the impression of compression/explosion.

PART 1: THE CREATION OF A MĀORI TYPEFACE

BRIEF HISTORICAL BACKGROUND

Before the arrival of Europeans in New Zealand, art and design played a significant role in the lives of the indigenous Māori. Pattern and imagery was applied to everything in the Māori world, from tools, buildings, and vehicles to the people and their clothes. As Paama-Pengelly (2010) notes, this Māori visual art
practice was used to transmit mātauranga Māori (traditional knowledge) and to retell whakapapa (genealogical and oral histories). With no written language, oral methods of learning, storing and sharing information were also critical. In most cases this information would be in the form of karakia (ritual incantation), waiata (song) or whakapapa recital.

Fast-forward to today and we see that the homes and cities Māori occupy are largely bereft of Māori design and te reo Māori (the Māori language). Following the rapid urbanization of Māori between 1945 and 1985, Māori found themselves living in towns and cities whose architecture and language mirrored that of Britain rather than their own culture. With the introduction of the Roman alphabet and the written word, Māori oral methods of storing knowledge also quickly began to fade.

WHAT IS A KAUPAPA MĀORI RESEARCH METHOD AND KAUPAPA MĀORI DESIGN PROCESS?
The kaupapa Māori design process, first described by Gardner in her 2008 Master’s thesis, was developed in response to the problem that “methods for designing and developing visual communication rarely include a process that considers cultural frameworks” (Gardner, 2008, p.40). While some consider the design process to be objective and universal Gardner points out that culturally specific approaches to design will result in design solutions that better respond to cultural needs. While this Māori-specific design process is informed by a number of cultural parameters, at the core of this is a kaupapa Māori research methodology which challenges the privileging of western knowledge over Māori knowledge. While cultural sensitivity has a part to play in kaupapa Māori research, Tuhiwai-Smith (1996) points out that the combination of context (Aotearoa, New Zealand) and theory along with inherent emancipatory goals make the kaupapa Māori research method unique to Māori and Aotearoa New Zealand.

Talking about the effects of a culturally specific design process Gardner states, “For a Māori approach to communication, we can expect that Māori cultural values and knowledge would
impact on every aspect of the design process and be represented through to the final solution.” (Gardner, p.43, 2008)

The impacts of these cultural values on the design process can be seen in figure 1, where stage 1 of a kaupapa Māori design process is articulated. Here the amorphous shape represents the design problem, while the circular rings represent the tikanga (protocol) or cultural parameters. For Māori, these cultural parameters include notions around space, te tinana (the body), koha (exchange), place (urban vs. rural) and cosmo-genealogical narrative. As the design problem is pushed through the rings or cultural parameters it is bent, pulled and distorted. These mutations represent the pressures and tensions that occur from cultural inquiry into the design problem. The design problem can only move forward once the design problem has been thoroughly interrogated from a Māori world view. Two critical questions during this stage are; what is the ‘value’ if any to Māori in solving the problem, and what precedents exist within the culture for dealing with similar problems.
Following these cultural considerations the designer is then able to move forward with determining what form, aesthetically, conceptually or physically, the design problem might take. Important questions from a Māori perspective at this stage are what precedents already exist within Māori culture and how can the design solution be connected to existing customary practices (Witehira, 2013).

**WHAKARARE: THE FIRST MĀORI TYPEFACE**

Māori designers have a responsibility to bring Māori visual culture back into the world they live in. For Witehira, typography is identified as an area of particular interest because it concerns both design and the written language. The wero (challenge) was to create the first by Māori for Māori typeface, a typeface that reaffirms Māori ideas about the world and stakes a claim to the printed page.
The name of the typeface, Whakarare, is borrowed from a pattern in Māori carving which inspired part of the design. Meaning to confuse or distort, whakarare creates a distorted effect in carving by traversing the pākati notch and other elements. An example of the pattern in context and an illustration of the element can be seen in figure 2.

![Figure 21. Carved and illustrated example of whakarare motif.](image)

In the following paragraphs the design process is explained, in correlation with the mātauranga Māori that actually guided the different stages of the development.

**WHAT WAS THE SOURCE OF INSPIRATION? THE WILL TO MANIFEST VISUALLY THE ESSENCE OF THE MĀORI LANGUAGE.**

Witehira was motivated to create a Māori typeface for three reasons. Firstly, as a Māori designer he wanted to use a typeface that connected to his culture and identity. As acclaimed typographer Jeffery Keedy (1994) points out, we need more voices in typeface design, voices that relate to who we are and our own experiences in life. In examining a page of text set in Times New Roman, Helvetica, or any other typeface, Witehira (2013) comments that he feels no connection to the page. Thus a Māori typeface goes someway to addressing this issue. While there have been many attempts by non-Māori to create Māori typefaces, generally the results have been unsuccessful. In most cases this problem is due to the over-reliance on motif and imagery from Māori art as the key source of inspiration. Joseph Churchward’s typeface, Churchward Māori is a pertinent example of this. Here, the koru (curvilinear bulb) element which
appears in Māori painting and tattoo has been removed from its original context and attached to the end of the letterforms. From a Māori perspective this type of dislocation is highly inappropriate because, “standard sites of kowhaiwhai signification are symbolically important to the whakapapa (genealogy) of individual tribes” (Shand, 2002).

