Plaiting Perspectives

Transdisciplinary connection-making

Dr Helen Ramoutsaki
Adjunct Research Associate
The Cairns Institute
James Cook University
helen.ramoutsaki@my.jcu.edu.au

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We acknowledge the Australian Aboriginal and Torres Strait Islander peoples as the first inhabitants of this country and pay our respects to the Traditional Owners and Elders, past, present and emerging, of the lands on which we meet today, the Djabugay, Yirrganydji and Gimuy Yidinji people; and the Bindal and Wulgurukaba people.

We also pay our respects to the Australian Aboriginal and Torres Strait Islander peoples on whose lands and seas we have carried out our research.

Summary

- The play of plaiting perspectives
- Possible applications
- Inspirations from texts in science and the arts
- Juxtaposition is not just a position
- Performative plaiting roles and process
- Plaiting a paper
- Invitation to play

Playing with plaited perspectives

- Let's experiment with possibilities!
  - Asking questions about how collaborative work can manifest with an equity of inquiries.
  - The plaiting of practices & perspectives presented side by side.
  - A transdisciplinary mode of collaboration that works *through* the disciplinary areas *into* something new and emergent.
  - An opportunity to work with existing knowledge, skills and attitudes to find new twists.

Plaiting perspectives - applications

- Plaited perspectives can report on results while generating new results – which are the interpretive perspectives.
- There is potential for ongoing dialogue between researchers and fields that generates transdisciplinary results in
  - Papers & articles
  - Exhibitions
  - Performances
  - Conference presentations
  - Events on Country

Scientific perspectives – an example

- An article on niche construction theory that started with one perspective, that of the sceptics (Scott-Phillips et al., 2014).
- It was sent to the advocate for comments.
- Discussion led to a collaborative paper, making differences explicit.
- Features:
  - standard two column layout;
  - taking a case study (lactose intolerance);
  - giving each perspective under separate headings;
  - presenting an evaluation; and
  - a table that presents specific questions and responses from sceptics and advocates in separate columns.

Comparative layouts

involved. The adoption of dairy farming is what causes this evolutionary event, and this is a manifestation of a general propensity to bias selection pressures, yet rather than niche construction being recognized as an evolutionary process it is treated as a background condition, and isolated event. Dairy farming is taken as a particularly compelling example of niche construction playing an evolutionary role because this evolutionary episode cannot adequately be characterized as caused by earlier selection.

It was research by those sympathetic to NCT and gene-culture coevolution that led to the recognition of dynamical feedback between the cultural practice and the allele for lactose persistence (i.e., the selective environment and genetic trait are coevolving; Feldman and Cavalli-Sforza 1989; Durham 1991; Holden and Mace 1997; Aoki 1986; Gerbault et al. 2011). These analyses established that dairy farming preceded genetic change. Biologists using the standard account long favored an alternative hypothesis that wrongly maintained that absorption alleles spread prior to dairy farming (e.g., Simoons 1970). The advocate sees this as one of many domains in which NCT has inspired useful research.

The advocate rejects an equivalence between niche construction and environmental change (see "The Standard Account"), arguing that there are features of niche construction that are not true of environmental change in general, and which help to explain why biological evolution takes place (or not). First, niche-construction is guided by (genetic or acquired) information, and thereby generates nonrandom environmental change, frequently driving environments into states that could not otherwise occur (Odling-Smee et al. 2003). Second, unlike environmental change stemming from independent events (e.g., climate), here ecological (even abiotic) variables are tied to rates of niche construction, often over multiple generations. NCT's population genetic models have established that the resulting dynamics are quite distinct from either cases where each trait is considered in isolation or conventional coevolution scenarios (Laland et al. 1996, 1999; Lehmann 2008; Krakauer et al. 2009; Loreau 2010); similarly, gene-culture coevolution can exhibit quite different dynamics to systems with other forms of gene–environment interaction (Boyd and Richerson 1985; Feldman and Laland 1996). Third, here the covariation between genotype and phenotype is reverse-caused and culturally contingent: evolution proceeds not because genes that cause dairy farming have higher fitness than those that do not (no such genes exist), but because dairy farming causes a change in the selective environment to favor the lactose absorption alleles, even in societies dominated by lactose intolerants.

