VISUAL AUTOETHNOGRAPHIC ANALYSIS FOR CASE STUDY UNDERSTANDING

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Introduction

This chapter presents the application of the Mandala method as an autoethnographic data-gathering and visual analysis tool. The Mandala method is a tool for 'visual(ising) autoethnography', providing a process for 'visual representations' to help understand the situational dynamics, developed in the context of my PhD thesis and post-doctoral activities, to refine and communicatemy ideas, intuitions and insights. In explaining this visual analysis method, this chapter extends some previously published insights from my PhD, along with three post-doctoral insights, aiming to promote the understanding of doctoral student and supervisor though autoethnography. This chapter focusses solely on the autoethnographic application of the Mandala method to reveal aspects to imagining the work and identity of future PhD researchers.

An important aspect of this chapter is the visual component of autoethnographic research, with the visualisation methods and techniques to provide insight into understanding oneself and also others as an important teaching/learning tool in the research process. This chapter has parallels between other chapters in this book section, offering yet another method to develop one's self-efficacy and self-reflection in the research process so as to help clarify and fuse insights into tangible form for peer review. These autoethnographic experiences and insights, supported by visual representations, highlight the value of the autoethnographic method in contributing to the work and identity of future researchers.

My ethnographic/autoethnographic experience

My PhD study (Matthews, 2019a) adopted an exploratory case study approach, and considered that the method of ethnography (Frankham & MacRae, 2011) was pragmatically feasible, as I was actively engaged as a participant in the team context itself. In particular, I was positioned in this ethnographic case study as a participant observer (Stake, 2005), and in doing so I took on a dual role of researcher and (autoethnographic) participant in the team operations (albeit as a student researcher rather than as an expert). However, I assumed the primary role of an evaluative, critical analyst of the case activities in order to address my study’s Research
Questions and to provide “grounds for validating the observations” (Stake, 2005, p. 456). An in-depth investigation of a single case by a participant observer can also be described as being neo-ethnographic (Stenhouse, 1983).

My own PhD experiences and insights added further depth to the study from an ethnographic perspective. Anthropologists “interject personal experience” into ethnographic writing (Reed-Danahay, 2005, p. 2), and I also link from the ethnographic study of the other participants with the autoethnographic analysis of myself as being one of the participants. Thus, my dual role within the team (as both autoethnographic participant and ethnographic researcher) challenged me to examine and understand my own presence in and influences on this project (Scheurich, 1997) and assisted me to gather deeper and more insightful data within my exploratory case study method.

Overall, I sought a research method to explore how and why the participants constructed their knowledge management (KM) capacity and forms of capital within the university team context. Thus, the single-site, exploratory, ethnographic case study (Day Ashley, 2012; Hillyard, 2010; Mills & Ratcliffe, 2012) was considered an appropriate and acceptable method. Autoethnography is an ethnographic inquiry that utilises the autobiographic materials of the researcher as the primary data (Chang, 2007). Therefore, whilst my study bridged both ethnographic (analysis of the other participants’ data) and autoethnographic (analysis of my own reflective data), the purpose of this chapter is to focus mainly on my autoethnographic aspects.

The ethnographic Mandala method

As part of my PhD study methodology, I deployed a particular data collection and analysis method, based on the Mandala. The Mandala method is basically an artwork, in a circular form, created by the participant, often around a theme. The Mandala method has previously been applied to an integration of the conscious and the subconscious to gain deeper insight into one’s perceptions (Jung, 1965). Mandalas have since been applied in the art and psychotherapeutic fields for self-awareness, self-expression, conflict resolution and healing (Bush, 1988; Curry & Kasser, 2005; Kim et al., 2009; Schrade et al., 2011, Palmer et al., 2014) and to extract valuable information that may have been otherwise blocked by conscious processes (Elkis-Abuhoff et al., 2009; Slegelis, 1987). The Mandala’s power is derived from its creator explaining/self-analysing the values and qualities the artwork represents, channelling one’s subconscious thoughts to become more conscious, eliciting tacit knowledge, perceptions and perspectives into explicit verbalisation and writing. Unlike the Rorschach inkblot method of psychological evaluation, dream analysis, brainstorming or pareidolia (the perceiving of meaningful interpretation of images in objects such as clouds), the Mandala method has the image created by the individual and then self-analysed. Thus, I find the Mandala method offers a succinct insight into one’s unconscious psychology and sociology, and furthermore negates the need to self-censor one’s interpretations as the resulting insights and truths are self-evident.

