**‘Flows and Catchments’: A Mixed Method Study Utilising NVivo to Facilitate Cross-Disciplinary Collaboration Incorporating Practice-Based Research.**

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**Introduction**

This paper responds to the problem of how Practice-Based Research (PBR) can be usefully incorporated into a cross-disciplinary, Mixed Method project design, by considering a non-conventional use of the NVivo qualitative analysis software package. NVivo also proves valuable in maximising the creative-arts practice interdisciplinary potential within PBR itself. The ensuing discussion centres around Deakin University’s ‘Flows and Catchments’ research and teaching initiative.

**‘Flows and Catchments’**

‘Flows and Catchments’ is an ongoing Collaborative Research Project seed-funded by Deakin’s Centre for Memory, Imagination and Invention (CMII) in 2011. It has about eight active members. Its focus is on the Volcanic Plains Region of Western Victoria, and it seeks to achieve an understanding of the area that retains its rich and lived complexity, without reduction to dis-associated empiricism or instrumentalisation. Put differently, ‘Flows and Catchments’ seeks to appreciate and document the region in an organic way, reflecting the understandings of those who live there and are a part of it. The purpose of the study is to energise an inclusive place-based learning model founded in the notion of well-being. Our hypothesis is that well-being emerges out of the maximisation of relationships of people and place. Importantly, this hypothesis also emerges organically from the materials and persons we set out to study; indeed, as will be discussed further below, it is the philosophically nuanced hypothesis of one of the key historical figures of the study.

To achieve this end, ‘Flows and Catchments’ is both multi-faceted and cross-disciplinary, comprising a suite of related qualitative and quantitative enquiries that, despite the common banner under which they fall, are nonetheless (often) quite disparate. These sub-projects include but are not limited to sound recordings, studies of indigenous and other languages, geographic studies, and a focus on the cultural and artistic heritage of James Dawson, who campaigned for natural justice for the Western District Aboriginal peoples in the late nineteenth century.

In particular, ‘Flows and Catchments’ is concerned with several examples of ‘Practice-Based Research’ (PBR), including the creation of a fictional-documentary film, photography, and artistic installations, which have been presented through involvement with local schools and clubs, and participation in local events. A prominent example is the recent Lake Bolac Eel Festival, as part of which ‘Flows and Catchments’ researchers orchestrated and engaged in creative music making and communal drawing, and presented photographic exhibitions. In this context, PBR can be understood as an attempt to explore the circumstances of place, through the re-organisation of both its elements and of the elements of our response to it, in the form of original artwork. As Paul Carter observes, ‘a double movement occurs, of decontextualisation in which the found elements are rendered strange, and of recontextualisation, in which new families of association and structures of meaning are established’ (2007: 15-6).

**The Methodological Challenge**

The methodological challenge here lies in the question: How do we make sense of all this? To invoke the project’s title metaphor: How might we begin to explore the ‘flows’ between these disparate sub-projects, identifying and exploring common or recurrent themes, which we characterise as ‘catchments’? And how might we amalgamate PBR outcomes with those of more ‘traditional’ qualitative and quantitative studies, in a way that is meaningful and beneficial to the project as a whole? The importance of this last point cannot be understated, as it constitutes relatively uncharted territory.

In seeking a solution, clearly Mixed-Method Research (MMR) suggests itself. MMR is ‘a relatively recent approach which combines and integrates quantitative and qualitative research at different levels. [Its] ... aim is to show how such an approach may overcome the limitations of purely quantitative or qualitative approaches, providing a fruitful context for ... more comprehensive ... research’ (Gelo *et. al.*, 2008: 267).

As the title of this paper suggests, the NVivo software package has been appropriated as a tool to track and record our disparate ‘Flows and Catchments’. NVivo is a qualitative analysis program designed to assist researchers in the coding of data under various themes and categories, facilitating the identification of threads and connections that may not have been apparent otherwise. To this end, it can be extremely effective, provided that an active role for the researcher is retained. Unlike quantitative software such as SPSS, which will run complicated procedures once base-level data is entered, and provide definitive, concrete outcomes, qualitative research approaches (including PBR) are not concerned with numerical data and algorithmic functions, but rather with understanding experiences as they are *lived*. Under such a paradigm, there is no substitute for an active researcher in the interpretation of findings. To be sure, NVivo certainly *facilitates* this process–indeed, it is the program’s primary function–but, as a general rule, outcomes will be inadequate if NVivo is allowed to ‘do the work for you’.

