'Problems of Practice' in Digital Resource Design

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Much time and reflection go into the consideration to how we curate resources to develop a compendium on a theme for use with our students. As teachers, we often appear to work intuitively in developing what looks like a good resource and deciding what will work in our classrooms. However, these decisions are often informed by previous experience of what has and has not worked with particular students and hence the sense of working intuitively may not be a realistic description of such work. In this paper we will outline approaches to uncovering 'the implicit' in our pedagogical work. Specifically, we will consider a problem of practice encountered as the team of authors curated and designed digital resources.

The problem of practice

The problem was how can we develop our appreciation for multiple perspectives when designing humanities focused digital resources for upper primary school students to embrace multicultural Australian paradigms? In considering this problem, we will need to think about what is implicit in what we are doing and how does this implicit thinking become explicit in a collaborative digital setting. In these collaborative contexts what is implicit for one designer may not be implicit for another and it is not until it is made explicit that an appreciation for differing perspectives is possible. In exploring these ideas, we initiated a self-study approach in uncovering our assumptions implicit in our pedagogical approach to designing resources for student use in classrooms.

The 'problem of practice' we encountered is suitable for a collaborative self-study focusing on reframing pedagogy (Fletcher & Bullock, 2015; Mena & Russell, 2017). It is important to understand that 'problem' in this sense is not considered a deficit but is "linked to the notion of a curious or puzzling situation or dilemma, tension, issue, or concern. It is something that causes one to stop and pay more careful attention to a given situation" (Loughran, 2004, p. 25). It can be interpreted as an instance of "wonderment" (Samaras, 2011, p. 7) that led to a more well formulated focus for self-study.

This problem of practice was encountered when using the collaborative platform Popplet to storyboard our design for digital resources that would later be developed as a series of interconnected websites on Weebly. The use and agency of Popplet ideas organiser and the Weebly website platform in this scenario will be explored here, however this article primarily serves to provocate the idea of self-study in problems of practice in digital resource curation and design in a way that is informative for teachers and resource developers.

Our digital resources brief

The author team are working on developing digital resources for year 5 and 6 humanities integrated curriculum. The intention is to provide a coherent set of digital resources based principally on a pedagogy promoting enjoyment of learning or 'critical enjoyment' (Redmond, 2013). Although the pedagogy of 'critical enjoyment' coined by Redmond (2013) originates in media literacy education, it can be applied across other curriculum areas. Redmond (2013) explains that, "critical enjoyment is transferrable to other content areas when teachers provide opportunities for learners to harness their own intellectual curiosity and derive satisfaction from learning via curricula that connect to and integrate multiple media texts" (p. 115). Given that enjoyment, critical thinking and the use of multimodal texts is cited numerous times (see Table 1) across the entire Victorian Curriculum (Victorian Curriculum and Assessment Authority, 2017). 'Critical enjoyment' provides a pedagogical approach that incorporates the affective and cognitive domains in learning experiences and hence encourages intrinsic motivational factors to enhance learning.

Table 1: Number of times enjoyment, critical thinking and multimodal texts are cited in the Victorian Curriculum (at 5 November 2017)

Term	Broad search result[1]	Exact match[2]
Enjoyment	97	97
Critical thinking	374	18
Multimodal texts	1971	160
1. Result includes boolean AND OR results 2. Result returned when the terms are in quotation marks		

Informed by this pedagogy of critical enjoyment, we will address a number of Victorian Curriculum history content descriptors in the resource, including for example:

• The effects of a significant development or event on a colony (VCHHK090) and

• Significant contributions of individuals and groups, including Aboriginal and Torres Strait Islander peoples and migrants, to changing Australian society (VCHHK096)

(Victorian Curriculum and Assessment Authority, 2015a)

There is a deliberate juxtaposition of these two content descriptors here, chosen from a number of intended outcomes our resources will be based upon. Such descriptors reveal the need for integration of multiple paradigms. Aboriginal and Torres Strait Islander Histories and Cultures is a national priority reflected in the cross-curriculum capabilities of the Australian Curriculum (Australian Curriculum, Assessment and Reporting Authority, n.d.) however, these are embedded within the curriculum areas of the Victorian Curriculum (Victorian Curriculum and Assessment Authority, 2015b). Additionally, integration of ethical and intercultural capabilities is a fundamental inclusion.