In my PhD study, I facilitated the participants to construct a Mandala artwork depicting themselves in the team to provide insight into their context. The Mandala method consisted of only two instructions to the participants: “Draw a picture (Mandala) of yourself in the team context”; and, once completed, “Please describe your Mandala”.

Further explanations of my first instruction to “Paint a Mandala” were provided to clarify the activity and to assist participants to get started, such as “You can use any colours” or reiterating “Just paint a picture of yourself in the team”. Once the team members understood their task, and were progressing with their Mandala construction, I purposefully distracted
their conscious mind by presenting some prior results for this consideration. In this way, their Mandala now became more of a doodle, whereby participants were less consciously focused on the Mandala construction, thus tapping into participants’ subconscious views of their context. The intention of this Mandala method was for participants to describe how they saw the team context, extracting issues and perspectives impacting on the internal and external team dynamics, and analysing the team members’ Mandalas to reveal the knowledge-level contexts with which the team engaged.

Once participants had completed their Mandala, I gave my second instruction to “Describe the Mandala”, and they then individually proceeded to explain and self-analyse the Mandala artwork that they had produced of “them in the team”. I occasionally probed with some prompting questions such as “What is the title of your Mandala?”, “Are the colours significant?” or “Does that part of it mean anything in particular?”

The participants’ self-interpretation and self-analysis of their own Mandala elicited deep, rich qualitative perspectives, reflecting their conscious and subconscious perceptions of the team context and interactions. It was important for the researcher (me) not to judge or to interpret the participants’ Mandalas in any way, as it is a Jungian self-analysis method whereby the Mandala creator self-interprets their own Mandala, revealing their subconscious motives behind their design. By self-interpreting their own Mandala, each participant contextualised themselves in the team’s place and space and described that contextualisation in their own words.

In the subsequent qualitative individual interview session, each participant was provided with an opportunity to clarify further her or his self-analysis, and so the Mandala prompted and facilitated each participant to tap into her or his deeper thoughts and perspectives about the team context. Rather than their interview responses merely being a superficial comment, the Mandala subtly drew the participants into interpreting a succinct, yet deeper, self-analysis of “them in the team”. It was almost as if the Mandala were probing the participant’s subconscious perceptions, rather than the interviewer needing to do so verbally.

In retrospect, when the Mandala artwork was combined with the qualitative interview to complete the analysis, the Mandala method result was a powerful and productive method to obtain a deeper, richer analysis of the participant context dimension. The Mandala method delved into, drew out and made explicit each participant’s unique and diverse subconscious perspective and perception about the team context, and it presented that view in an enlightening picture for all to comprehend and compare. It is testament to Jung’s (1965) Mandala method that it enabled deep insights into my research participant context relationships. Whilst similar insights could have been achieved through other, more direct methods, this study’s application further supported the Mandala method for academic research. The Mandala method generated a depth of dialogue and discussion that elucidated the team dynamics, and this was a positive sign for its credibility. The participants’ deep perceptions and interpretations of the team context indicated the appropriateness of this qualitative data collection method and analysis method.