Unlike its largely text-based predecessor, NUD\*IST (Non-numerical Unstructured Data Indexing, Searching, and Theorizing), NVivoallows incorporation of many file types, including audio, video, databases, pictures and text. Thus it is well suited to our purposes, and the ‘Flows and Catchments’ methodology seeks to co-opt the functions of NVivo, using its interactive, hyperlinked database to encourage interdisciplinary communication across the various ‘Flows and Catchments’ components, creating new flows and catchments of its (our) own. To be clear, this is a left-of-centre appropriation of NVivo because, while it is designed to deal with large data sets, and even to accommodate input from a large number of researchers (see the discussion of NVivo Server, below), its use to draw together *many* projects is a digression from the forms of work for which it was originally intended. Nonetheless, as the following discussion will demonstrate, it does what we asked of it very well.

**‘Flows and Catchments’ Sub-Projects in Depth**

In order to fully demonstrate the breadth of the ‘Flows and Catchments’ sub-projects, the following section describes a selection of them in detail.

The first sub-project concerns the intellectual legacy of James Dawson, author of *Australian Aborigines* (1881), from whom ‘Flows and Catchments’ derives its overall research inspiration. The research on Dawson outlined below is essentially archival and historical in nature, while the foci of the other studies included are principally concerned with PBR.

The most remarkable feature of Dawson’s *Australian Aborigines* is its ‘Vocabulary of Words in Three Languages’ augmented with a list of place-names and sample sentences illustrating the grammar of the languages. The wordlists are remarkable for representing dialects spoken right across the region with which we are concerned. A detailed study and cross-referencing of these wordlists for consistency / irregularities would necessarily encompass elements of both qualitative and quantitative methodologies. This study is forthcoming in our project schedule.

Although some archival study into the whole of Dawson’s (largely unpublished and unstudied) works has been done (see, for example, the work of Jan Critchett, or the Indigenous cultural recovery programs that draw on Dawson’s Wordlists), there has not yet been adequate recognition of their bi-cultural significance as records of a unique attempt at intercultural reconciliation, nor of Isabella Dawson’s (James’s daughter’s) role in collecting Indigenous languages. With regard to the latter: to what extent are the language lists James published gendered? and what might the implications of this be? Clearly, examinations of this type fall within an historical / literary critical / analytical framework, the kind of text-based study that is the *modus operandi* of many contemporary Humanities academics.

Beyond such traditional modes of research, however, Dawson uniquely anticipated and provided the impetus for ‘Flows and Catchments’, and particularly its interest in PBR. One example of his initiatives in this regard was the commissioning of artist Eugene von Guerard to paint scenes from the area’s volcanic landscape in oils in 1855, with a view to a study of ecology and the inculcation of environmental values amongst the local populace. Overall, Dawson’s importance to ‘Flows and Catchments’ is that he exemplified a place-based approach to learning. All of his enquiries were motivated by friendship and by a sense of community through connection–a research agenda predicated on the importance of lived human relationships within and with natural places.

Related to this, our hypothesis that well-being emerges out of the maximisation of relationships of people and place is derived largely from the ecological tradition that stretches, at least, from Spinoza to Gilles Deleuze (and that now, we can see, also involves James Dawson). In Deleuze’s reading of Spinoza, he re-casts this tradition as an ethology, in which (creative) experiments in the relations of things, in ‘the capacities for affecting and being affected that characterize each thing’, can lead to the (re-)creation of community: ‘the composition of a world that is increasingly wide and intense’ (1988: 125; 126).

Building on such a tradition, then, current ‘Flows and Catchments’ promotions include spoken presentations within the region, such as at the Warrnambool Art Gallery, outlining how the Creative Arts may motivate a re-creation of self in response to place and, in practical terms, the benefits of long-term and short-term artists’ residencies for local communities.