One of our implicit assumptions in designing the digital resources is that the final product will be a combination of multimodal viewing texts, including interactives and aligned activities to engage students in the development of their learning. This can be described as integrating new literacies (Forzani & Leu, 2012; Rosaen & Terpstra, 2012) in the humanities curriculum that recognises literacy learning as a socially situated activity (Rosaen & Terpstra, 2012; Wenger,

1998). Rosaen and Terpstra (2012) explored their own practice in their work engaging teachers in understanding and teaching new literacies through collaborative self-study. Self-study with a focus on practice was seen as an opportunity in "uncovering pedagogical tension, challenges and successes" (p. 39). To uncover our pedagogical challenge, we have documented our collaborative approach to digital resource design.

Our collaborative resource design approach

We have already developed practices around embedding the use of technology as a sociocultural element. We extended our practice in the resource planning phase from using google docs to the Popplet platform (see Figure 1).

Although the team was working face-to-face, the Popplet platform was a distance reducing medium, affording a shared digital space that was an important catalysis in design considerations.

There are legal and ethical practices to consider when designing and curating digital resources for classroom use. Our decisions relating to representations of people and the potential impact of such representations is an ethical aspect of our design practice that needs to be continually examined throughout the process. The legal considerations are also important when designing for open access resources to be situated on the web. We have an obligation to adhere to copyright in our planning. We not only want to teach intercultural and ethical understanding through these resources, but subsequently embody these principles in their design.

The affordance of the use of colour in Popplet informed later decisions to use colour to theme the series of websites that would host the final product. We discussed using the state and territories colours the materials related to. We could also now consider the implications for this. How did the state colours come about?

After briefly researching this it was discovered that some states have officially adopted colour as part of their insignia such as Queensland (The State of Queensland, 2017) and South Australia (Government of South Australia, 2017) and others have not. Some state and territory colours are known through popular use. For example, in Tasmania there are no official colours, however, the Government has recorded the recognised State sporting colours as bottle green, yellow and maroon (Tasmanian Government, n.d.). The Australian Capital Territory recognises blue, gold and white as the official colours (ACT Government, 2017) drawing on the city colours blue
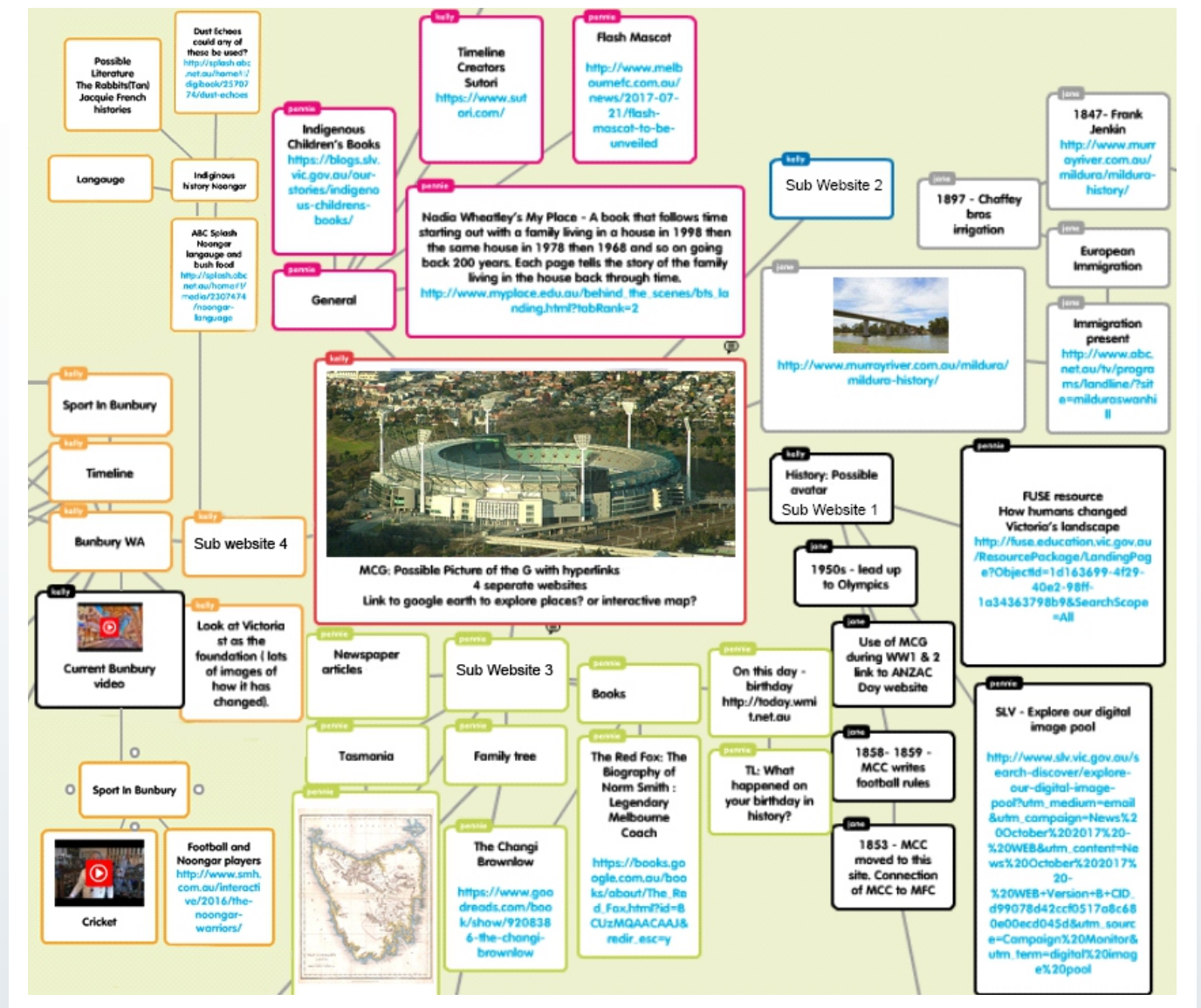
and white as represented in the Coat of Arms as well as blue and gold, as the traditional sporting colours. Blue and gold for sporting use was taken from the Australian Coat of Arms. The ACT Government report that, "The choice of colours maintains existing traditions, reflects a link with natural history and preserves heraldic tradition and practice" (ACT Government, 2017). This is one example that indicated the importance of making explicit the 'implicit' to understand the implications of such decisions.