EVALUATIONS

As may be apparent, currently these two accounts differ more in terms of their style of explanation than dissimilarities in empirical findings or predictions. The advocate believes such dissimilarities were more manifest in the past, and that over the last two decades the standard account of the evolution of lactose intolerance has converged on that favored by NCT. In his view, NCT's emphasis on organism–environment coevolution left it particularly well placed to comprehend the evolutionary dynamics of this type of example.

From the skeptics point-of-view, the fact that an old hypothesis pursued within the standard paradigm turned out to be inaccurate and has no implications for the substantive matters at hand, because the newly established facts remain explicable within that paradigm (see "The Standard Account"). What would be necessary to justify the major claims made for NCT (see, e.g., "Inviting Misunderstanding") would be for it to make a forward prediction of something that would *not* be explicable within the standard theory. This has not been done, and for the reasons given elsewhere in this article (especially "Does NCT Make Predictions or Derive New Insights that Cannot Be Made with Standard Evolutionary Theory?" and "Was Niche Construction Studied Before the Development of NCT"), they do not believe that it can be done.

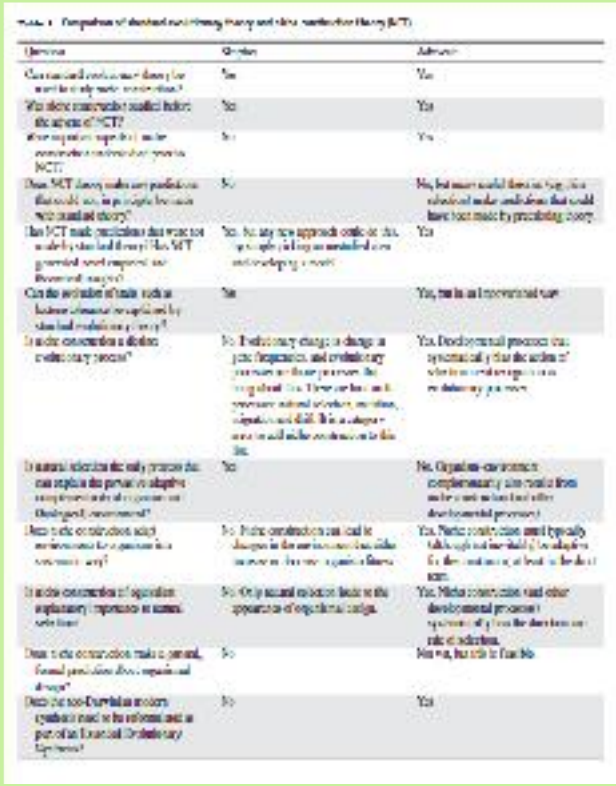
Niche Construction and Adaptation

THE STANDARD APPROACH TO ADAPTATION

From the traditional perspective, the problem of adaptation is the need to explain why the fit between organism and environment is so close, in so many cases. Darwin's theory of natural selection provided a solution to this: heritable characters associated with greater reproductive success will be selected for and accumulate in natural populations. Since Darwin, there have been at least two major conceptual advances in the study of adaptation. First, the advent of population genetics united Darwin's theory with Mendelian genetics, by showing how natural selection would work via changes in gene frequency (Fisher 1930; Haldane 1932; Wright 1932; Dobzhansky 1937; Mayr 1942). Second, Hamilton (1964) showed that consequences for relatives have to be factored in to provide a more general definition of fitness (West and Gardner 2013). Of the different evolutionary processes (e.g., natural selection, genetic drift, mutation, and migration) only natural selection can explain adaptation (see "Standard Evolutionary Theory and Niche Construction Theory").