It was apparent from my ethnographic observations of the team interactions and activities that this team was a high-performing, collaborative collective, intent on engaging with the academic context beyond the organisational boundary. To profile this context with additional evidence to support my ethnographic field observations, I deployed my Mandala method to analyse and explore the team context (Matthews, 2013) and the consolidated team findings were refined at another team meeting (Matthews, 2012) whereby reflexive (Newton et al. 2012) discussions indicated the Mandala method had produced deep, rich insights into the team context. My autoethnographic interpretation of this Mandala Method experience is discussed in the next section.
The autoethnographic Mandala method

In this section of the book chapter, I present and discuss my autoethnographic Mandala method data analysis, omitting the additional ethnographic data that was gathered from other participants for my PhD analysis. My own Mandala is presented at Figure 8.1, and my autoethnographic reflections are cited from my thesis to reveal the critical aspects to imagining my situation within context of the work and identity of the study. Furthermore, I have added some post-doctoral autoethnographic thoughts and reactions, from the benefit of hindsight, and the clarity gained from the cognitive development since reviewing my PhD visual data in retrospect.

My PhD thesis records that “For my own Mandala, I enjoy creative artwork and decided to paint with an abstract method to create a freely-flowing Mandala, entitled ‘learning from experience’”, as shown in Figure 8.1 (Matthews, 2019a, p. 54).

My self-interpretation perceived the shape of the figures of two people (an adult and a child) in the centre of the picture. In Figure 8.2, I have zoomed in on these central figures to highlight them, with the adult image circled in white and the child figure circled in yellow.

With these two figures (adult and child) being my focus, in my PhD thesis I further interpreted the mandala as follows:

Like a child around a campfire, learning from the elders. I respect the wisdom of the team members, learning as a student does from teachers. I observe the team operations carefully and I contribute to assist the team to build and share internationally its body of knowledge and productivity. (Matthews, 2019a, p. 55)

This Mandala insight of my PhD autoethnography as being a “learning from experience” process is a result of me, the researcher, being embedded in the educational, pedagogical process as an active research participant.

My retrospective analysis of my Mandala in Figures 8.1 and 8.2 highlights that the above thesis extracts are focused on my own, autoethnographic perceptions within the context of the team study. The above data are not presented in the context of ethnographic Mandalas.
from other participants; however, the reader must realise that there is an academic distinction here between the study’s ethnographic data and my autoethnographic data being focussed on as my analysis lens for this particular book chapter on autoethnography. My autoethnographic lens ignores the fact that I had dual roles within this educational research context – those of me being both the PhD researcher (studying the team) and also a participant (as a member of the studied team). This interface/interplay between ethnographic and autoethnographic became challenging to delineate and isolate and also transition between roles and interactions. Fortunately, the internal team culture was more collaborative than competitive, and with all team members having intuitive comprehension that the “whole was greater than the sum of the parts” there was an absence of the undermining and manipulation that I have autoethnographically experienced in other team contexts, resulting in the team interacting as collegiate scholars. Whilst I grappled with my parallel relationship between researcher and individual, this chapter focusses on only the autoethnographic aspect of the study, with myself as individual, and omits the complexities of my broader PhD researcher role.

In my autoethnographic retrospective analysis, two years post PhD graduation, I am still surprised at how insightful the Mandala method was in discerning the root cause/intent of where my mind was at that particular time, and how it helped inform me of what I needed to do to progress. The above citations remind me how the Mandala distilled a poignant image of my then situation, and the complex nexus I faced interfacing between the ethnographic and autoethnographic roles. I think the Mandala method worked well to provide that insight into my then inner intuitions. Prior to doing the Mandala, I don’t recall having such conscious awareness of my complex situation, therefore the Mandala certainly helped crystallise it into my conscious awareness and communicate it accordingly.

I note that this chapter focusses only on what I autoethnographically made sense/gained value from the Mandala method; however, I will add in my autoethnographic perception that

Figure 8.2 Highlighting the author’s Mandala figures
I also think the Mandala method had value for all the participating team members, by engaging/drawing out deeper discussions, and to help inform and clarify the team culture as both individuals and as a group in the research context of a collaborative team in the Australian higher education industry. The limitation of the Mandala method is in one’s ability to interpret the subconscious Mandala with the conscious mind and gain clarity on the subconscious intent or idea. Another limitation is the temptation to censor one’s Mandala interpretations in order to avoid any confrontation or cognitive dissonance.