The kinds of questions that arise though such collaboration and reflection are: What are the implicit pedagogies at work when we make these kinds of decisions? Who do we represent? What do we reinforce socially and culturally when these resources are used in classrooms? Are the implicit pedagogies aligned with our intended pedagogies? If implicit pedagogies are uncovered does this transparency give rise to adopting these as explicit pedagogies if they are aligned with the intentions, or does it provide an opportunity to rethink decisions and representations in artefacts?

We also needed to consider the role of technology. The distinction between technology as "a social and cultural practice" and technology as a tool has been explored by

Hoban (2004, p. 1039) in a review of three self-study research case studies. Do we consider Popplet and Weebly as sociocultural actors in our design process having agency (Latour, 2005)? Collaboration using technology such as Popplet and Weebly can "alter in unexpected and significant ways the activity itself as well as those involved in it" (Borgmann, 1984; Norman 1993, in Araya, 1997, p. 61). It was intended that Popplet would support our collaborative work so our practice could be seen as a response to the use of Popplet if not a result (this concept is also discussed in the reprint of Henderson, 2011 in this issue; Wenger, 1998).

Self-study journal reflections

In this section our written reflections about our experience are presented and discussed. The screenshot of the Popplet (Figure 2) depicts an earlier version of our collaborative planning than Figure 1.

Figure 2: Popplet in earlier form to demonstrate the web of ideas
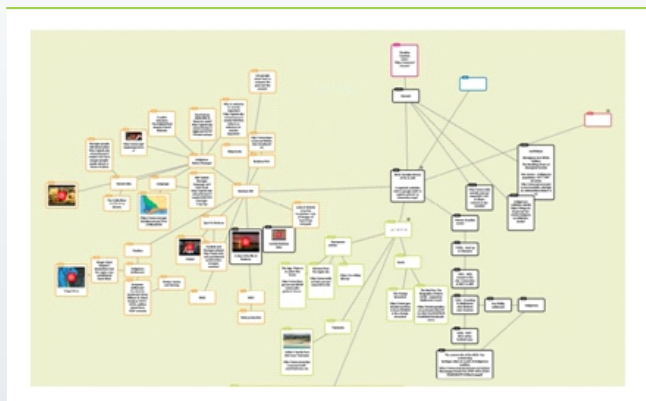
Kelly introduced the use of Popplet to the team, as a collaborative platform to represent the individual research we had been doing independently. In Kelly's reflection (see inset) she describes representing the ideas for the resources in the Popplet concept map (See Figure 2) as a 'scattergun' approach, in the sense of how the brainstorming concept map took shape. In her reflection, Kelly grapples with the idea of multiple histories and how to reconcile these as "intertwined stories which explored a richness of place".
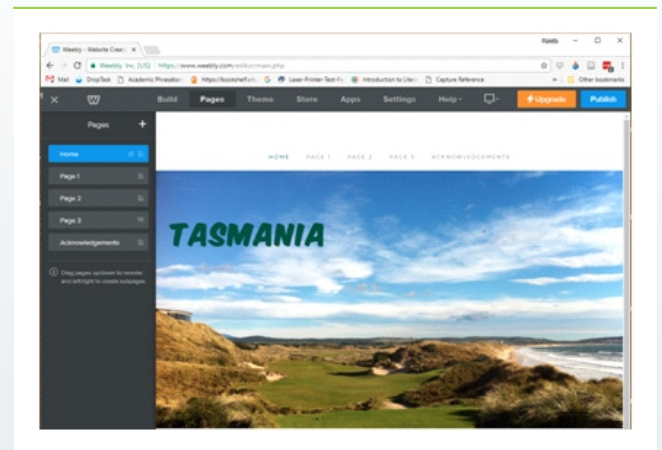
Kelly's reflection