One example of this sort of community engagement was a workshop held with local people at the Lake Bolac Eel Festival in March 2012 to bring to life a creative music soundscape around the theme of volcanoes. This soundscape was later performed as part of the twilight evening concert at the Festival’s culmination.

A further sub-project, also included as part of the Eel Festival, was the production and exhibition of a series of drawings / diagrams that described and suggested types of projects to be done with local communities. These communal drawings were conceived of as the making of ‘Stone Soup’. The notion of Stone Soup is taken from folk tales about travellers in search of food who invent the idea of a magical Stone Soup to induce cooperation by asking local residents to garnish the mixture with local produce. Other forms of the folk tale from around the world include nail soup, button soup and axe soup. For the Eel Festival, three different types of communal drawings (soup) were made. Participants were able to choose from Stone, Axe or Heirloom Soups, and then invited to take part in their production. The function of the ‘Soups’, from a PBR perspective, was the exploration and exposition of local community, with a view to further development of community interactions in response to place and people. At the Eel Festival’s conclusion, the drawings were given to the community, and they will be exhibited again next year.

The fictional-documentary film sub-project ‘Sisters of the Sun’ (running time approximately 25 minutes) explores several related questions: how does language work to name place, or not? how does language work to create a sense of connection to place, or not? and how does the creation of memory, or more precisely memorialisation (as typically occurs after one’s death), create or not create a sense of continuity linking past, present and future?

To answer these questions, documentary-style interviews with people who live and work in the Volcanic Plains Region of Western Victoria (shearers, eel fishermen, farmers, quarrymen, to name a selection) are bookended by a fictional story about Isabella Dawson’s preparation of her father’s wordlists. Historically, Isabella’s research took the form of conversations with a number of the local aborigines, but for this film, her relationship with Wombeetch Puuyun (also known as Camperdown George) is foregrounded. A further re-fashioning of the historical material, which gives the film almost a Magical Realist tone, is implicit in the setting of their conversation. This mainly takes place around Wombeetch’s grave, an obelisk or cenotaph erected through the efforts of James Dawson, which bears the inscription ‘last of the local tribes’. A certain ambiguity of time pervades this fictional part of the film, an ambiguity consistent with the explored idea that place contains its own sense of timing distinct, for example, from historical time as modelled on (the English) language as a linear progression (as of words following other words in a wordlist). According to Wombeetch, place itself connects past, present and future, rather than any words on a gravestone. In a final, climactic scene, he scatters the pages of Isabella’s diary to the winds, across place.

In line with the ethological approach outlined above, the aim of the film-makers was to conduct an experiment in the maximisation—through the de-composition and re-composition of established notions of time, place and language—of a sense of community amongst those they interviewed. In other words, once framed by the fictional story of Isabella and Wombeetch, what new perceptions might emerge, for the viewer, of the well-being or otherwise of those people who are interviewed?

**Practice as Research**

‘Sisters of the Sun’ is a clear example of practice-based research (PBR). The techniques, approaches and sensibilities of the creative arts practitioner are brought to bear on an identifiable research question, or more precisely a cluster or force-field of questions, that would be equally recognisable to a researcher in a discipline such as History, Linguistics or Philosophy. This is what makes PBR *research* (but does not in itself make it any more interdisciplinary).

Genuine PBR in any manifestation is thus essentially and not merely accidentally compatible with other more familiar forms of academic research across the Humanities and Social Sciences. PBR can even prove compatible in special cases with disciplines lodged more rigidly within purely quantitative methodologies, such as Mathematics. It is not hard to see how Kurt Gödel’s Incompleteness Theorem, for example, might provide the circumstances for a research question also of interest to an artist. The impossibility of creating complete and consistent meaning within any given work of art, a topic clearly of interest to PBR research, touches on Gödel’s central theme. We refer here to the work of Douglas Hofstadter.

Thus PBR converges on research questions acceptable across other research domains, but it approaches them very differently. As Estelle Barrett and Barbara Bolt make clear, PBR’s methodology is subjective not objective, tacit not explicit, personal not generalisable, active not passive. It is also experimental and iterative in ways that other more conventional research methodologies are not (for example, experimentation does not require, nor even desire scientific reliability of results).