Overall, the Mandala method offers a meaningful contribution to educational research, especially as an auto-ethnographic method. It provides the researcher with an opportunity to penetrate superficial conscious barriers and delve into deeper subconscious insights of the multi-dimensional human psyche and cultural contextualities.

**T10s: teaching the teachers**

Post-PhD graduation, I continued my development of visual analysis methods, applying the techniques in my professional career. I retrospectively analysed my autoethnographic student-supervisor interactions collected during my PhD research candidature process, assisted by my Mandala method, to explore a view that the PhD supervisors in the education faculty are “terrific teachers that teach the teachers that teach the teachers” or “T10s”. My rationale was that the T10s teach the PhD students that are often (or soon become) the lecturers teaching the undergraduate education faculty students, who in turn become the future primary and secondary school teachers. Furthermore, it is often those T10s, usually as doctoral supervisors, that create, share and improve the knowledge that the subsequent university lecturers and undergraduate students use.

The realisation that T10s exist dawned on me after my PhD completion (circa 2019), as in effect my data participants were (or were working toward becoming) T10s, as were all the citations in my bibliography. I had the initial autoethnographic realisation that PhD students and supervisors are engaging in educating the next generation of teachers, and proceeded to autoethnographically refine and clarify my T10 concept and image through an extended visual analysis Mandala method, as is explained in the next section of the chapter. The Mandala image to represent the T10 concept is illustrated at Figure 8.3, offered with my autoethnographic respects to past, present and future T10s.

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**Figure 8.3** The T10 Mandala: Terrific teachers that teach the teachers that teach the teachers
The JAM method for constructing the T\textsuperscript{10} Mandala

The T\textsuperscript{10} mandala at Figure 8.3, as discussed above, was constructed slightly differently from the one-off session of the Mandala method I applied in my PhD as explained for the creation of Figure 8.1. This section of the chapter explains my extension to the Mandala method, culminating in what I call the Jungian Alignment Mandala (JAM) method, a method for iteratively refining the Mandala image and concept so it can be more clearly and concisely communicated.

To illustrate my JAM method further, let me revisit some of the ‘alignment’ steps I took to reach the result depicted in Figure 8.3. The spark of the T\textsuperscript{10} idea was initiated by my intention to paint the portrait of a ‘terrific teacher’ with whom I had previously worked, who shall remain anonymous. I further contemplated my T\textsuperscript{10} concept, and how to represent it with a visual representation.

At the outset, I felt the T\textsuperscript{10} image needed to somehow be abstracted to be a less realistic, unrecognisable portrait, and so I revisited the Mandala method utilised in my doctoral thesis. Initially, I had no particular image pre-planned in my head; I just began moving the pen as per the Mandala method to create ‘something’ that would enable my flow from subconscious to conscious. I started creating a rough visual concept, based on the subconscious context of the T10 concept that I was seeking to extrovert/express.

I sketched up a few Mandala ideas of an image to represent the T\textsuperscript{10} concept. The vague T\textsuperscript{10} notion I had in mind was an image that was generic, not identifiable as the individual portrait subject, yet also to be unique and somewhat iconic. My first attempts were coloured Mandala images, with the red tassels of the black academic headdress contrasting with the blue eyes. As with the Mandala method, I soon reached a point in the process where I ceased creating and moved to self-analysing my subconscious creation with my conscious logic in order to interpret my Mandala. I discussed my sketches with the portrait subject, and also some peers, and all preferred the Mandala in a cubism-like style, as shown at Figure 8.4.