"As we added ideas onto the Popplet I realised that each of us had a different approach to the historical mapping and examination of place, even though we all had the same conversation. I had taken

a scattergun approach to mapping and was wrestling with how I would present the information in a linear approach when the Popplet was clearly displaying the complexity and breadth of my thinking that did not align with a linear approach. I started researching European history of place and went back to an examination of indigenous settlements, but I was struggling with how to represent both the indigenous and European settlements as dual and intertwined stories which explored a richness of place without trivialising it to a series of facts."

When we began to think about how the resources might be translated to a platform of multiple websites this seemed to necessitate a hierarchical and linear presentation of materials (See Figure 3).

Figure 3: Weebly website builder denoting linear structure required

Jane observed that the structure of the resource planning that was taking shape may not be representative of the "complexity" of the "intersection across events and places" that she had in mind (See Jane's reflection inset).

Jane's reflection

"When I started imagining how this resource would support school-based learning, I found that I was thinking in terms of going backwards in time. I knew there would some intersection across events and places so thought that the complexity would be embedded in my planning. Yet, the thinking represented on Popplet showed this early planning reflected a quite linear view of time and place. Using the Popplet was a good check for my thinking and made me realise that that was not what I meant at all. I began to make connections to other events in history and over time I suspect the networking will be quite detailed.

However, the positioning of indigenous history as pre-European settlement still jumped out at me. What does it mean to draw this 'line in the sand' of historical accounts? How do we avoid falling into a Euro-centric account of early white settlement? How do I find out more about this 'silent' side of the story and then how do I represent that in a way that is able to be understood by primary -aged students? My own education paid little attention to indigenous history and morally I know this is a shortcoming that needs to be addressed. So, if I want to look at the impact of irrigation and migration on the Riverina in post-WW1 Australia, how do I learn the stories of indigenous communities to help me shape a fuller picture of this passage of time?

The Popplet was an effective tool in recording thinking and making connections. It also raised an awareness of the limitations of my own content knowledge. With so little at hand how could I embark on complex planning?"

We have already begun to challenge our perspectives on how we structure resources and what assumptions are implicit in our decisions. Specifically, when designing a resource centred around place and history, we reflected that our understandings of place might be different to indigenous understandings and connections with place.

Our collective realisation that our choice of what might appear to be a linear structure for the resource may not result in an immediate shift in structural design of the resources due to technical or knowledge constraints. However, we are embracing the challenge to reflect multiple perspectives not only in the content but also in the design of digital resources.

Pennie's reflection

"In the process of using Popplet the team readily agreed on the direction to take. It struck me that we had congruence in our pedagogical approaches. We agreed to structure resources by place and then by a backward running timeline, common to the discipline of history. I recalled from my reading that the Indigenous peoples' connection with land is spiritual and that land is for collective use of all, not something that can be owned. I wondered how we could incorporate Indigenous and multicultural paradigms of place and time? How could our design give a sense of or at the very least acknowledgement of multiple paradigms? How can I develop resources that offer authentic representation? How do I grow and shift my worldview?"

There is identity work involved in undertaking a self-study into our understanding and development of multiple perspectives when designing digital resources. An understanding of multiple

perspective could well lead to a change in world-view (See Pennie's reflection inset). How can the articulation of the implicit translate into changes in the user interface design and make explicit the resulting pedagogical shift in the digital resources? These realisations have already raised implications for our practice and identity as teachers (and resource curators for teachers and as professional learning and resources providers). We hope that by undertaking self-study we may develop a critical understanding of our practices relating to the application of our pedagogies in the context of digital resource curation.