Secondly, as a researcher Witehira’s work is informed by post-colonial discourse and kaupapa Māori methods of enquiry. Within the New Zealand context, post-colonial discourse seeks to interrogate the dynamics of power between the colonized (indigenous Māori) and the colonizer (Pākehā settlers of nominally British descent). At the same time kaupapa Māori modes of enquiry promote Māori knowledge, cultural practices and lived experiences. These perspectives also lead to two significant questions; can a typeface be a place of tinorangatiratanga (self-determination), and, can a Māori typeface be used to reclaim the printed page in which our indigenous knowledge is captured? Paradoxically, one problem is that the Whakarare typeface exists within a European framework, that being the modern Roman alphabet. While one way to deal with this problem would be to create a wholly new system of signs to represent the Māori language, the implementation of such system in the real-world is hugely problematic. Thus, as a first foray into Māori typeface design it is more practical to begin with what Māori currently use.

Finally, motivation for creating a Māori typeface was also found in Karen Cheng’s book, Designing Type (2006). According to Cheng, “Type is the visual manifestation of language” (2005, p.7). For Witehira, this leads to two pertinent questions: what is a possible visual manifestation of the Māori language, and, how might a typeface be used to express Māori ideas?

Design inspiration for the Whakarare typeface came from three distinct areas of knowledge; whakapapa Māori (Māori cosmogenealogical narratives, toi Māori (customary Māori art practice) and research into Māori typographic development. Whakapapa Māori (Māori cosmogenealogy) is comprised of a number of narratives that inform the Māori worldview. These narratives
explain the creation of the universe, human-kind, and Māori beliefs about natural phenomena such as the sun, moon, stars, forests, mountains, fishes and birds. Of these, the Māori account of how Ranginui (sky-father) and Papatūānuku (earth-mother) were separated is used as a creative starting point because it connects the genesis of the first Māori typeface to the Māori genesis narrative of how the world came to be.

Figure 2. Poutokomanawa carved figures with carved names (Alexander Turnbull Library, Wellington, New Zealand).

A survey of Māori uses of letterforms, from the early contact period with Europeans to the present day, also provided stimuli in terms of visual inspiration. Eventually though a decision was made to use early 19th century examples of painted and carved type from wharenui (Māori meeting-house) as a key stylistic reference. In figure 3 some examples of carved type can be seen on figures from a Māori wharenui. As Māori designer, basing the new typeface, Whakarare, on early Māori typography was important to Witehira because it creates a whakapapa (genealogical) connection to earlier Māori design practices.

Lastly, toi Māori (customary Māori arts) and Māori carving provide further ideas around the appearance of the typeface. The name Whakarare, as noted earlier, references the Māori carving pattern from which the typeface gets its tapered form.

WHY THE LINK BETWEEN ABSTRACT COSMOLOGY AND CONCRETE TYPOGRAPHY?

For Māori designers connecting typography to cosmology and Māori narratives about the arts is the natural consequence of designing from a Māori world-view. Here, whakapapa is significant. Whakapapa allows Māori to make connections
between disparate things in the world, such as typography and culture, by organizing them into genealogical relationships. In this project, the genealogical relationship was established by first mapping out Māori explorations into typography. Here Witehira is trying to establish the origin ancestor, the first uses of type by Māori. From this point Witehira was then able to create a family tree of sorts, whereby the Whakarare typeface is seen as a modern sibling in larger family of Māori typographic development. By connecting the design of Whakarare to the Rangi and Papatūanuku narrative the designer is making another attempt to connect the typeface more explicitly to the Māori world. As a first Māori typeface, it seems appropriate to connect the design to the narrative of how the world was created.

HOW IS THE SOURCE OF INSPIRATION TRANSFORMED INTO DESIGN PRINCIPLES? THE LETTERFORMS AS REPRESENTATION OF A SUBJECTIVE EXPERIENCE.

A number of Māori typographic principles were established through the study of Māori carved and painted text. In most cases these early examples of text were found within Māori wharenui. These texts, which were used to record the names of ancestors and events, are also examples of where Māori first began to use the written word to supplement oral and visual methods of recording knowledge.

Figure 3. Type of pou pou from the meeting-house Hotunui (1878).