This Figure 8.4 point is usually where the Mandala method ends – as a one-off image creation session followed by visual self-analysis. However, in my self-analysis, I consciously realised that the Mandala I had created at Figure 8.4 was not fully aligned to the subconscious idea that was stewing in my mind. The Mandala was ‘not finished’ and needed something more in order to satisfy my conscious–subconscious alignments, although again I had no conscious idea or plan on how to ‘fix’ it. My autoethnographic view considered this mandala still too ‘linear and literal’ to represent the T\textsuperscript{10} concept, so I continued to mull over it.

Returning to the Mandala after some contemplation time (in my case, some months later), I revisited and reworked the image, and contemplated an additional face, facing to the right (sketched in on the right of Figure 8.4). I was seeking to reach a point where my conscious self-analysis could be satisfied that the image was representative of my subconscious intent.

I intended to redo the Mandala using paint on canvas; however, instead I edited the Figure 8.4 image digitally, resulting in the ‘faint and frosted’ image at Figure 8.5. I think that digital image editing tools are apt for Mandala creation, as they enable variations to be rapidly refined to align with the intent. Digital effects are accepted in the music and movie industries, and my digital edit of the Mandala enabled effective and efficient creation/analysis processing to achieve conscious–subconscious alignment. Autoethnographically, I liked this digital deconstruction effect; however, I found it too faint and fuzzy to ideally convey my concept, so again I parked the project and worked on other things.

My ideal was to do a full reconstruction of the Figure 8.4 image with paint on canvas, as I find that tactile medium enhances my expression. However, the required time/effort to
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Figure 8.4 1st draft of Mandala for T10

Figure 8.5 2nd draft of Mandala for T10
setup, enact and then clean up a paint session is demotivating. So instead, I found myself again revisiting the Figure 8.1 concept with digital ‘paint’ and editing tools.

In my next iteration of note, I used another digital technique to blur and disfigure the image, resulting in Figure 8.6. Autoethnographically, I found the deconstruction effect on the image more ‘interesting’; however, I still wasn’t satisfied and felt the image somehow needed to be further abstracted.

At about this point of the T10 development, I realised I was actually developing an extension to the Mandala method that was iterative, unlike the one-off Mandala from my PhD. I had a rough idea of the T10 concept in my mind, and had developed a Mandala image to represent it. The Mandala image had assisted me to visualise my concept, and refine my ideas, consequently further refining the image. I therefore suggest although my method was founded in the classical Jungian Mandala method, my iterative adaption was an extension to the original Mandala method. This provided an academic framework for the way that I prefer my ethnographic creative style to align my conscious and subconscious thoughts. I refer to my iterative method as the Jungian Alignment Mandala method, or ‘JAM’ method.

I confess I contemplated a number of terms for my iterative Mandala method, yet settled on the ‘JAM method’ as it aligned and resonated with a similar process I have experienced in the musical arts. In the musical arts, a ‘jam’ session refers to musicians improvising without extensive preparation or predefined arrangements, playing around with some new musical ideas, in the hope that some tunes ‘align’ and appeal to their ear, and they may then work further on this alignment to develop it into a composition. The alignment process may require many iterations as the composition is only completed once the musicians are personally satisfied with production. The musical jam is a similar process to my JAM method for the visual Mandala; I am just using the sense of seeing (visually with the eyes) rather than the sense of hearing.
(music with the ears). Therefore, I think the term JAM method is quite appropriate to describe the visual alignment I undergo to iteratively produce a Mandala composition that satisfies my eye, both consciously and subconsciously.

At this juncture, it is useful to acknowledge that the JAM method is distinctly different from the Agile method. The Agile method is also an iterative and incremental development process to produce an outcome, mainly used for computer software development (Kumar & Bhatia, 2012). However, the JAM method contravenes the highest priority principle directed by the Agile inventors, which is to satisfy the customer through early and continuous delivery of product (agilemanifesto.com). The JAM method is not externally directed to meet a customer’s requirements; it is internally driven to satisfy one’s own conscious–subconscious alignment, in a largely solo effort. Adoptees of the JAM method could possibly benefit from some Agile method principles, such as simplicity, attention to technical excellence, self-organising and welcoming change; however, they could ignore other agile principles, such as constant work pace, teamwork, face-to-face conversations, and focus instead on functioning output. As such, the JAM method differs enough from the Agile method, without even needing to argue the fundamental difference being its Jungian Mandala method foundations.