THE NICHE CONSTRUCTION REVISION

For NCT sympathizers, this standard account is unsatisfactory because it fails to recognize that the complementary fit between organism and environment is not simply the consequence of adaptation by natural selection, but instead of reciprocal bouts of natural selection and niche construction ("reciprocal causation": Odling-Smee et al. 2003; Laland et al. 2011). The standard approach recognizes that organisms will be selected to change their environment in adaptive ways (e.g., Dawkins 1982), but it does not



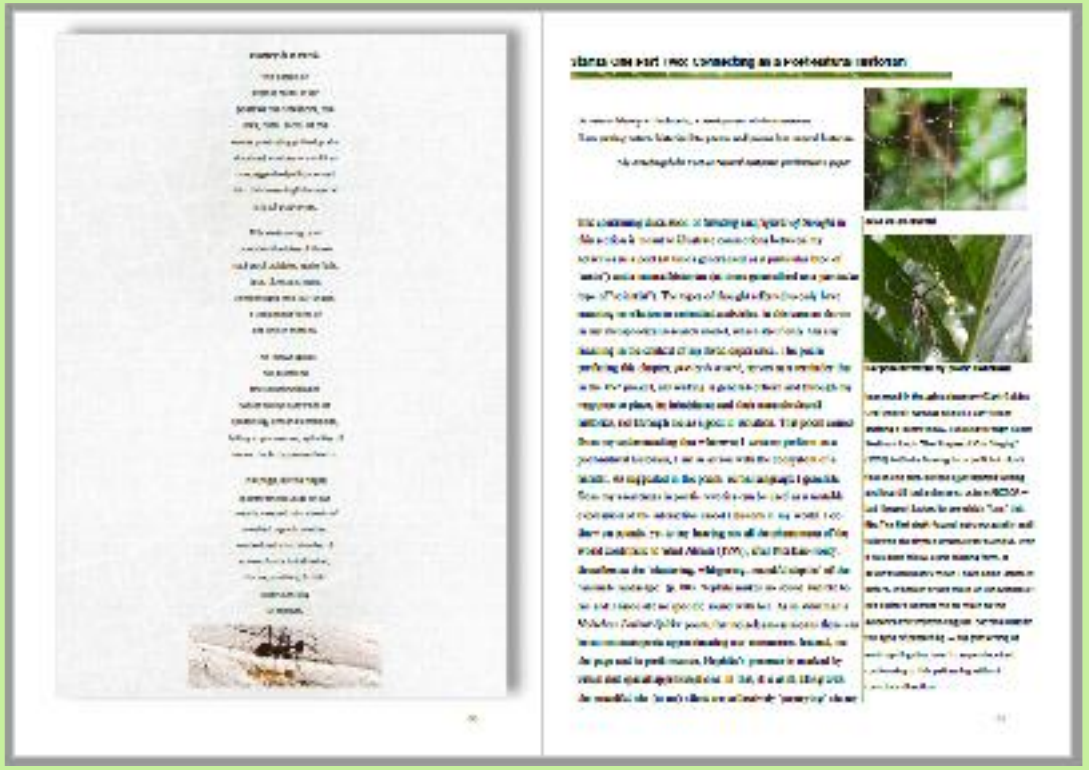
Plaited arts perspectives

- Krauth (2011), identifies styles of creative writing exegeses, including plaited texts.

- Plaited texts bring together the creative writing artefact with the exegetical conceptual / historical framework and reflective journals on creative processes.

- In one example, the plaited texts “worked off each other and created their own dialogue” so that the “discontinuous narrative was about reading the gap between exegesis and artefact, and analysing it”.

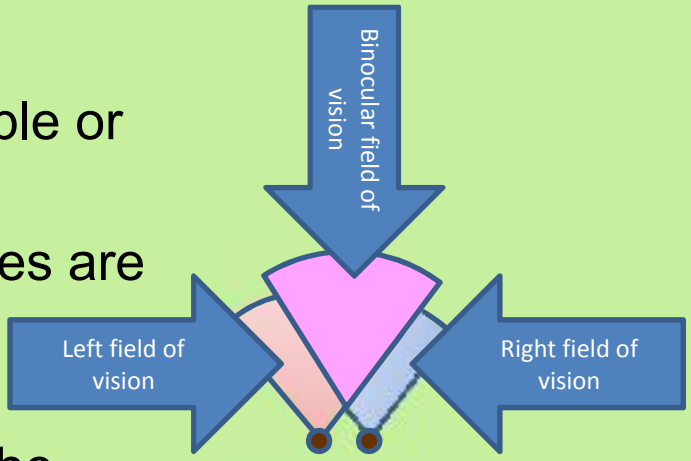
Crawford, 2010, cited in Krauth 2011.