Its novelty and importance, then, lies in its difference from most other approaches to knowledge. Its challenge lies in the necessity of bringing its insights to bear, coherently, on genuine research questions as just described. That is, in making the subjective objective, the tacit explicit, etc. at the level of its conclusions. On repurposing its findings, in other words, in a form recognisable to non-PBR researchers. Where PBR, once again, shears away from modes of more conventional research is in the content of these conclusions. ‘Sisters of the Sun’, for example, suggests that well-being may be as much consequent on ‘un-learning’ conventional ways of engaging place and situation through language and time as on the mastery of these in their more familiar forms.

As preceding paragraphs may have already suggested, a crucial element of PBR is its *creative-arts practice* interdisciplinarity. Certainly NVivo has allowed the Flows and Catchments research team to accommodate PBR, with all its inherent complexity, within a broad-based interdisciplinary MMR approach that also includes non-PBR approaches. NVivo has proved itself capable of bringing together a number of discreet projects rather than, as is usually the case, different methodological elements of a single project.

However, to date, we have left implicit NVivo’s value or otherwise in maximising the powers of PBR as a method that, prior to its inclusion in any MMR model, always already incorporates interdisciplinarity of the creative arts practice form. We will address this question in the following section.

**NVivo and Flows and Catchments**

Having now provided some insight into the range of sub-projects that contribute to ‘Flows and Catchments’, the remainder of this paper is a functional consideration of NVivo and its applicability in facilitating the kind of interdisciplinary collaborations that the Project seeks to attain. As previously stated, NVivo works as an interactive, hyperlinked database with the capacity to identify common threads or themes across a wide variety of file-types, including audio, video, still images, numeric data such as that contained in Excel and SPSS files, and of course text. It is this functionality, in turn, that enables the cross-pollination of findings/outcomes from a variety of different methodologies.

Nonetheless, a word of caution: for all files other than text, input is still required from researchers to draw together common themes and ideas, to add text as marginalia or footnoting that will enable connections to be made. For those familiar with NVivo (or indeed with qualitative practice in general), what we are discussing here is *coding*, so that phenomena under study, in whatever form they take, can be arranged under common *nodes*. To emphasise the point: coding requires text to work with–without it nothing can happen. And this presents something of a problem: especially when researchers come from different disciplinary backgrounds, as is frequently the case with MMR, there is always the possibility that ways of thinking and, more importantly, ways of reporting that thought in coding, will differ substantially. This consideration is of even more importance within PBR, because the fine-grained particularities of artistic practitioners and their sensibilities mean that they frequently do not share a common vocabulary. Although qualitative software functionality, including that of NVivo, has gone a long way towards alleviating such difficulties in recent years (Hoover and Koerber, 2011: 76), not least through highly developed thesaurus-like functions with various degrees of available sensitivity, this potential drawback still warrants mention.

How might such a problem be overcome? ‘Flows and Catchments’ has appointed one of its members to oversee coding, such that common understandings of recurrent themes are understood in the same, or at least a similar manner. This task is envisaged to be as much about liaison between various research participants as it is about the direct entering of coding by the nominated party *per se*. A suggested title for this role is *dramaturge*–a research and development position *vis-a-vis* a theatre and/or its productions, where in this case the production at hand is the ‘Flows and Catchments’ suite of enquiries. To extend the metaphor, other descriptors might be *co-ordinator* or even *conductor*, but in the sense of organising and facilitating, rather than leading in any overt directorial sense. Not surprisingly, the *dramaturge* must be particularly skilled in talking with and summarising the views of those working in the PBR domain.

One of the greatest advantages of NVivo in large scale collaborative projects, especially interdisciplinary and MMR ones, is its capacity to allow the emerging data set to ‘surprise us’ (surprise, we note in passing, being one of the key felicities of a PBR approach). A brief example will serve to illustrate this point: in a small data set with, say, just a few documents, to go through them manually to detect common themes, or even commonly recurring words that may be indicative of themes, is not especially difficult. One can be fairly confident of doing so thoroughly, without overlooking anything worthy of note. With large data sets, however, especially those comprising a variety of file-types, this is not the case. To combat this, NVivo can provide a detailed breakdown of the most commonly recurring words in texts, and in the coded annotations of other files, instantaneously, irrespective of the size or number of files loaded. This is done by selecting ‘New Query’ and then ‘Word Frequency’ from the ‘Explore’ menu. Further, NVivo also provides word-strings (of a length determined by the researcher) as they occur to either side of the uncovered terms, so that each finding can be evaluated for relevance by context, and then retained or discarded accordingly. In the early stages of this paper, it was suggested that the active role of the researcher in qualitative research can never be entirely surpassed by technology and, although NVivo certainly aids in facilitating the process just described, this is one of those occasions where human evaluation and judgement are indispensible.