Returning to my T10 development story, it was also about this point of my JAM method alignment that I added the adjective ‘terrific’ to my T10 term. I had the suspicion that T10 teachers are ‘terrifically’ rare, and also my thinking that the T10 teachers can sometimes appear quite daunting (‘terrifying’) to us mere mortals. Additionally, the alliteration of “T-ten” sounded better than “T-nine” or “T-eleven” so I needed the title to include ten ‘T’ words. Thus, the visual autoethnographic process of incrementally iterating the Mandala image and concept was refining and aligning my conscious–subconscious ideas together into firmer form.

I further experimented deconstructing Figure 8.6 with digital tools, repeated this pause–rework process several times, a paint/think/paint spiral that continued in an iterative and adaptive cycle, seeking satisfaction that I had reached a point of conscious–subconscious alignment that the image represented the idea. Finally, I discovered a digital pointillism filter effect that I liked, as it created a very abstract result. I also digitally reduced the Mandala colour to just a greyscale image. This Mandala was presented at Figure 8.3, and reposted below at Figure 8.7, to maintain sequential flow for the reader.

In self-analysing this abstract pointillism style, greyscale Mandala in Figure 8.7, I realised that the subtle, cryptic image resonated and aligned with my subconscious T10 concept for three reasons. Firstly, I liked how a casual glance might just see it merely as bunch of lines scattered randomly on a page, whereas deeper observation reveals it is actually a portrait with distinct academic head-dress. This aspect of the Mandala aligned with my perception that teachers are essential to our society yet they generally blur into the background, barely noticed – until you look for them.

Secondly, the greyscale image appeared ghostly, helping me realise that many T10s have passed on, yet their written knowledge and insights continue to teach. Some T10 knowledge contributions have been used for centuries, such as Socrates (c.470–399BCE), Plato (c.428–347BCE) and Aristotle (c.384–301BCE). Consider also Carl Jung (1875–1965), who departed long before my birth, yet whose T10 publications taught me the Mandala method. Similarly, those teachers who are publishing new knowledge and insights today may influence future teachers for decades to come. It was through the method of iterating the Mandala into greyscale that my realisation and alignment of this concept was refined. Thirdly, the blended greyscale is more inclusive of ethnic and racial diversity, and so this image is more representative of all T10 teachers.
I felt satisfied that this pointillism, greyscale image aligned with the T^{10} concept in my mind. I revealed this image to the portrait subject, who considered that the T^{10} illustration “made an important point in a visually striking and memorable way”. This endorsement provided support that my JAM method visual image as presented at Figures 8.3 and 8.7 adequately represented the T^{10} concept.

Figures 8.3–8.7 provide an example to demonstrate my JAM method in practice, discussing how I iteratively refined my Mandala image until it consciously converged and aligned with my subconscious concept and idea. With each visual iteration, my T^{10} concept was also de/reconstructed in my mind, allowing me to refine my concept. The JAM method provided me with a powerful technique to create, improve and visually refine my ideas. In the example above, I have shown how the JAM method assisted me to refine my vague concept and sketch of T^{10} into a unique image accompanied by written text that can now be shared and further refined through peer discourse. I consider that this JAM method is thus relevant to autoethnography as it enables such self-reflection to occur, extending one’s learning, development and productivity.