Ramoutsaki, 2017.

Juxtaposition / Double Description

- Reading the gap between two perspectives relies on juxtaposition.
- Gregory Bateson describes a method of double or multiple descriptions.
- Phenomena with similar and varying properties are juxtaposed and mapped together to find new abstractions.
- The greater degree of abstraction becomes the pattern that connects them (1980, pp. 70; 84; 142).



Juxtaposition as a method

- Shank (2006, pp. 349-50) proposes juxtaposition as a methodological alternative to mixed methods (quantitative with qualitative methods).
- The emphasis is on transforming understandings rather than enhancing, expanding and elaborating on quantitative research.
- Juxtaposing allows contrasting different areas of understanding:
  - "to see how one might inform the other" and
  - to push understandings "out into areas that have not been considered before".

Juxtaposition as a method

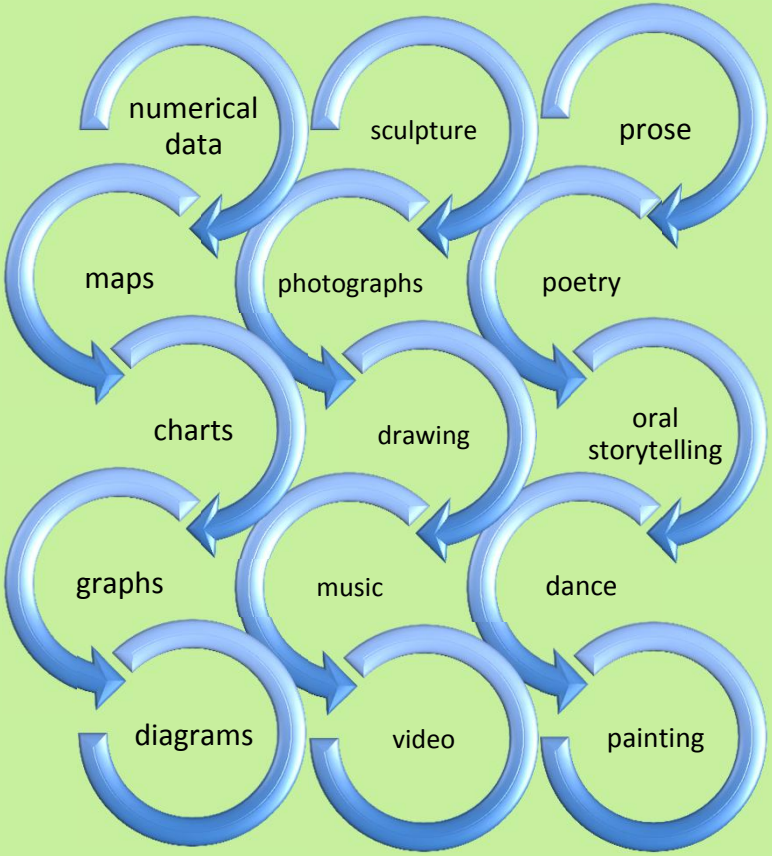
- No existing theoretical reason to compare the phenomena is required.
- Shank proposes using an arbitrary guiding metaphor as a framework for comparison in juxtapositional analysis.
- However, in environmental research, the research topics are already rich in relevant, productive, materialised metaphors.

Multi-layered, Multi-method

Quantitative Research	Qualitative Research	Performative Research
A focus on outputs of inquiry expressed in quantities—with numbers, graphs and formulae.	A focus on outputs of inquiry expressed in nonnumeric data—with words and images.	A focus on outputs of inquiry 'expressed in nonnumeric data, but in forms of symbolic data other than words in discursive text. These include material forms of practice, of still and moving images, of music and sound, of live action and digital code' (Haseman, 2006 p. 6). .
the scientific method	social inquiry / multi-method	multi-method led by practice

Haseman, 2006, p. 6.