Figure 4. Text on pou pou from the meeting-house Te hau ki Tūranga (1842).
Discussing the Māori typographic principles, in most wharenui a preference for upper-case letterforms was apparent. Where lowercase letters were used, they were often set at the same height as upper case letters, or only slightly lower. Type within wharenui also favoured a broken rhythm, which was created by the use of variable x-heights and through varying the widths of the letterforms. One of the most prominent features in carved texts was the use of high-contrast letters, where thick and thin strokes appear in each letter (see figure 4, figure 5). This was probably a result of the Māori carvers basing their designs on type that was seen in printed bibles and newspapers. Another unique aspect of these carved and painted texts was the variation in position of the cross-bar, particularly where the uppercase ‘A’ was used (see the wharenui Te Mana o Tūranga and Hotunui). In some instances, the cross-bar of the ‘A’ and ‘H’ was also broken creating a downward ‘V’ shape.

Having established a set of Māori typographic principles, Witehira went on to apply these concepts to the design of Whakarare typeface. In the early designs for Whakarare (figure 5, figure 6), design features include the use of an exaggerated x-height, broken rhythm through the cross bars and the use of high contrast letterforms. At the same time, the cosmo-genealogical content from the Ranginui and Papatūānuku narrative also shaped the appearance of the typeface.

Figure 5. Preliminary sketches for Whakarare typeface
In the story of Rangi and Papa the world was originally filled with darkness. The children of Rangi and Papa were crammed between their parents, caught in their embrace. However, some of their sons grew restless and decided to push them apart. After many attempts Tānemahuta, god of the forests, finally succeeded. He lay with his back against Papa, placed his feet against Rangi and pushed upwards. This proximal relationships of these key figures to one another is illustrated in figure 7.
In the Whakarare typeface the compressed space in which the sons of Rangi and Papa lived is alluded to through the use of condensed letterforms, snug kerning and tight letter-spacing. Simultaneously, the tall x-height, vertical stress, and thin stretched letter forms remind us of the deity Tāne Mahuta, personified in Māori cosmology as a great tree. In figure 9 and figure 10 the specific design attributes, as outlined in the aforementioned text, can be seen in renderings of the typeface.
Figure 8. Final typeface design for Whakarare

Figure 9. Example of Whakarare typeface in use.
WHO IS THE TYPEFACE CREATED FOR? THE EXPECTED AUDIENCE AND THE CONTEXT OF USE OF THE WHAKARARE TYPEFACE.
The primary audience for the Whakarare typeface is Māori. While the typeface is infused with mātauranga Māori it’s design is also informed by Māori design principles and Māori ideas about the world. A key idea behind Whakarare’s development was how typography might be used to express Māori notions of rangatiratanga (sovereignty) and mana Māori (Māori authority).
To establish mana Māori the character set was deliberately limited to letters used only in the modern Māori alphabet. Thus, designs for the original Whakarare typeface include the letters: A E H I K M N O P R T U W G. The aim of this was to limit the value of the typeface beyond Māori use. Another critical aspect of design was the inclusion of macrons for all vowels as these are used in written Māori to indicate extended vowel sounds.

WHERE CAN THE TYPEFACE BE USED?
Critical to creating a Māori typeface was the considerations around tikanga Māori (cultural practices). Tikanga Māori refers to Māori behavioural guidelines about daily life and interaction. It is also closely associated with the Māori notions about what is deemed tapu (sacred or restricted) and what is deemed noa (unrestricted). Some specific examples of tikanga Māori around kai (food) and its uses include the following:

- Food should never be passed over the head.
- Tea towels should only be used for the purpose of drying dishes and washed separately from all other soiled linen.
- Anything that comes into contact with the body or body fluids must be kept separate from food and should not be placed on surfaces where food is placed.
- Receptacles used for drinking water should be solely used for that purpose.
- Food or drink should never be taken into a room containing a tūpāpaku (corpse).

In this one example of tikanga Māori we see the complexity of this cultural system and what it might mean for a Māori designer. Where the Whakarare typeface is concerned important questions were; is it appropriate to use a Māori typeface in places with...
specific cultural meanings, such as *kihini* (kitchens) or *whare kai* (dining halls), *whare paku* (toilets) or *urupā* (graveyards)?

Looking at packaging design, we might also ask is it appropriate for a Māori typeface to be used on alcohol or cigarettes, or on food products? Addressing such questions is a critical part of the Māori design process. How Māori restrictions might be placed on typeface use though is very problematic. While such guidelines might be embedded in the terms of use for Whakarare, monitoring the typefaces use once it has been distributed is difficult. At the same time, enforcing guidelines where designers have broken the rules would be costly and time consuming.