In summary, the JAM method extends the classical Mandala method by combining subconscious art with conscious self-analysis in an iterative way. The Mandala artwork is constructed by subconscious process, flowing and appearing rather than being planned and driven. The image is then self-analysed, enabling the concept to be refined, which in turn can influence further iterations to the art until the two processes, image analysis and concept, align to the satisfaction of the creator. The JAM method helps align conscious/subconscious thought, thus can provide a theoretical framework to an organic, unstructured activity. Consequently, the JAM method has potential for further development.
The PhD Mountain

The second JAM method example considers my autoethnographic analogy that “the PhD research process is like climbing a mountain”, whereby the researcher ascends to the summit that is the PhD submission point. A past conference presentation (Matthews, 2019b) outlined this concept, which is based on my autoethnographic PhD experiences and the benefit of hindsight that provides retrospective clarity. I utilized my JAM method to gain further alignment of the image and concept as is discussed below.

I have noticed that every PhD student follows a somewhat similar process; from enrolment, to identifying literature gaps, developing research proposals, gaining ethics clearances, confirmation of candidature, data collection, analysis, publications, thesis submission, examination and (hopefully) graduation. Via the JAM method, I appropriated and digitally edited an image of a mountain climb, as shown in Figure 8.8, which depicts a procession of mountain climbers (PhD students) as they string their way up to scale the mountain summit. Whilst mountain climbers work physically hard to overcome gravity, PhD ‘climbers’ must also work to scale their metaphorical mountain by navigating the academic and psychological challenges of candidature in order to graduate, all within a limited time period of several years.

Through the JAM method, I iteratively refined Figure 8.8 to align it with my concept of climbing the ‘PhD Mountain’. My PhD autoethnographic data suggest that “rather than a singular, linear process of completion there are actually multiple, triangulating activities being concurrently progressed” (Matthews, 2019b). That is, like the mountain climber who rechecks the weather forecast as they rig up to cross a crevasse, the PhD student can also be working several activities in parallel, such as reading additional literature to support the data analysis as they draft up their thesis. Whilst each PhD candidate follows a different journey up to their mountain summit, they all graduate with the same award – a PhD. This image helps us to visualise that some aspects of the PhD Mountain are well defined and clear, whilst other parts are obscured and misty.

Figure 8.8 suggests the process for climbing the PhD Mountain entails academic actions such as abiding by research ethics, collecting and analysing data, publishing and submitting the thesis for examination – the summit point. Note that in the JAM method creative process there are no
strict artistic rules to limit one’s Mandala – to do so would seem oxymoronic – so appropriating images is apt if it assists one’s alignment. I intend to create further iterations to Figure 8.8 in future, to highlight the PhD Mountain descent required to achieve graduation. The descent can be similarly onerous and risky, as there are specific post submission actions required for successful completion. Among the PhD Mountain descent actions are examination, response/revisions, final submission, final ethics report, thesis binding, graduation, photographs, publication and exit from the university enrolment. All of these post-examination submission steps require effort, risk and coordination, and should be clearly marked on the expedition map of every PhD Mountain climber. Unfortunately, some real mountain climbers and also PhD Mountain climbers fail to complete the descent after successfully ascending to the summit.

My autoethnographic reflection of the PhD Mountain analogy certainly applied to my PhD. I think it is a useful analogy to help visualise the reality of many colleagues around me who are currently grappling to climb their own PhD Mountain. In a visual autoethnographic way, whilst I was climbing my PhD Mountain it felt overwhelming; in retrospect, however, it has become a ‘peak’ fading in my rear-vision mirror. In a visual sense, the research landscape looks like the Himalayan mountain ranges, abounding with PhD students climbing, as their supervisors expertly guide them across craggy clefts, crevices and crevasses.

The knowledge evolution

As a post-doctoral activity, I autoethnographically contemplated the evolution of technology as an element of education in doctoral study and supervision, using the JAM method to analyse my retrospective PhD data and experience resulting in Figure 8.9. In reviewing my

![Image of Figure 8.9: The KM technology d/evolution cycle](image_url)

Figure 8.9  The KM technology d/evolution cycle
initial concept (Matthews, 2020), I realised that first-generational knowledge management (KM) technologies were primitive, and as such research for new knowledge would have been largely tacit and focussed on survival activities. Second-generational KM technologies would have existed in the medieval villages, with research leading to new trade tools and techniques (such as bronze, iron and farming). Third-generational KM research developed the industrial age (steam- and water-powered machines) that enabled the digital, networked and mobile technologies (fourth, fifth and sixth KM generations respectively) that have been utilised by doctoral students and supervisors in the post-2000AD era and more recent adoption of seventh-generational Artificial Intelligence (AI) technologies.