We wondered how we could incorporate these understandings in the process of the resource development and it was agreed that we would undertake a self-study project to document and facilitate our understanding or the development of our identities from our learning during the resources development. We hope that a flow on effect is resources that will assist teachers in representing multiple perspectives in the classroom.

Self-study research and cultural practices

As newcomers (Wenger, 1998) to the field of self-study we have considered that we could contribute to the literature about how self-study methodology is learned (Ritter, 2017) and propose to analyse and describe our experience in the process of our collaborative self-study. While all authors are familiar with self-study research, we have not undertaken it formally. One of the authors was involved in teaching a Master of Education unit, Self-study as professional inquiry, resulting in a desire to formalise the self-study mindset developed into a formal self-study project after supporting students with this process.

The idea to develop our mindset to reflect sensitivity to the multiple worldviews of our population and to incorporate our learning into our digital resources design was inspired when we came together to develop resources. This is a good illustration of why self-study cannot exist in isolation; and that "collaboration is fundamental to the methodology" (Hamilton & Pinnegar, 2013, p. 74). In this instance the social and cultural practice is a collaboration in a digital technology context. The self-awareness arising in our process of collaboration contributes to the "honesty, openness, and transparency of any problems surfacing" (Samaras, 2011, p. 8). This openness within the collective self-study team could lead to changed practices when engaging with others to incorporate intercultural understanding in the design of the resources. This process will continue our work in uncovering the implicit, challenging our assumptions related to our design.

For example, buildings might be iconic representations of place from our cultural-historical standpoint but how do we embrace the importance of landscape in our design?

We have begun reflecting on how our concept of place and time might be very different to other cultures and how design reflects our values and logic systems. During this process we became in engaged in one of the intercultural content descriptors we wish to embed in our resources to: Analyse how aspects of their own and others lifestyle, behaviour, attitudes and beliefs can be culturally influenced (VCICCB009, Victorian Curriculum and Assessment Authority, n.d.). By beginning this process of analysis we can understand how our practice and identity are inextricably interlinked (Wenger, 1998). Self-study as a research methodology is "a body of practices, procedures, and guidelines used by those who work in a discipline or engage in an inquiry" (Samaras & Freese, 2006, p. 56. in Samaras, 2011, p. 68).

On reflection of their review of 60 self-study research papers presented at the 2014 International Conference on Self-Study of Teacher Education Practices, Mena and Russell (2017) recommend careful attention to "collaboration, use of multiple research methods, and explanation of trustworthiness" citing these as essential characteristics of self-study "that were not always addressed adequately or carefully" (p. 105). We will contribute to this area from our undertaking of self-study by including in our journals our development of understanding of self-study as a methodology in the process. We see the undertaking of a self-study as a way to critically engage with each other as well as develop our personal professional identities.

In the next stage of development we will consider factors and design principles for technology developed by Education Services Australia and Curriculum Corporation (Gaffney, 2010) as a starting point for the team to continually critique our approach to design. We will also draw on the work of Shipp (2013) as a catalyst for expanding our strategies for inclusion of multiple perspectives in the classroom. The New Zealand Te Whāriki early childhood curriculum (Ministry of Education, 2017) is also an exemplar we can learn from. Our future work will also be informed by the Reconciliation Action Plan Action suggestions for the curriculum planning for classrooms (Gilimbaa Indigenous Creative Agency, n.d.).

We will begin our journey making a plan for research using collective self-study. This involves attention to the ethics and making decisions about the wide range of possible data collection methods. As a starting point we will potentially gather data in the form of audio recordings of our curriculum development face-to-face meetings, complete self-study researcher logs and engage with critical friends. We will be

sure to include in our circle of critical friends, those with expertise in different aspects of intercultural understanding.

Concluding comments

The team of authors are engaged in the collaborative development of resources and are now embarking on a collaborative self-study project to correlate with the development of the digital resources for upper primary Humanities integrated curriculum in Victorian schools. This article has described the initiation a self-study research project to approach the problems of practice arising in digital resource curation. Due to our use of Popplet and other technologies we have the opportunity to further explore the role and agency of technology in our self-study. We hope this article inspires teachers and resource designers to consider engaging in self-study mindset or research project alongside their engagement with digital resources as part of their curriculum development.

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