**PART 2: THE UNIVERSAL VALUE OF LOCAL DESIGN**

Witehira investigated the real possibility for a designer to translate an abstract concept derived from a cosmological episode, namely the compression between two forces and the subsequent generative explosion, into the fixed structure of a typeface. Here, the relationship between the elements (ie the characters in the story and, in a figurative sense, the oppositional forces in play) is simply one of cause and effect: the compression exerted by parents over the children causes, in one of them, a reaction of expansion that ultimately leads to the creation of the world. However the design problem of visually representing a cause/effect relationship is not limited to the Māori. It is a universal design problem that can be found in many contexts such as advertising, comics and information graphics.

In order to translate this kind of dynamic relationship between elements into a static form (in this case the letterforms) Witehira demonstrated that a designer must go beyond a concept of phenomenal causality, whether that be intuitive, spontaneous or even trivial, and gain a conscious control of the conditions that cause in the viewer the experience of a cause/effect relationship. In the Whakarare typeface Witehira was able to control the variables that trigger, at a phenomenological level, the perceived experience of "compression prior to the time of the explosion". Interestingly, the response generated by this cause/effect relationship also is not limited to Māori or to a specific
geographic origin. Whoever observes the typeface will most likely experience a feeling of compression and crushing between two equal and opposite forces, regardless of knowing the story of Rangi and Papa and their children. Consequently, despite Witehira’s attempts to create a culturally specific typeface, universal responses to perceptual experience mean that the Whakarare typeface can be appreciated and has value in contexts beyond those of Māori culture.

Massironi and Bonaiuto (1966) set out a number of variables that play a role into determining the perception of phenomenal causality linking two figures, one of which is perceived as active (agent) and the other as passive (acted):

1. Orientation
2. Shape of the part in contact
3. Relationship with the phenomenological support plan
4. Deformation
5. The amodal agent
6. Texture

Here, we will give an explanation of the factors 2, 4 and 5 for the role they play in the design of the Whakarare typeface.

Variable #2: The shape of the surfaces in contact. Typically the agent (active) is convex and averted, while the passive (acted) is flat or concave. In Figure 10 it is possible to observe that sometimes the letters are almost the counter-form of the immediately previous or next, as if they had undergone a permanent deformation due to pressure from the active letter. Eg. the "k" is passive with respect to the "u" to the left, and active than the right one.
Variable #4: The deformation. The figure is perceived as derived from an original model. As such, the shape is clear as having suffered an action. The letters, although extremely stretched in the longitudinal direction, are still recognizable as derived from those of normal proportions. The "a" of Whakarare looks like an "a" to which a longitudinal traction has been applied. The impression of a causal relationship occurs when a particular element is interpreted as being transformed, in comparison to the "original." This change can be for example a "displacement" or a "deformation", with respect to a more regular form that is normal.

Variable #5: The amodal agent. Sometimes an element is assumed as an agent, even if it doesn’t actually appear in the visual presentation. In these rare cases an ‘amodal’ agent, which is excluded from direct visibility, effects reality by virtue of its "effects". This "amodal" agent assumes the predominant attributes of activity, while the other figures (those actually represented) are passive. In the case of Figure 12, we can imagine that the text blocks are forced between two vices, left and right, outside the limits of the paper. Though we cannot directly see these vices, we can cognitively reconstruct their presence as a factor in compression of the text.

CONCLUSION

Perception is a complex and largely unexplored process. To provide a univocal and certain solution to the problem of
representing a cause/effect relationship through a visual static construct is difficult. There however are different schools of thought, which could provide different solutions. In this final comment on the work of Witehira we applied the Gestalt paradigm, according to which vision (ie, the act of seeing) involves only primary mechanisms related to the function of our organs of sense: those mechanism are innate, genetically encoded and transmitted through all living beings (including animals), they are automatically activated beyond the will, they are fast and immediate and not influenced by other cognitive processes. Therefore they are not culturally dependent. If any of the six variables above are activated in a visual static structure, then we can predict the outcome of the perception of phenomenal causality by the observer.

*Thinking*, as a subsequent decoding of the information recorded by the senses, is a different matter. In this case, higher functions such as memory or thought integrate the information, and continuous inferences contribute to the outcome of perception. Every time the viewer gets the impression that ... *is convinced that ... imagines that ...* he/she is performing cognitive integrations. Obviously the inference may also be unconscious, as in the case where we use unintentionally learned information for judging (for example the size of the objects in relation to their distance).

In conclusion, it can be said that the Whakarare project enabled some of the variables that trigger the experience of phenomenological causality. This can easily lead to the prediction that the impression of "compression prior to the time of the explosion" will be very general and not exclusive of the Māori cultural group. Witehira however, as a Māori designer, has activated a series of processes such as a reflective historical memory and a Māori, that make his project especially meaningful for designers of the same cultural context.

**REFERENCES**


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