Doctoral students and supervisors seem to be embracing seventh-generational KM technologies, with its advantages of light-speed connectivity and computations. The use of seventh-generational tools such as literature search engines, digital data collection, transcription, big data analysis, spelling/grammar assistance and plagiarism checking is becoming prevalent. This list poses the question of whether PhD students should be restricted to limit the research advantage offered by AI. I suggest it might soon be the AI itself that is the ‘student’, producing (with human Supervisor assistance) a defendable PhD thesis and awarded the title of ‘Dr’.

This JAM analysis also suggests risk of the KM technology evolution setting doctoral students and supervisors up in a ‘house of cards’, because contemporary students/supervisors are becoming more cyber-centralised and -reliant (Matthews, 2019a) on their fourth- to seventh-generational technologies to manage their work, due to technology reducing the demand on human decision and action. However, as the next eighth-generational KM technology is actively developed (it already exists in limited form), any technological ‘house of cards’ collapse would cause students, supervisors and society to revert to earlier KM technologies. Such a KM devolution would reduce social connectivity capability (Matthews & Danaher, 2011) back to just local influences. The aftermath of the Tongan tsunami (Lyons, 2022) demonstrates a recent example of such a collapse effect. Fourth- to seventh-generational technology) is fabulous magic … until it doesn’t work.

This KM technology d/evolution introduces a confronting concept resulting from my JAM method analysis in Figure 8.8 and my PhD and post-doctoral industry perspectives. I acknowledge that the Figure 8.8 Mandala requires more iteration to reach better alignment with my detailed concepts; however, this early prototype provides a visual baseline to further develop discourse and narrative on the topic.

Figure 8.8 shows that the JAM method can extend beyond a traditional Mandala circle, and can include words and numbers to help convey the concept. Previous iterations of Figure 8.8 did not include either the colours or the words; however, I added these to help me to refine and explain the concept. Further iterations could include other KM technology sub/generations, and additional examples of the innovation adoptions (Rogers, 1962) that enable KM generational change. Figure 8.8 is included here to provide another example of the JAM method for visual analysis, and also to outline the concept of KM technology d/evolution impact on PhD students, supervisors, examiners and conferrers.

Conclusion

Overall, this chapter has contemplated my experiences and views to highlight the value of visual analysis of autoethnographic data to contribute to the work and identity of future doctoral students, supervisors and academic research. I have provided the theory behind the Mandala method as utilised within my PhD data analysis to useful effect. The development of the JAM Method was discussed, to help to align conscious–subconscious insights, and application of
this JAM method was demonstrated through three examples. The first JAM method example highlighted the importance of PhD supervisors to teach teachers, and the data visualisation of the portrait representing the T₁₀ concept. The second JAM method example visualised students climbing the PhD Mountain during their progress to PhD graduation. Thirdly, I showed how the JAM method is assisting in refining my autoethnographic views on KM technology evolution, and the potential impact this may have.

Overall, this chapter communicates the value of the autoethnographic visual method for researchers. I conclude that my JAM method provides qualitative data visualisation to bridge the conscious and subconscious, so as to assist autoethnographic researchers explore novel questions. I encourage all to autoethnographically explore the JAM method for your challenging research questions, seeking to align subconscious insight with conscious analysis, and be your own judge as to the productivity of the outcome.

**Note**

1 This section of the chapter based on my PhD thesis (Matthews, 2019a, S5.4.4.1, pp. 162–165).

**References**


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