Possible plaited responses



Topics and approaches

- Use one concept; for example, leaf decay
  - each researcher writes (shapes / illustrates) about the concept from the perspective of their discipline.
- Take juxtaposed aspects, elements or entities; for example, rainforest canopy* and roofs; roots and rivers; seeds and insulation
  - *note where there is a conceptual metaphor embedded in the topic.
  - each researcher writes their own juxtaposition of the two elements which can include analogy
  - choose two researchers to write from perspective of one element and one researcher to write / shape / illustrate both elements in an analogical juxtaposition (architect on roofs, botanist on canopy, poet on analogy of both).

The Research Inquiry

- Decided on collaboratively.
- Phrased as an open question without prompting for a particular outcome.
- Is there a metaphorical basis for juxtaposition?
- Used as a provocation for responses by each researcher
  - What do I, as a <field of interest>, make of the relationship between roofs and rainforest canopy?
  - How do I, as a <field of interest>, view roofs and rainforest canopy?
  - What emerges from a juxtaposition of roots and rivers?

Roles – curator-researcher

- Curator (general editor) responsibilities:
  - co-ordinating the team
  - managing collaborative decision-making on topics and tones
  - writing the introduction, conclusion and summaries of the three levels of response
  - layout of text and visual artwork
  - collating reference lists
  - inserting links to other media (online)
- Curator as co-ordinator and a catalyst for the collaborative co-practicing
- The curation process as research

Roles – participant researchers

- In this suggested format, three researchers from varied fields.
- Each presents their results / perspectives, with the assistance of an editor / reviewer from their field.
- One may additionally take on the role of curator.

Plaited paper process & structure

Overview

Plaited paper process & structure

General introduction:

- **Drafted by one researcher (curator)**
  - **with input & editorial suggestions from others**
- **Explains the method**
- **Outlines the paper structure**
- **Situates the topic from each of the three perspectives**
- **Notes pre-existing cultural conceptual metaphors in the topic description**
  - **(eg: rainforest canopy)**
- **Leads into the research inquiry by posing the question**

Plaited paper process & structure

Sections two and three:		
Researcher 1	**Researcher 2**	**Researcher 3**
Response 1 to the research inquiry	**Response 1 to the research inquiry**	**Response 1 to the research inquiry**
Overview of Response 1: • **Input from all researchers then drafted by curator.** • **What are the similarities & differences?** • **Are there any overlaps?** • **Perhaps the introduction of a modified research inquiry from this overview, which addresses the three responses.**		

Plaited paper process & structure

Sections four and five:		
Researcher 3	**Researcher 1**	**Researcher 2**
Response 2 to the research inquiry	**Response 2 to the research inquiry**	**Response 2 to the research inquiry**
Overview of Response 2: • **Input from all researchers then drafted by curator.** • **Contradictions and correspondences.** • **What new ideas or information are emerging from Responses 2?**		

Plaited paper process & structure

Sections four and five:		
Researcher 2	Researcher 3	Researcher 1
Response 3 to the research inquiry	Response 3 to the research inquiry	Response 3 to the research inquiry
Conclusions from Response 3: • Input from all researchers then drafted by curator • Emergent concepts • Application of emergent concepts		

Plaited paper process & structure

Conclusion:

- **Drafted by one researcher (curator)**
  - **with input & editorial suggestions from others**
- **Summary of overall process**
- **Summarises the shifts in the three perspectives**
- **Notes the team's perceptions of emergent perspectives and applications / calls to action**

- **Invites reader / viewer / audience input in further meaning-making, giving avenues for correspondence with the team (eg: email, online forum or blog)**

Invitation to play

- Groups of three
- Different rooms / spaces
- 20 minutes - Groups Phase 1: Choose a research topic / question – each member responds. Juxtapose responses and look for emergent understandings:
  - What are the similarities & differences?
  - Are there any overlaps?
  - Perhaps the introduction of a modified research inquiry from this overview, which addresses the three responses.
- 10 minutes - Reconvene to share understandings / outcomes
- 20 minutes - Groups Phase 2: Given the emergent understandings, each member responds again. Juxtapose responses and look for emergent understandings.
  - Are there any contradictions and correspondences?
  - What new ideas / information have arisen (however tangential)?
- 10 minutes - Reconvene to share understandings / outcomes

Resources

- Lengths of paper for responses (cut to your requirements)
- Use paper for noting observations / insights / questions
- Coloured pens / pencils / pastels

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