**Technical and Logistical Limitations / Difficulties of NVivo**

Perhaps the greatest methodological challenge faced by ‘Flows and Catchments’ thus far has been in setting up NVivo for use by multiple researchers. At least in principle, ‘NVivo is designed primarily for individual use. Although it is possible for more than one user to collaborate on the same project using NVivo Server 9, the standard NVivo product does not currently allow more than one user to access the same project at the same time’ (Hoover and Koerber, 2011: 77). NVivo Server is, indeed, a multi-user version of the program, hosted on its parent company’s (QSR’s) hard drives. But the problem with NVivo Server is the cost: approximately $7000, plus a considerable yearly maintenance fee.

Nonetheless, a viable solution emerges if the role of *dramaturge* outlined above is extended to include a timetabling function, whereby researchers schedule when they will be accessing the NVivo core document to add coding and so forth. To elaborate, what is needed is a multiple-user licence (for the single-user version of the program–ie. a university site-licence), and an account with a free online ‘cloud server’ such as Dropbox. Used in conjunction with one another, the outcome is not quite as user friendly as the NVivo Server option, but certainly more financially viable.

A further difficulty with the use of NVivo was encountered by the filmmakers of the documentary video outlined above. The source footage for the documentary was produced using Panasonic P2, High Definition Video cameras and a Red Epic camera. The output of these systems produces files that need to be converted to formats that are used in digital film editing. This conversion process takes hours to undertake and the resulting files are large and not in the common formats used by applications such as Nvivo (which reads .mpg, .mpeg, .mpe, .wmv, .avi, .mov, .qt and .mp4 files). Compounding this problem, although there is no limit to the number of clips that can be loaded into a single NVivo project, the maximum allowable size for any single clip is only 40MB.

Re-formatting film footage and cutting it into chunks manageable by NVivo remains a possibility that the ‘Flows and Catchments’ filmmakers are enthusiastic to experiment with, as they readily acknowledge the detailed level of collaboration that could be facilitated *vis-a-vis* the editing of group projects, as well as the intercommunication between film and other research initiatives that is enabled. However, at the time of writing, the drain on time and resources to achieve these ends remains formidable.

A final, minor obstruction worthy of mention, especially for researchers who don’t operate with medium-to-high level technologies on a regular basis, is the challenge inherent in learning to work with the NVivo platform effectively. In the current academic environment, as just noted, there can be no doubt that our time resources are already stretched to their limit. Be this as it may, however, it is the opinion of these writers that the potential benefits to be gained from the use of NVivo outweigh the short-term time costs in learning one’s way around it.

**Conclusion**

Flows and Catchments expands the model of conventional MMR, suggesting a shift from different methods applied to a single research topic / phenomenon, to different methods applied to a range of disparate yet related projects exploring a given topic in a much wider sense. The NVivo qualitative analysis software package certainly carries within itself the capacity to facilitate genuinely collaborative research across a large number of projects, disciplines and methodologies, including the integration of Practice-Based Research (PBR) outcomes with other more traditional forms of academic enquiry. The advantages arising from this cannot be understated, since it is now widely accepted that Mixed Methods Research (MMR) is ‘necessary to uncover maximum information and perspective, increase corroboration of the data, and render less biased and more accurate conclusions’ (Reams and Twale, 2008: 133). NVivo also shows its value in the maximisation of creative-arts practice interdisciplinarity that is an ideal element of PBR.

**Acknowledgements**

The authors are grateful to Paul Carter, Dawn Joseph, Jondi Keane and Simon Wilmot for their contributions to this paper *vis-a-vis* each of their ‘Flows and Catchments’ sub-projects.

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